



Product Catalogue

Electromechnical Components
around the Control Cabinet

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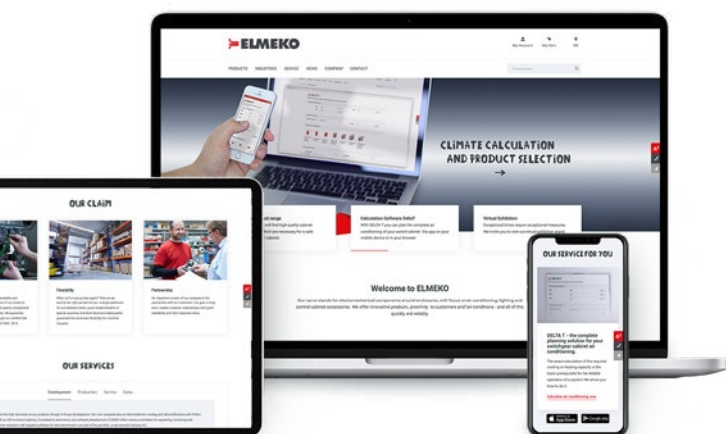
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More products and information at:
www.elmeko.de



PRINCIPAL OFFICE, LIEBENSCHIED

History

ELMEKO was founded as a trading company in 2004, with the aim of providing its customers with the largest possible range of switchgear cabinets and accessories. Only a few years later, the company had progressed from simply trading to manufacturing. The idea was to implement not only customer requests, but also the company's own ideas. The first home-grown product was launched in 2008: the LED lamp LE-300-SX. In-house production of lamps and air conditioning components began in 2012, and it was necessary to double production floor area by 2017. Within only a few years, a wide variety of new, innovative products was added to the range.

2004

Foundation of ELMEKO GmbH + Co. KG as a distribution company for switchgear cabinet accessories, air conditioning and lighting

2006

Online shop, expansion of the range by the addition of signalling devices

2008

New development of the first LED lamp LE-300-SX

2010

Expansion of the LE series by the addition of high-voltage lamps for 230 V and other versions

2012

Relocation to newly built company premises in Liebenscheid, start of production of Peltier coolers, switchgear cabinet heaters and electric control units, presentation of the new SL 250 – 650 range of heaters

2013

New development of dehumidifier devices PSE 30 with Peltier technology

2014

New LED switchgear cabinet lighting, LLE series

2015

Presentation of patented Peltier coolers PM

2016

Distribution agreement with nVent (Pentair), distribution of cooling units

2017

Expansion of production area and warehouse space, market launch of multi-functional LED light LEX-350

2018

New LED switch gear cabinet lights LLX series

2019

ATEX approval PK 150 and new Peltier controller TPC 300

2020

New introduction: Drainage with OUT-FIT

Our Expertise

As a result of decades of experience in switchgear cabinet air-conditioning and the construction of electrical switchgear, and our direct contact with planners and customers, we create products that meet the demands of the market. Short decision paths and rapid conversion of a product idea into a serial product are important to us, but we always take care to maintain our high quality standards and guarantee that products remain available for many years.



QUALITY

In the manufacture of our products, we attach great importance to the label “Made in Germany”. ISO 9001:2015 certification confirms the quality of our products, which are made using high-quality components from well-known manufacturers. No product leaves our premises untested. So you are guaranteed technology you can rely on and we have satisfied customers in every sector of the industry.



FLEXIBILITY

And if fast delivery is required, we are the perfect partner. Large stocks of standard items, swift realisation of customized solutions and short decision paths guarantee the flexibility needed to meet customer requirements. You are very welcome to put us to the test. Send us an inquiry for the products you need.



PARTNERSHIP WITH CUSTOMERS

Close cooperation with customers is an important element of our business. That may seem obvious, but it is not something you can expect everywhere today. At ELMEKO, you can. We identify with your needs and make meeting your requirements our mission. These are not just words; they are a pledge. Put us to the test!

WE STAY ON COURSE FOR GROWTH...

with innovative ideas and state-of-the-art products. Our top priorities are product quality, fast and punctual delivery, and being a reliable partner. In conjunction with competitive prices, this is the basis of our long-term customer ties and sustainable success.



BURKHARD HERR,
MANAGING DIRECTOR



**MACHINE TOOLS, FOOD INDUSTRY,
WAREHOUSE TECHNOLOGY, CHEMICAL
PLANTS**

Industries

MECHANICAL AND PLANT ENGINEERING

Mechanical and plant engineering is one of the most innovative sectors of German industry. Around 1 million people are employed in mechanical and plant engineering, a sector with an annual turnover of more than 200 billion euros which makes it a key factor in the German economy. The most important sub-sector in the industry is machine tools. We maintain close ties with the entire industry, and deliver our products to many reputable machine manufacturers.



**RENEWABLE ENERGY SOURCES, WIND
POWER, ENERGY DISTRIBUTION AND
STORAGE TECHNOLOGY**

ENERGY TECHNOLOGY

One of the most important challenges of our age is the environment-friendly and efficient production, storage and use of power. The fast-growing, high-revenue energy technology sector is one of the most important branches of the electrical engineering industry, whose success depends strongly on the innovative strength of many of its manufacturers – and suppliers like us. We're a partner of the energy technology industry.

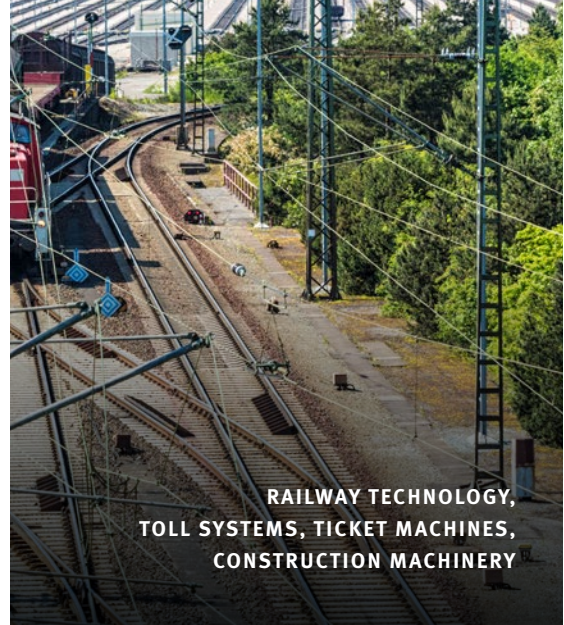


TRANSPORT TECHNOLOGY AND INFRASTRUCTURE

Modern transport technology would be inconceivable without electronic, measuring and communications engineering. Road, rail, sea and air traffic are kept running with an increasing number of decentralised systems packed with sensitive electronics that need to function reliably under the toughest ambient conditions and in all weathers. To make sure this happens, we have developed a range of coolers, heaters and dehumidifiers that are robust, require minimal maintenance and function properly even under extreme conditions.

INFORMATION TECHNOLOGY

In the IT area, reliability and a long service life have a high status. Optimum environmental conditions and trouble-free operation around the clock have the highest priority. Roof mounted fans and 19 "fan units ensure efficient airflow through the IT cabinets and prevent heat accumulation. A bright cabinet lighting facilitates maintenance.



**RAILWAY TECHNOLOGY,
TOLL SYSTEMS, TICKET MACHINES,
CONSTRUCTION MACHINERY**



**CLIMATISATION AND LIGHTING FOR
SERVER CABINETS AND SYSTEMS**



Calculation Software DELTA T

Precise calculation of the required cooling or heating performance is a basic requirement for the reliable running of a plant or equipment. DELTA T takes all relevant influences such as temperature, heat dissipation, cabinet material etc. into account, making it an ideal way to ensure that your project is evaluated accurately.



The results are accompanied by climate control proposals for your switchgear cabinet or enclosure from our wide range of air-conditioning products. We also provide a free print-out service for your documentation, which is **sent to our experts for evaluation**.

You will then receive rapid feedback on the evaluation and a quotation for the corresponding components. Turn our decades of experience in the field of switchgear cabinet climate control to your advantage.

From customer request to serial production

We manufacture all our products at our plant in Liebenscheid, which ensures that we stay flexible and maintain our high quality standards – Made in Germany. We keep standard articles permanently in stock and use reputable logistics partners for the rapid despatch of products to our customers all over the world – availability guaranteed!



NEW
PRODUCT IDEA



CONCEPT FOR
IMPLEMENTATION



PROTOTYPES
FOR TESTS AND
RELEASES



EXAMINATIONS
AND CERTIFICA-
TIONS



SERIES
PRODUCTION



MARKET LAUNCH,
SALES



Product Range

A switchgear cabinet protects the electrical control or DP systems inside it. To ensure that those highly sensitive systems work safely and reliably, the cabinet needs to meet ever more exacting requirements. Air-conditioning and lighting are becoming particularly important here.



LIGHTING

Efficient LED lighting has prevailed in many industrial applications. ELMEKO specializes in solutions for control cabinet and machine lighting. There are different series for different requirements. Luminaires with motion detectors, door limit switches, wide-range voltage for the control cabinet or high degree of protection for machine lights can be selected from the extensive product range.



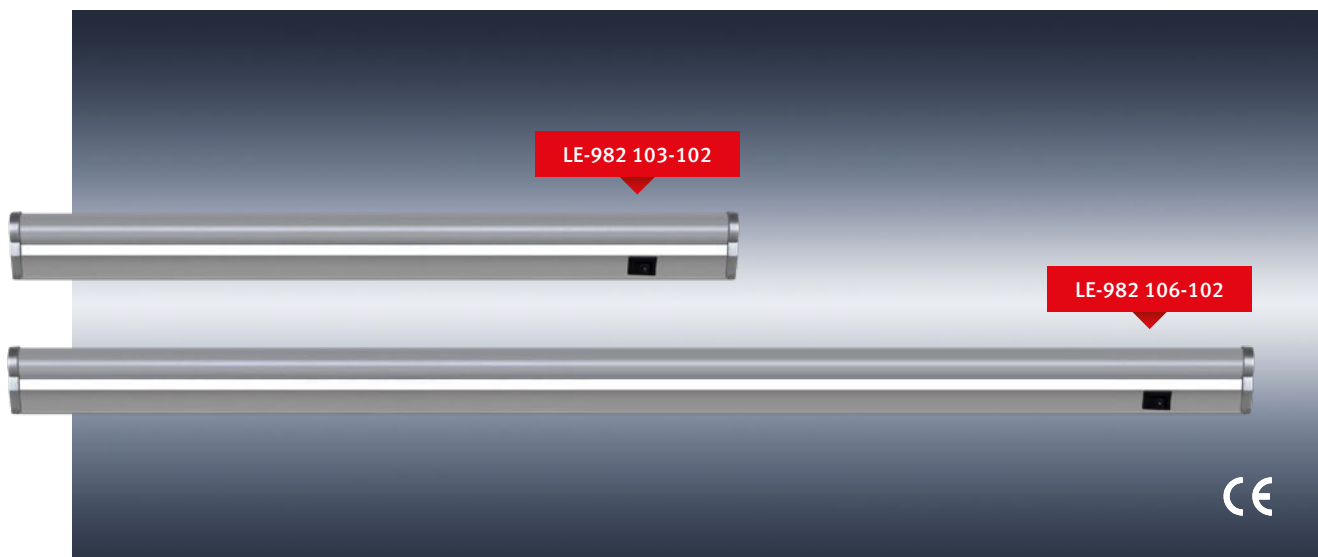
AIR CONDITIONING

Switch gear cabinets come in many different and individual types, sizes and equipment versions - and environmental conditions often require specific air conditioning. ELMEKO offers solutions for a wide range of applications. Coolers, dehumidifiers, fans, heaters, heat exchangers as well as thermostats and regulators are part of the delivery program.



ACCESSORIES

ELMEKO limited its accessory program to important things that are required in every enclosure. Some products in our portfolio include document pockets in different sizes and materials, power sockets for mounting in enclosures, and ground straps for earthing enclosure doors and housing parts. The program is supplemented by elements for pressure equalization and drainage for avoiding condensation inside enclosures.



LED Light Fittings LE-982

As a cost-effective solution for lighting small enclosures light fittings are used. The lights are expandable by plugging together or connecting cables and are supplied complete with all accessories ready for connection to mains voltage 230 V AC.

FEATURES

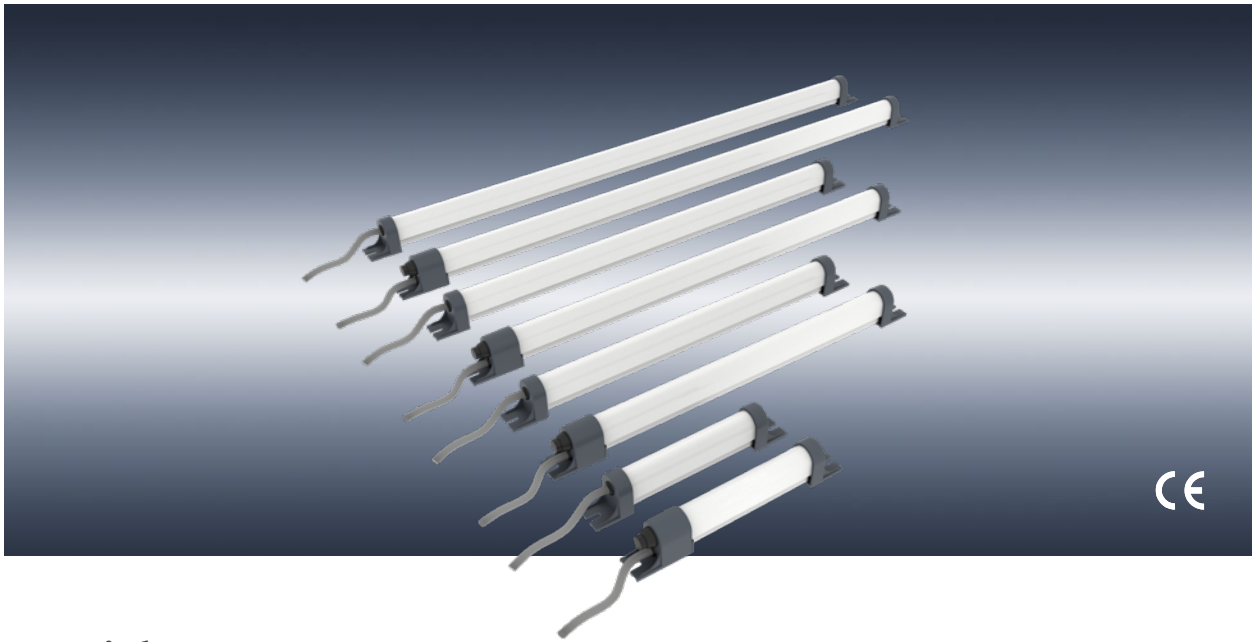
- Small design with switch on/off for versatile use
- Expandable by plugging together up to 10 luminaires or by using the connecting cable
- All accessories are included
- 2 different lengths: 315 and 540 mm

DELIVERY CONTENTS

- LED light with switch and cover
- Power cable with Euro plug 1.8 m long
- Connecting cable 0.3 m long
- Coupling for direct connection of 2 lights
- Mounting clips with fastening screws

LED LIGHT FITTINGS LE-982 TECHNICAL DATA

Type	LE-982103-102	LE-982106-102
Part number	72 982 103	72 982 106
Operating voltage	230 V AC (50/60 Hz)	230 V AC (50/60 Hz)
Power input [W]	3.3	5.8
Luminosity [lm]	274	485
Illumination	260 lx @ 0.5 m; 100 lx @ 1 m	410 lx @ 0.5 m; 160 lx @ 1 m
Color temperature [K]	4.000	4.000
Degree of protection	IP20	IP20
Protection type	II	II
Service life [h] at 20 °C	20,000	20,000
Housing material	Plastic	Plastic
Dimensions L x W x H [mm]	315 x 24 x 35	540 x 24 x 35
Weight [g]	310	520
Approval	CE	CE



LED Lights LE

The proven LE series stands out for its versatility. Different lengths, versions with and without switch and with a fixed supply result in a large number of variants for different areas of application. With the slim design and mounting at the ends the LE lights find their place in every niche. The LE lights have been redesigned. Instead of three, there are now four different lengths. The lights are more stable, the cooling profile has been optimized and new LED technology is installed.

APPLICATION

Besides the classic industrial applications for the illumination of switchgear cabinets or machinery, the lamps can also be used for special applications such as lighting for emergency telephone alcoves in motorway tunnels or in inaccessible locations.

**Versatile LED lamps
in various lengths
and versions**

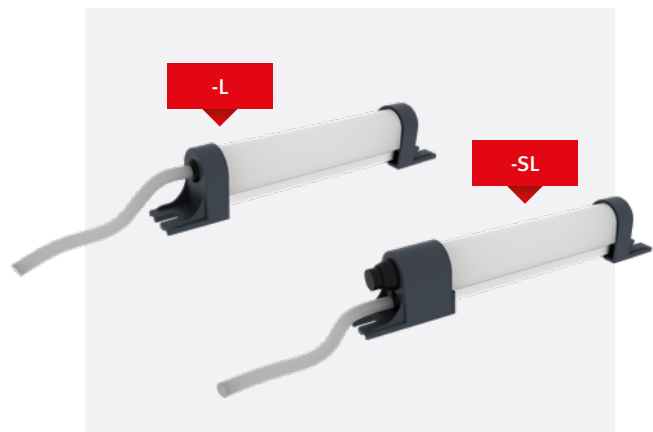
VERSIONS

The different versions can be identified with the description of the item, for example LE-300-SL

-L	with fixed connection cable, standard length 2 m
-SL	with permanently connected cable and on/off switch

FEATURES

- Four different lengths: approx. 150 / 300 / 450 / 600 mm
- Direct connection to 230 V AC or 24 V DC
- Mounting with screws, optionally with magnets
- Dazzle-free, shatterproof cover for even illumination
- Various versions, with and without switch



LED LIGHTS LE TECHNICAL DATA



Type	LE-150-SL	LE-150-SL	LE-150-L	LE-150-L	LE-300-SL	LE-300-SL	LE-300-L	LE-300L
Part number	72 15E 18SL	72 15E 58SL	72 15E 18L	72 15E 58L	72 30E 18SL	72 30E 58SL	72 30E 18L	72 30E 58L
Operating voltage	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC
Power input [W]	5	3	5	3	10	7	10	7
Luminosity [lm]	320	315	320	315	685	535	685	535
Length [mm]	185	185	175	175	365	365	355	355
Height [mm]	34	34	34	34	34	34	34	34
Operating temperature [°C]	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Service life [h]	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Degree of protection	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54
Color temperature [K]	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Switch on/off	■	■	—	—	■	■	—	—

LED LIGHTS LE ACCESSORIES

Accessories	Part number							
Holding magnet HaMag	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE
Door position switch S-K	—	—	72 00K 000	72 00K 000	—	—	72 00K 000	72 00K 000



Holding magnet HaMag

- Very strong neodymium magnet with black rubber coating
- Diameter: 22 mm
- With thread bolt M4
- 1 packing unit = 2 pieces



Door position switch S-K

- With NO and NC contact
- Can be exposed to 10 A, with positive break
- Fixing kit for horizontal and vertical mounting

LED LIGHTS LE TECHNICAL DATA CONTINUED



Type	LE-450-SL	LE-450-SL	LE-450-L	LE-450-L	LE-600-SL	LE-600-SL	LE-600-L	LE-600-L
Part number	72 45E 18SL	72 45E 58SL	72 45E 18L	72 45E 58L	72 60E 18SL	72 60E 58SL	72 60E 18L	72 60E 58L
Operating voltage	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC	230 V AC	24 V DC
Power input [W]	13	13	13	13	20	14	20	14
Luminosity [lm]	1250	1600	1250	1600	1450	1135	1450	1135
Length [mm]	490	490	480	480	650	650	640	640
Height [mm]	34	34	34	34	34	34	34	34
Operating temperature [°C]	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Service life [h]	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Degree of protection	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54
Color temperature [K]	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Switch on/off	■	■	—	—	■	■	—	—

LED LIGHTS LE ACCESSORIES

Accessories	Part number							
Holding magnet HaMag	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE	72 MAG D22VE
Door position switch S-K	—	—	72 00K 000	72 00K 000	—	—	72 00K 000	72 00K 000



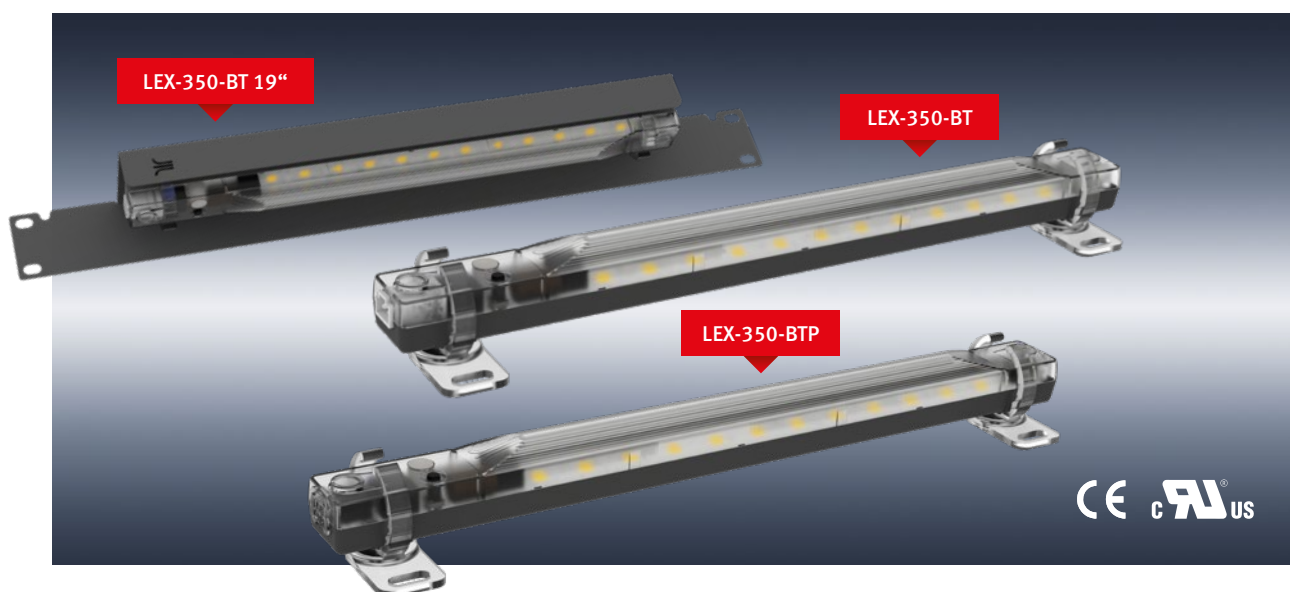
Holding magnet HaMag

- Very strong neodymium magnet with black rubber coating
- Diameter: 22 mm
- With thread bolt M4
- 1 packing unit = 2 pieces



Door position switch S-K

- With NO and NC contact
- Can be exposed to 10 A, with positive break
- Fixing kit for horizontal and vertical mounting



LED Lights LEX-350

Thanks to the broad input voltage range the switchgear cabinet lights LEX-350 are suitable for universal use. The integrated optic ensures optimal illumination of the cabinet. The lights are swiveling and can be fixed with magnets or screws. There are variants with and without motion detectors as well as 2 different connection types. The connection of the supply line as well as the connection of other luminaires are made via Wieland plug connection or push-in terminals.

MULTIFUNCTION BUTTON

Both versions feature a multi-function button. A short press of the button switches the lamp on and off. After the lamp has been switched on using the button, the lamp is switched off again automatically after about eight hours. A long press of the button will switch the lamp on permanently and it can then be controlled via an external cable.

The multi-function button overrides the motion detector. Customer-specific programming of the pushbutton function is also possible.

MOUNTING AND FASTENING

Light is mounted using two fixing clips on flat surfaces or on the frame profile of control cabinets. The fixing clips have a strong magnet and a long hole for screw mounting. The light can be pivoted in 3 steps by 90° in each direction.

FEATURES

- Luminosity 700 lm with 6 W
- Wide voltage range 24 – 265 V AC/DC
- Model with motion detector (LEX-350-BT)
- Plug-in supply line and connection cable
- Magnetic and screw fixing, the light can be rotated in two directions $\pm 90^\circ$
- Programmed multi-function button, with memory function to switch the modes e.g. for use of a door-position switch
- Integrated for perfect illumination inside an enclosure
- AC power supply allows up to 10 lights and a DC power supply allows up to 8 lights to be connected to each other



Plug connection



Push-in terminals

Multifunction button for switching between different operating modes

LED LIGHTS LEX-350 TECHNICAL DATA

Type	LEX-350-T	LEX-350-BT	LEX-350-TP	LEX-350-BTP	LEX-350-BT19 *
Part number	72 35T P50	72 35B P50	72 35T P5P	72 35B P5P	72 35B P519
Operating voltage	24 – 265 V AC/DC	24 – 265 V AC/DC	24 – 265 V AC/DC	24 – 265 V AC/DC	24 – 265 V AC/DC
Power input [W]	6	6	6	6	6
Luminosity [lm]	700	700	700	700	700
Length [mm]	350	350	350	350	482
Height [mm]	40	40	40	40	44
Operating temperature [°C]	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Service life [h]	50,000	50,000	50,000	50,000	50,000
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Colour temperature [K]	5,000	5,000	5,000	5,000	5,000
Multifunction button	■	■	■	■	■
Motion detector	—	■	—	■	■
19" panel	—	—	—	—	■
Wieland plug connection	■	■	—	—	■
Push-in terminals	—	—	■	■	—
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

* is supplied complete with 19" panel and power supply cable with flat Euro plug.

LED LIGHTS LEX-350-T AND -BT ACCESSORIES

Accessories	Part number
Power supply cable orange LX-N-30	72 30N X00
Power supply cable white LX-N-30-W	72 30N XC0
Connection cable orange LX-V-10	72 10V X00
Connection cable white LX-V-10-W	72 10V XC0

Accessories	Part number
Power supply cable with integrated door position switch LX-SK-05250	72 05K 250
Wieland socket part LX-BU-2	79 LEX BUC
Wieland connector part LX-ST-2	79 LEX STE
Wieland intermediate coupling block LX-ZK-2	79 LEX ZKU



Power supply cable LX-N-30

- One side with socket part
- Orange, 3 m



Power supply cable LX-N-30-W

- One side with socket part
- White, 3 m



Connection cable LX-V-10

- With plug and socket
- Orange, 1 m



Connection cable LX-V-10-W

- With plug and socket
- White, 1 m



Power supply cable LX-SK-05250

- With integrated door position switch
- One side with socket part



Wieland socket part LX-BU-2

- For mains connection
- White



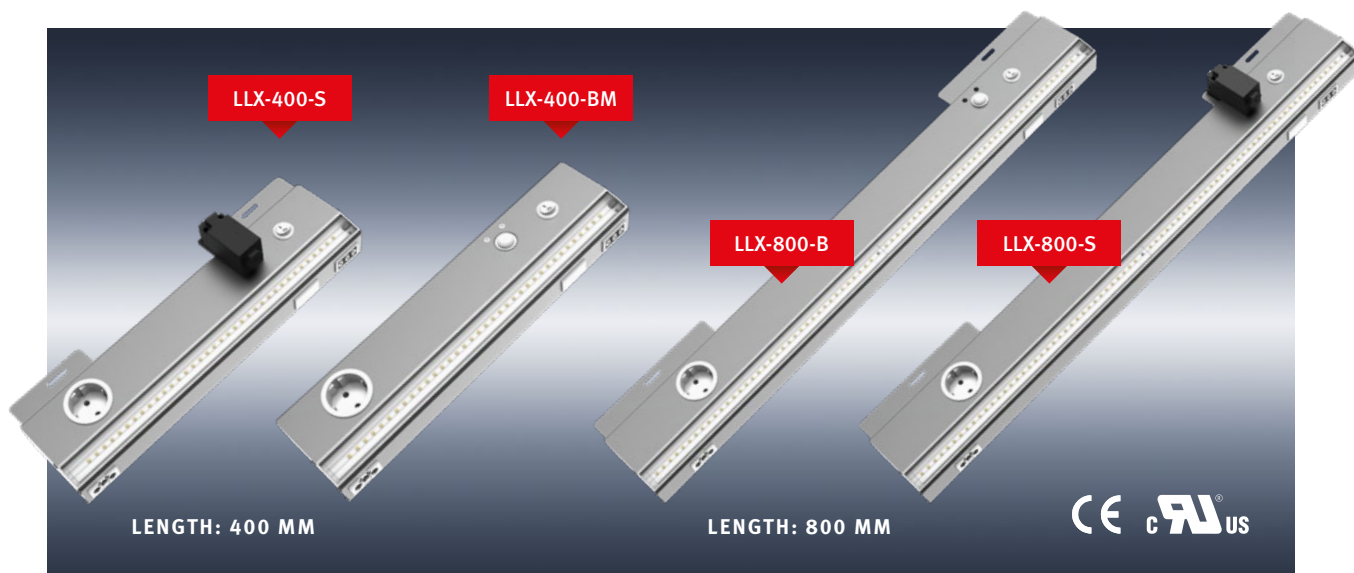
Wieland connector part LX-ST-2

- To connect other luminaires
- White



Wieland intermediate coupling block LX-ZK-2

- To connect two luminaires directly
- White



LED Enclosure Lights LLX

The new LLX-400/800 LED enclosure lights replace the previous LLE series. Due to the higher light output and the integrated optics, an optimal illumination of the mounting plate to the floor is achieved. Optionally, the lights are supplied with motion detector or door position switch. In addition to the standard types for 230 V, there are variants with wide-range input voltage 100 – 240 V with higher light output. UL versions with and without UL socket are also available.

APPLICATION

The LLX luminaires are mainly used in large cabinets and series switch cabinets. They can be mounted either on the profile frame or on flat surfaces. When the door is opened, the luminaires can be switched on via the built-in door position switch or motion detector. The built-in service socket and pluggable connections for supply lines and other luminaires simplify installation.

The LLX series is predestined for use in large series cabinets

VERSIONS

The different versions can be identified with the description of the item, for example LLX-400-S (*append U for UL)

FEATURES

- Two different lengths: 400 and 800 mm
- Various mounting types:
 - Rear mounting
 - Side mounting
 - Magnetic fastening
- Optionally with motion detector or door position switch
- Oblique light emission for better illumination and less glare
- Anodised aluminium housing
- Socket can also be supplied country-specific on request

	Motion detector	Door position switch	230 V AC	100 – 240 V AC	Magnetic fixing
-B	▪		▪		
-S		▪	▪		
-BW(U)*	▪			▪	
-SW(U)*		▪		▪	
-BM	▪		▪		▪
-BWM	▪			▪	▪

LED ENCLOSURE LIGHTS LLX TECHNICAL DATA

With motion detector	LLX-400-B	LLX-400-BM	LLX-400-BW	LLX-400-BWM	LLX-800-B	LLX-800-BW
Part number	72 40X 1B	72 40X 1BM	72 40X 7BW	72 40X 7BM	72 80X 1B	72 80X 7BW
With door position switch	LLX-400-S	–	LLX-400-SW	–	LLX-800-S	LLX-800-SW
Part number	72 40X 1S	–	72 40X 7SW	–	72 80X 1S	72 80X 7SW
Operating voltage [VAC] 50/60 Hz	230	230	100 – 240	100 – 240	230	100 – 240
Leistungsaufnahme [W]	13	13	13	13	26	26
Luminosity [lm]	1200	1200	2000	2000	2400	4000
Length [mm]	395	395	395	395	780	780
Height [mm] -B /-S	53/81	53	53/81	53	53/81	53/81
Temperature range [°C]	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Service life [h]	50,000	50,000	50,000	50,000	50,000	50,000
Degree of protection	IP20	IP20	IP20	IP20	IP20	IP20
Color temperature [K]	5,000	5,000	5,000	5,000	5,000	5,000
Plug socket	■	■	■	■	■	■
Adjustable mounting brackets	–	–	■	–	–	–
Magnetic fixing	–	■	–	■	–	–
UL version available	–	–	■	–	–	–

* UL version with UL socket outlet: Please add U to the type designation and article number.

LED ENCLOSURE LIGHTS LLX ACCESSORIES

Accessories	Part number					
Mains cable 3 m	72 30N 000	72 30N 000	72 30N 000	72 30N 000	72 30N 000	72 30N 000
Connection cable 0.6 m	72 06V 000	72 06V 000	72 06V 000	72 06V 000	72 06V 000	72 06V 000
Connection cable 1 m	72 10V 000	72 10V 000	72 10V 000	72 10V 000	72 10V 000	72 10V 000



Mains cable LL-N-30

- Mains cable 3 m long
- GST plug at one side



Connection cable LL-V-06

- Connection cable for daisy chain connection 0.6 m long
- GST plugs at both sides



Connection cable LL-V-10

- Connection cable for daisy chain connection 1 m long
- GST plugs at both sides



LED Machine Lights LMM

Our machine luminaires create a bright, optimally illuminated working environment at the machine. This not only has a positive effect on the productivity and motivation of the employees, but also increases safety at the same time. The luminaires are available in different lengths to ensure individual illumination according to the space available.

FEATURES

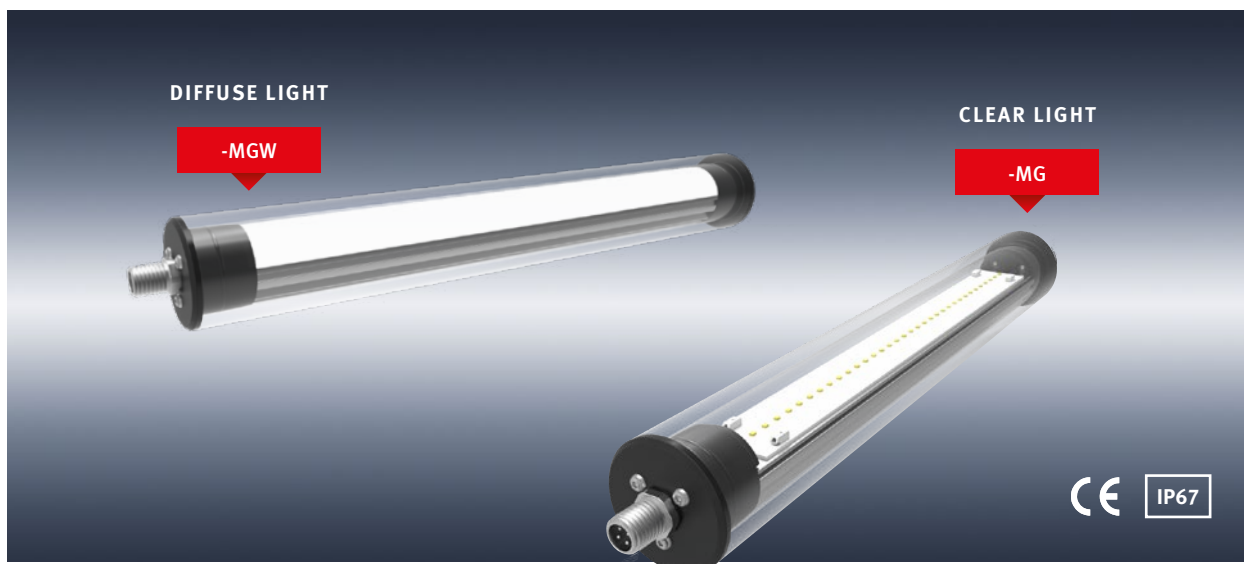
- High qualitative and powerful LED light for machines and systems with fixed connection cable and switch
- Robust aluminum housing and break-proof PMMA cover
- Ergonomic and glare-free light
- 90° turnable due to stainless steel mounting brackets

VERSIONS

- 24 V DC: with M12 plug connection, protection degree IP54
- 230 V AC: with fixed connection cable and switch, protection degree IP20

LED MACHINE LIGHTS LMM TECHNICAL DATA

Type	LMM-370-MW	LMM-630-MW	LMM-880-MW	LMM-370-SL	LMM-630-SL
Part number	MM.370.MKW	MM.630.MKW	MM.880.MKW	MM.370.1SL	MM.630.1SL
Operating voltage	24 V DC	24 V DC	24 V DC	230 V AC	230 V AC
Power input [W]	8	16	24	8	16
Dimensions L x B x H [mm]	372 x 38.5 x 40.5	626 x 38.5 x 40.5	880 x 38.5 x 40.5	372.3 x 38.5 x 40.5	626.3 x 38.5 x 40.5
Luminosity [lm]	940	1875	2815	748	1496
Illumination	280 lx@1m	570 lx@1m	850 lx@1m	226 lx@1m	452 lx@1m
Colour temperature [K]	5,700 K / CRI > 80	5,700 K / CRI > 80	5,700 K / CRI > 80	5,700 K / CRI > 80	5,700 K / CRI > 80
Degree of protection	IP54	IP54	IP54	IP20	IP20
Protection type	III	III	III	I	I
Service life [h] at 20 °C	50,000	50,000	50,000	50,000	50,000
Connection	M12 connector, 4-pole, A-coded	M12 connector, 4-pole, A-coded	M12 connector, 4-pole, A-coded	Connection cable, 3 wires, 4 m long	Connection cable, 3 wires, 4 m long
Housing material	Aluminum / PMMA	Aluminum / PMMA	Aluminum / PMMA	Aluminum / PMMA	Aluminum / PMMA
Weight [g]	314	532	760	600	800
Operating temperature [°C]	0 to +40	0 to +40	0 to +40	0 to +40	0 to +40
Approval	CE	CE	CE	CE	CE



LED Machine Lights LMR

High demands are placed on a machine light. These include: robust construction, high degree of protection and resistance to acids, lyes and organic substances. Our lights are equipped with long-life LED technology. The modern design prevents the deposition of dust and dirt.

FEATURES

- High qualitative and powerful LED light for machines and systems with a IP67 protection degree
- Robust borosilicate tube
- High resistance to water, dust, acids, alkalis, and organic substances
- Turnable due to mounting clamps

DELIVERY CONTENTS

- LED light
- Instruction manual

Mounting clamps in different versions are available as accessories and must be ordered separately.

LED MACHINE LIGHTS LMR TECHNICAL DATA

Type	LMR-330-MG	LMR-330-MGW	LMR-580-MG	LMR-580-MGW	LMR-840-MG	LMR-840-MGW
Part number	MR.330.MGK	MR.330.MGW	MR.580.MGK	MR.580.MGW	MR.840.MGK	MR.840.MGW
Cover	clear	diffuse	clear	diffuse	clear	diffuse
Operating voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Power input [W]	6,5	6,5	13	13	19	19
Length [mm]	328	328	582	582	836	836
Diameter [mm]	45	45	45	45	45	45
Luminosity [lm]	861	654	1722	1309	2582	1962
Illumination	250 lx@1m	200 lx @1m	500 lx@1m	400 lx@1m	750 lx@1m	600 lx@1m
Colour temperature [K]	5,700 K/CRI >80	5,700 K/CRI >80	5,700 K/CRI >80	5,700 K/CRI >80	5,700 K/CRI >80	5,700 K/CRI >80
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Protection type	III	III	III	III	III	III
Service life [h] at 20 °C	50,000	50,000	50,000	50,000	50,000	50,000
Connection	M12 plug connector, 4-pole, A-coded		M12 plug connector, 4-pole, A-coded		M12 plug connector, 4-pole, A-coded	
Housing material	Borosilicate tube/Plastic caps		Borosilicate tube/Plastic caps		Borosilicate tube/Plastic caps	
Weight [g]	685	685	1210	1210	1730	1730
Operating temperature [°C]	0 to +40	0 to +40	0 to +40	0 to +40	0 to +40	0 to +40
Approval	CE	CE	CE	CE	CE	CE



LED Machine Lights LMT

The LMT series rounds off the range of high-quality, high-performance LED luminaires for machines and systems. The slim tubular luminaires with a diameter of 28 mm are available with both PC tube and glass tube and comply with protection degree IP67. The end caps are made of stainless steel. Mounting clamps are included with the LMT luminaires.

LMT LIGHTS WITH PC TUBE

- Diffuse cover made of polycarbonate tube
- Homogeneous and glare-free light

LMT LIGHTS WITH GLASS TUBE

- Robust borosilicate glass tube
- High resistance to water, acids, alkalis and organic substances

LED MACHINE LIGHTS LMT TECHNICAL DATA

Type	LMT-300-MGW	LMT-570-MGW	LMT-330-MG	LMT-615-MG
Part number	MT.300.MGW	MT.570.MGW	MT.330.MGK	MT.615.MGK
Cover	Polycarbonate tube diffuse	Polycarbonate tube diffuse	Borosilicate tube clear	Borosilicate tube clear
Operating voltage	24 VDC	24 VDC	24 VDC	24 VDC
Power input [W]	7,2	12	7,6	16,8
Length [mm]	295	565	330	615
Luminosity [lm]	945	1.450	980	2.040
Colour temperature [K]	5,600 / CRI > 80	5,600 / CRI > 80	5,000 / CRI > 80	5,000 / CRI > 80
Degree of protection	IP67	IP67	IP67	IP67
Protection type	III	III	III	III
Service life [h] at 20 °C	50,000	50,000	50,000	50,000
Connection	M12 plug	M12 plug	M12 plug	M12 plug
Housing material	Mounting clamps and screws	Mounting clamps and screws	Mounting clamps and screws	Mounting clamps and screws
Weight [g]	195	320	250	400
Operating temperature [°C]	-20 to +50	-20 to +50	-20 to +50	-20 to +50
Approval	CE	CE	CE	CE

LED MACHINE LIGHTS LMM, LMR AND LMT ACCESSORIES

Accessories	Part number
M12 Power supply cable LM-200-AL	MR.200.AL
M12 Power supply cable LM-500-AL	MR.500.AL



M12 Power supply cable LM-200-AL

- Length: 2 m
- Coupling 4-pole to open end, A-coded



M12 Power supply cable LM-500-AL

- Length: 5 m
- Coupling 4-pole to open end, A-coded



M12 Connection cable LM-200-VL

- Length: 2 m
- Coupling 4-pole to plug 4-pole, A-coded



M12 Connection cable LM-500-VL

- Length: 5 m
- Coupling 4-pole to plug 4-pole, A-coded



LED MACHINE LIGHTS LMR ACCESSORIES

Accessories	Part number
Mounting clamp with Rubber profile	MR.MS1.045



Mounting clamp with rubber profile and bracket LMR-MS-1

- Set of 2 pieces
- Clamp with vibration-damping rubber insert.
- Suitable for any mounting of the machine lamp.

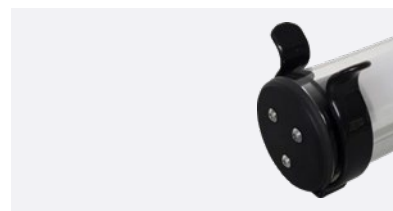
Accessories	Part number
Mounting clamp with Click fastening	MR.MS2.045



Mounting clamp with click fastening LMR-MS-2

- Set of 2 pieces
- Clamp made of UV- and weather-resistant polyamide.
- Not suitable for vertical mounting.

Accessories	Part number
Spring clip	MR.MS3.045



Spring clip LMR-MS-3

- Set of 2 pieces
- Clip made of stainless steel with a soft PVC surface.
- Not suitable for vertical mounting.



Thermoelectric Coolers

As Peltier coolers operate on the thermoelectric principle, without coolants and filter pad, and with separate inner and outer air circulation, operation is practically maintenance-free and eco-friendly. The coolers are protection-rated up to IP67, so they are suitable for adverse environmental conditions and can be deployed at any location. The devices, which have a service life of 60,000 hours, are ideal for both cooling and heating purposes.

THERMOELECTRIC COOLERS SERIES PM

The extremely flat design of the new PM series of Peltier coolers – which was achieved by combining new high-performance heat sinks with radial fans – is particularly impressive. Both surface mounting and semi-recessed installation in the switchgear cabinet are possible as standard. The improved separation of air intake and outlet ensures optimum air circulation inside the cabinet. Connection is via a plug-in terminal.

Peltier coolers operate without compressor, coolant and filter pad and require practically no maintenance

THERMOELECTRIC COOLERS SERIES PK

The PK series, with cooling capacities ranging from 30 to 280 W, was designed as air-conditioning for switchgear cabinets, control panel consoles and many other applications. The PK series is UL-listed for the US and Canadian market.

FEATURES

- Installation possible in any position
- Resistant to adverse environmental conditions
- Protection rating up to IP67, robust stainless steel built-on enclosure
- Operating voltage 24 V DC
- Perfect for mobile applications

VERSIONS PK

The different versions can be identified with the description of the item, for example PK 30 HK

HK	Cooling and heating
AG	with outer cover
HD	Hygienic Design
4X	NEMA 4X, UL Type 4X
EX	with ATEX certification
PS(-C)	Power supply unit (and controller) integrated

THERMOELECTRIC COOLERS PM AND PK TECHNICAL DATA



Type	PM 50	PM 100	PK 30	PK 30 HK	PK 30 HK+AG	PK 50	PK 50 HK	PK 50 HK+AG
Part number	40 M05 570	40 M10 570	40 P03 570	40 P03 57H	40 P03 57HAG	40 P05 570	40 P05 57H	40 P05 57HAG
Operating voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Cooling capacity [W]	50	100	30	30	30	50	50	50
Heating capacity [W]	50	100	–	45	45	–	70	70
Width [mm]	120	195	112	112	115	155	155	158
Height [mm]	293	430	160	160	230	200	200	300
Depth [mm]	82	96.5	130	130	145	134.5	134.5	150
Installation depth [mm]	45	48	70	70	–	64.5	64.5	–
Amperage [A]	3.7	6.5	2.3	2.3	2.3	2.5	2.5	2.5
Weight [kg]	2.4	5.3	1.9	1.9	3.1	3.2	3.2	5.0
Operating temperature [°C]	-20 to +60	-25 to +50	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70
Service life [h]	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Degree of protection	IP 55	IP 55	IP 65	IP 65	IP 65	IP 67	IP 67	IP 65
Approval/s	CE	CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

THERMOELECTRIC COOLERS PM AND PK ACCESSORIES

Type	Part number							
Thermostat TES 60	15 TES 060	15 TES 060	15 TES 060	–	–	15 TES 060	–	–
Controller for Heating and Cooling TRP 205	45 TRP 205	45 TRP 205	–	45 TRP 205	45 TRP 205	–	45 TRP 205	45 TRP 205
Controller for Heating and Cooling TPC 300 V2	45 TPC 300V2	45 TPC 300V2	–	45 TPC 300V2	45 TPC 300V2	–	45 TPC 300V2	45 TPC 300V2
Condensation trough KRP *	–	–	49 KRP 150	49 KRP 150	49 KRP 150	49 KRP 200	49 KRP 200	49 KRP 200
Power supply unit 24 V DC	42 05A 500	42 10A 500	42 05A 500	42 05A 500	42 05A 500	42 05A 500	42 05A 500	42 05A 500

* KRP 150, KRP 200 and KRP 300 see page 28

SPECIAL VERSION WITH BUILT-ON ENCLOSURE



PK 30 HK+AG



PK 50 HK+AG

THERMOELECTRIC COOLERS PK TECHNICAL DATA CONTINUED



Type	PK 75	PK 75 HK	PK 75 HK+AG	PK 100	PK 100 HK	PK 100 HK+AG
Part number	40 P75 570	40 P75 57H	40 P75 57HAG	40 P10 570	40 P10 57H	40 P10 57HAG
Operating voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Cooling capacity [W]	75	75	75	100	100	100
Heating capacity [W]	–	100	100	–	140	140
Width [mm]	203	203	207	200	200	310
Height [mm]	255	255	360	307	307	310
Depth [mm]	145	145	150	134.5	134.5	135
Installation depth [mm]	70	70	–	64.5	64.5	–
Amperage [A]	3.6	3.6	3.6	5.2	5.2	5.2
Weight [kg]	5.5	5.5	7.0	7.2	7.2	8.8
Operating temperature [°C]	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70
Service life [h]	60,000	60,000	60,000	60,000	60,000	60,000
Degree of protection	IP 67	IP 67	IP 65	IP 67	IP 67	IP 65
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

THERMOELECTRIC COOLERS PK ACCESSORIES

Type	Part number					
Thermostat TES 60	15 TES 060	–	–	15 TES 060	–	–
Controller for Heating and Cooling TRP 205	–	45 TRP 205	45 TRP 205	–	45 TRP 205	45 TRP 205
Controller for Heating and Cooling TPC 300 V2	–	45 TPC 300V2	45 TPC 300V2	–	45 TPC 300V2	45 TPC 300V2
Condensation trough KRP*	49 KRP 200	49 KRP 200	49 KRP 200	49 KRP 200	49 KRP 200	49 KRP 200
	49 KRP 300	49 KRP 300	49 KRP 300	49 KRP 300	49 KRP 300	49 KRP 300
Power supply unit 24 V DC	42 05A 500	42 05A 500	42 05A 500	42 10A 500	42 10A 500	42 10A 500

* KRP 150, KRP 200 and KRP 300 see page 28

SPECIAL VERSION WITH BUILT-ON ENCLOSURE



PK 75 HK+AG



PK 100 HK+AG

THERMOELECTRIC COOLERS PK TECHNICAL DATA CONTINUED



Type	PK 150	PK 150 HK	PK 150 HK+AG	PK 300 HK	PK 300 HK+AG
Part number	40 P15 570	40 P15 57H	40 P15 57HAG	40 P30 57H	40 P30 57HAG
Operating voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Cooling capacity [W]	150	150	150	280	280
Heating capacity [W]	–	200	200	400	400
Width [mm]	200	200	310	333	333
Height [mm]	307	307	310	330	330
Depth [mm]	134.5	134.5	135	195	195
Installation depth [mm]	64.5	64.5	–	90	–
Amperage [A]	7.2	7.2	7.2	15.0	15.0
Weight [kg]	7.3	7.4	9.0	18.5	21.0
Operating temperature [°C]	-20 to +70	-20 to +70	-20 to +70	-20 to +70	-20 to +70
Service life [h]	60,000	60,000	60,000	60,000	60,000
Degree of protection	IP 67	IP 67	IP 65	IP 65	IP 65
Approval/s	cURus / CE	cURus / CE	cURus / CE	CE	CE

THERMOELECTRIC COOLERS PK ACCESSORIES

Type	Part number				
Thermostat TES 60	15 TES 060	–	–	–	–
Controller for Heating and Cooling TRP 205	–	45 TRP 205	45 TRP 205	45 TRP 205	45 TRP 205
Controller for Heating and Cooling TPC 300 V2	–	45 TPC 300V2	45 TPC 300V2	45 TPC 300V2	45 TPC 300V2
Condensation trough KRP*	49 KRP 200 49 KRP 300	49 KRP 200 49 KRP 300	49 KRP 200 49 KRP 300	49 KRP 300	49 KRP 300
Power supply unit 24 V DC	42 10A 500	42 10A 500	42 10A 500	42 20A 500	42 20A 500

* KRP 150, KRP 200 and KRP 300 see page 28

SPECIAL VERSION WITH BUILT-ON ENCLOSURE



PK 150 HK+AG



PK 300 HK+AG

THERMOELECTRIC COOLERS FOR SPECIAL APPLICATIONS



THERMOELECTRIC COOLER PK 50 HD

The PK 50 HD is designed for use in hygienic areas. Stainless steel housings, anodized heatsinks with large rib spacing and removable hood and fan make cleaning easy.

FEATURES

- Approved materials: stainless steel V2A, anodized aluminium
- Plain and rounded transitions and edges
- Easy to clean due to large distances
- FDA-compliant special seal
- Degree of protection IP67

TECHNICAL DATA

Type	PK-50-HD
Part number	40 P05 57HD
Operating voltage	24 V DC
Cooling capacity [W]	50
Heating capacity [W]	50
Width [mm]	182
Height [mm]	200
Depth [mm]	145
Installation depth [mm]	65
Amperage [A]	2.5
Weight [kg]	3.2
Operating temperature [°C]	-10 to +60
Service life [h]	60,000
Degree of protection (outside)	IP67
Approval	CE



THERMOELECTRIC COOLER PK 150 HK-EX WITH ATEX APPROVAL

The PK 150 HK-EX is a thermoelectric cooler for applications in potentially explosive atmospheres of category 3 according to Directive 2014/34/EU (Zone 2), gas group IIB and temperature class T4. The enclosure must have a protection degree of at least IP54 in order to comply with the directive.

FEATURES

- Resistant to adverse environment conditions
- Reinforced stainless steel hood
- Fans with potted electronics on the outside and inside
- For cooling and heating operation
- Degree of protection IP67

TECHNICAL DATA

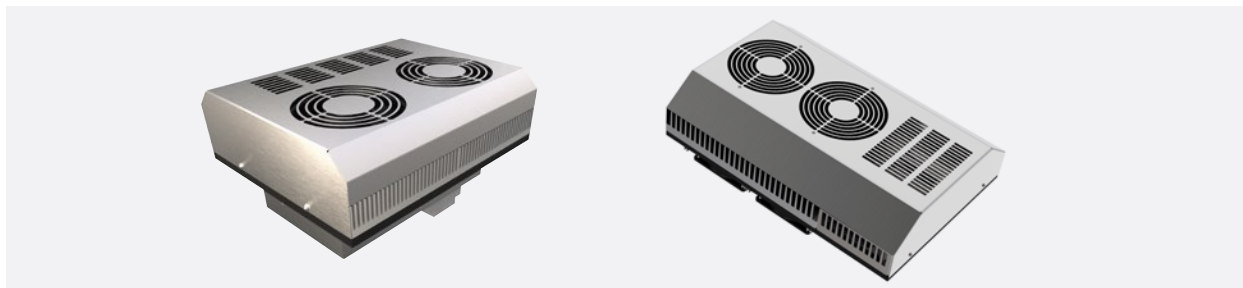
Type	PK 150 HK-EX
Part number	40 P15 57HEX
Operating voltage	24 V DC
Cooling capacity [W]	150
Heating capacity [W]	150
Width [mm]	306
Height [mm]	200
Depth [mm]	135
Installation depth [mm]	60
Amperage [A]	7.2
Weight [kg]	8.1
Operating temperature [°C]	-20 to +70
Service life [h]	60,000
Degree of protection (outside)	IP67
Approval	CE / EX II 3G Ex ec IIC T4 Gc

ACCESSORIES

Temperature controller TRP 205-EX for heating and cooling, built into Ex d enclosure, with external sensor



THERMOELECTRIC COOLERS WITH INTEGRATED POWER SUPPLY



The thermoelectric cooling units PK 150-PS and PK 300-PS have a wide-range voltage input of 100 – 240 V. The power supply is integrated in these devices. The protected power supply is located on the outside of the cooler and thus outside the cabinet to be cooled. It eliminates a heat source inside. This results in a simple and faster installation and less space in the housing.

PK 150-PS-C and PK 300-PS-C are equipped with the controller TRP 205. The PK 300-PS-TPC has the Peltier controller TPC 300 integrated.

FEATURES

- Integrated power supply on the outside of enclosure
- Wide input voltage range 100 – 240 V 50/60 Hz
- Resistant to adverse environment conditions
- Versions with built-on housing available
- For cooling and heating operation
- Degree of protection IP65



TECHNICAL DATA

Type	PK 150-PS-C	PK 150 PS-C+AG	PK 300 PS-C	PK 300 PS-C+AG
			PK 300 PS-TPC	PK 300 PS-TPC+AG
Part number	40 P15 57HPSC	40 P15 57HPSCAG	40 P30 57HPSC 40 P30 57HPSPC	40 P30 HPSCAG 40 P30 HPSPCAG
Operating voltage	100 – 240 V AC	100 – 240 V AC	100 – 240 V AC	100 – 240 V AC
Cooling capacity [W]	150	150	280	280
Heating capacity [W]	150	150	280	280
Width [mm]	306	306	480	485
Height [mm]	250	300	332	430
Depth [mm]	180	180	190	190
Installation depth [mm]	90	15	80	10
Amperage [A]	0.8 (at 240 V)	0.8 (at 240 V)	1.6 (at 240 V)	1.6 (at 240 V)
Weight [kg]	9.5	11	24.5	27.5
Operating temperature [°C]	-20 to +50	-20 to +50	-20 to +50	-20 to +50
Service life [h]	60,000	60,000	60,000	60,000
Degree of protection	IP65	IP65	IP65	IP65
Approval	CE	CE	CE	CE



Condensation Trough KRP

High humidity and leaks in the enclosure can result in higher quantities of condensation. A condensation trough is installed underneath the cooler to capture and drain off condensation. Condensation is drained off through the attached hose, which is included in delivery.

FEATURES

- 3 different sizes suitable for the PK series
- Material: Stainless steel, thickness 1 mm
- With hose connection, ID = 8 mm
- Hose with length 2 m is included

TECHNICAL DATA

Type	KRP 150	KRP 200	KRP 300
Part number	49 KRP 150	49 KRP 200	49 KRP 300
W x H x D [mm]	160 x 60 x 43	200 x 80 x 38	316 x 90 x 39
Suitable for PK	30, 50	50, 75, 100/150	75, 100/150, 300



KWP 150

- Condensate tray for PK 100 – 150 for horizontal installation in the roof
- other sizes on request



OUT-FIT

- Pressure equalisation and drainage in enclosures with high protection class (see pages 56 + 57)

TEMPERATURE CONTROLLER FOR THERMOELECTRIC COOLERS ACCESSORIES



TES 60 (15 TES 060)

- Cooling function



TRP 205 (45 TRP 205)

- Heating and cooling function



TPC 300 V2 (45 TPC 300V2)

- Peltier controller with monitoring



Switching Power Supplies 24 V DC

Peltier cooling units and dehumidification units are operated on 24 V DC. ELMEKO offers suitable single-phase primary switched-mode power supplies with stabilised output voltage and high efficiency. The units are short-circuit and overload proof and have a wide input voltage range. They are mounted on DIN rails according to EN 60715.

EMPARR0 SERIES

- Wide AC and DC input voltage range
- Temperature range -25 to +60 °C
- Alarm contact

ECO-RAIL SERIES

- Wide AC input voltage range
- Temperature range 0 to +40 °C
- Cost-effective alternative to

SWITCHING POWER SUPPLIES 24 V DC TECHNICAL DATA

Type	EMPARR0 5A	EMPARR0 10A	EMPARR0 20A	ECO-RAIL 5A	ECO-RAIL 10A	ECO-RAIL 20 A
Part number	42 05A 500	42 10A 500	42 20A 500	42 05A 5ER	42 10A 5ER	42 20A 5ER
Input voltage	85 – 265 V AC 90 – 250 V DC	85 – 265 V AC 90 – 250 V DC	85 – 265 V AC 90 – 250 V DC	90 ... 132 V AC, 50/60 Hz 173 ... 264 V AC, 50/60 Hz		
Input current	1.3 A (100 V) 0.61 A (240 V)	2.6 A (100 V) 1.1 A (240 V)	5.2 A (100 V) 2.2 A (240 V)	2.4 A (100 V AC) 1.2 A (230 V AC)	4.3 A (100 V AC) 2.1 A (230 V AC)	7.8 A (100 V AC) 4.0 A (230 V AC)
Output voltage	24 V DC (24 – 28 V adjustable)	24 V DC (24 – 28 V adjustable)	24 V DC (24 – 28 V adjustable)	24 V DC ±1% (23 ... 28 V adjustable)	24 V DC ±1% (23 ... 28 V adjustable)	24 V DC ±1% (23 ... 28 V adjustable)
Nom output current [A]	5	10	20	5	10	20
Efficiency	0.87 (230 V)	0.95 (230 V)	0.96 (230 V)	88 %	87 %	90 %
Protection	Short circuit and overload protected	Short circuit and overload protected	Short circuit and overload protected	Short circuit and overload protected	Short circuit and overload protected	Short circuit and overload protected
Temperatur range [°C]	-25 to +60	-25 to +60	-25 to +60	0 °C ... +40 °C, ...+55 °C Derating (Storage -20 °C ... +85 °C)		
Dimensions H x W x D [mm]	125 x 50 x 138	125 x 65 x 138	125 x 85 x 138	125 x 50 x 123	125 x 68 x 125	125 x 105 x 124
Weight [kg]	0.80	0.94	1.38	0.7	0.9	1.6



Dehumidifiers PSE

Moisture in switchgear cabinets is a serious problem – and one that is often underestimated. Fluctuations in temperature lead to condensation, which in turn causes corrosion, electrical faults and control unit failure. Just one water droplet in the wrong place can have far-reaching consequences, so it is important to prevent moisture from collecting in switchgear units at all costs.

FUNCTION

Dehumidifiers operate thermoelectrically with Peltier technology. The air in the switchgear cabinet is passed over a cold surface inside the device, resulting in precipitation of the airborne moisture as condensation. The resulting water is then collected and drained off through a hose, leaving the air in the cabinet dry. The hose can be laid outside via a bulkhead fitting or connected to a condensation drainage nozzle.

Dehumidifiers can be installed in the side panel or completely in the interior of the cabinet

APPLICATION

Dehumidifiers are installed wherever moisture or fluctuations in temperature cause condensation. This is generally the case in almost all outdoor applications – particularly in tropical climates – and in various specific industries e.g. the food and beverage industry. The humidity controller HPC 100 was specially designed for the requirements of thermoelectric dehumidifiers.

FEATURES

- Three different versions for various cases of applications
- Significant energy saving in comparison to conventional heaters
- Spring cage terminals for connection to 24 V DC
- surface mounting and semi-recessed installation in the switchgear cabinet are possible as standard
- 1-metre long hose with bulkhead connector and mounting bracket for fixing the device are included in delivery



DEHUMIDIFIERS PSE TECHNICAL DATA



Type	PSE 30L	PSE 30LP
Part number	40 PE3 57L	40 PE3 57LP
Configuration	closed housing, with fan	closed housing, with fan, with condensate pump
Operating voltage	24 V DC	24 V DC
Width [mm]	150	150
Height [mm]	200	200
Depth [mm]	140	150
Installation depth [mm]	77	87
Weight [kg]	1.4	1.6
Operating temperature [°C]	0 to +60	0 to +60
Service life [h]	60,000	60,000
Degree of protection	IP 55	IP 65
Approval	CE	CE

* Pump must be installed with a separate control unit, e.g. with humidity controller HPC 100

DEHUMIDIFIERS PSE ACCESSORIES

Accessories	Part number	
Hygrostat HYW 90	15 HYW 090	15 HYW 090
Humidity controller HPC 100	45 HPC 100	45 HPC 100
Drainage without pressure equalisation DF-M20-BA	74 DF20 BA	74 DF20 BA
Drainage and pressure equalisation OF-M20-BA	74 OF20 BA	74 OF20 BA



Hygrostat HYW 90

- Protection of electronics against humidity
- Switching contacts of fans, heaters, cooling units or signal contact
- Control range: 40 – 90 % r. H.
- Type of contact: changeover



Humidity controller HPC 100

- Controller for controlling and monitoring humidity in enclosures
- Designed for thermoelectric dehumidifiers
- With condensate pump control and serial interface
- See pages 52 + 53



OUT-FIT

- The all-in-one solution for drainage and pressure equalisation
- Various designs for mounting in the floor or side wall
- Protection degree IP68/IP69
- See pages 56 + 57



Compressor Cooling Units SLIM FIT

The required cooling capacity and the special demands of the installation environment are decisive factors when choosing a suitable cooler. In general, compressor technology is used for cooling capacities above 300 watts. The integrated control system, active condensate management and wide variety of installation possibilities make these the ideal coolers for industrial applications.

ADVANTAGES

SLIM FIT compressor coolers offer cooling capacities from 300 W to 4 kW and are suitable for various applications, depending on switchgear cabinet size and power loss. The coolers feature a high-efficiency rotary compressor, integrated condensate evaporation, dust-resistant coil and master-slave function as standard, so they are suitable for use in almost all industrial applications. An aesthetically pleasing design and easy-to-handle control are the perfect complement to complex mechanical engineering. There are three mounting options: external, built-on or completely enclosed in the cabinet.

**Devices can be used
in almost every
industrial application**

FEATURES

Cooling units for wall or roof mounting

- For door or wall mounting (Slim Fit)
- For roof mounting (DEK)
- With electronic control
- CFC-free refrigerant R134a
- Including drilling templates and mounting accessories



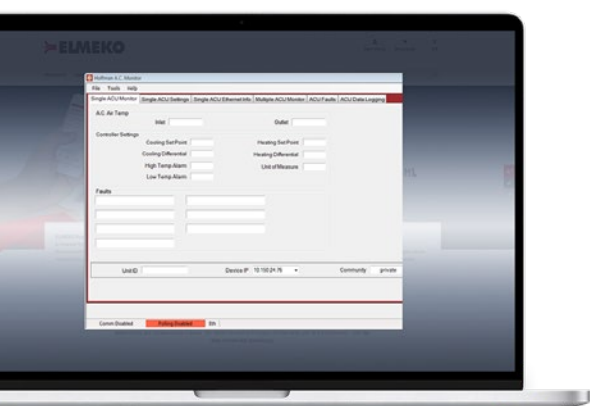
COMPRESSOR COOLING UNITS SLIM FIT TECHNICAL DATA

Type	SLIM FIT 300 *	SLIM FIT 500 *	SLIM FIT 1000 *	SLIM FIT 1500 *	SLIM FIT 2000 *	SLIM FIT 2500 *	SLIM FIT 4000 *
Part number	S060326G031	S060526G031	S101026G031	S101526G031	S162026G031	S162526G031	S164046G031
Operating voltage	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	400/460 V 3~50/60 Hz
Cooling capacity [W]	370	550	1300	1800	2200	2680	4000
Width [mm]	280	280	400	400	400	400	500
Height [mm]	550	550	951	951	1580	1580	1580
Depth [mm]	142	199	260	260	295	295	339
Mounting external	■	■	■	■	■	■	■
Mounting semi-recessed	—	■	■	■	■	■	■
Mounting internal	■	■	■	■	■	■	—
Mounting on top	—	—	—	—	—	—	—
Max. nominal current [A]	1.8	2.6	4.1	5.1	5.7	8.0	4.2
Starting current [A]	6	9	14	17	19	26	14
Weight [kg]	13	15	39	43	68	70	92
Operating temperature [°C]	+10 to +55	+10 to +55	+10 to +55	+10 to +55	+10 to +55	+10 to +55	+10 to +55
Setting temperature range [°C]	+20 to +55	+20 to +55	+20 to +55	+20 to +55	+20 to +55	+20 to +55	+20 to +55
Degree of protection internal loop	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54
Degree of protection external loop	IP 34	IP 34	IP 34	IP 34	IP 34	IP 34	IP 34
Approvals	UL / EAC / CE	UL / EAC / CE	UL / EAC / CE	UL / EAC / CE	UL / EAC / CE	UL / EAC / CE	UL / EAC / CE

* Available with optional remote maintenance module

COMPRESSOR COOLING UNITS SLIM FIT ACCESSORIES

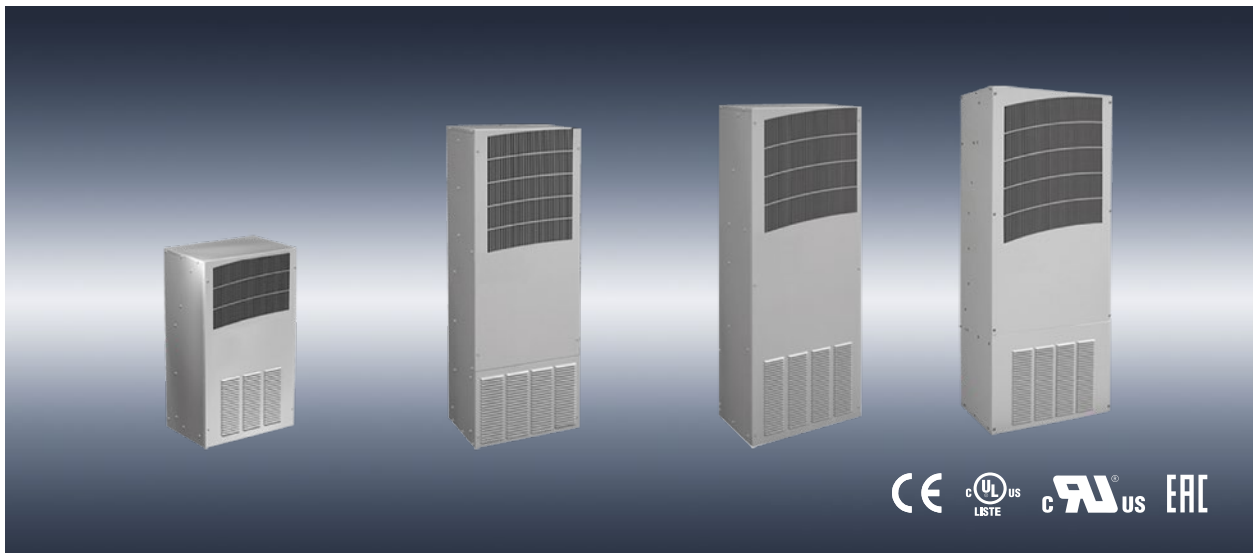
Accessories	Part number
Metal filter mat PU 1	— 89106978SP 89106977SP 89106977SP 89106977SP 89106977SP 89106977SP



Remote access control

Monitor and manage your industrial cooling easily from your PC or laptop.

The remote access control system means you can avoid being surprised by an overheating cabinet wherever your industrial system is deployed around the world. Wherever your SpectraCool SLIM FIT air conditioner is located, you can monitor and manage it without repeat- ed, time-consuming and expensive maintenance visits.



Outdoor Cooling Units T-Series

The T-Series cooling units are offered for the application in especially harsh environments. With an integrated heater, a reliable mechanical thermostat and cooling fan redundancy, the units are also listed according to UL/cUL Typ 12, 3R, 4 and optional 4X. The units work reliably in temperatures ranging between -40 °C and +55 °C and can be installed as an extension or complete installation.

FEATURES

- Stock models equipped with head pressure control for low-ambient operation, compressor heater, coated condenser coil, malfunction switch, thermostat and heater package
- Outdoor model operating temperature range from -40 °F/-40 °C to 131 °F/55 °C
- Exterior and fully recessed mounting options
- Compact footprint to minimize real estate and maximize capacity
- Reliable mechanical thermostat on enclosure side of the unit
- Dual condenser-side air movers for performance redundancy
- RAL 7035 painted, galvanised sheet metal housing for use in harsh environments, even outdoors
- Easy-mount flanges for simple installation

APPLICATION

- Industrial automation
- Telecommunications equipment
- Package handling equipment
- Security and defense systems
- And more

SPECIFICATIONS

Models for 115, 230 and 460 VAC power input
Standard Outdoor Air Conditioner models also include:

- Telcordia GR-487 capable
- Thermostat
- Corrosion-resistant components
- Malfunction switch
- Compressor heater
- Head pressure control
- Enclosure heater

OUTDOOR COOLING UNITS T-SERIES TECHNICAL DATA

Type	T20 2000 BTU	T29 4000 BTU	T43 8000 BTU	T43 10000 BTU	T50 12000 BTU
Powder-coat painted, with heater	T200226G150	T290426G150	T430826G150	T431026G150	T501226G150
Stainless steel, type 4X, heater (*)	T200226G158	T290426G160	T430826G108 (*)	T431026G152	T501226G156
Operating temperature [Hz]	230 V 50/60	230 V 50/60	230 V 50/60	230 V 50/60	230 V 50/60
Cooling capacity (L35/L35) [W]	571 / 645	1025 / 1143	1740 / 1964	2478 / 2589	2725 / 2945
Heater [W]	500	1000	1000 (*)	1000	1500
Width [mm]	254	432	400	400	483
Height [mm]	508	737	1092	1092	1270
Depth [mm]	251	287	279	279	281
Externally mounted	■	■	■	■	■
Internally mounted	■	■	■	■	■
Power input [W]	805	1587 / 1564	1196 / 1242	2070	1804 / 2139
Nominal current [A]	3.5	6.9	5.2 / 5.4	9	8.2 / 9.3
Starting current [A]	7.6	23	27	38	38
Weight [kg]	25	49	57	57	75
Operating temperature [°C]	-40 to +55	-40 to +55	-40 to +55	-40 to +55	-40 to +55
Factory thermostat setting [°C]	23	23	23	23	23
UL-Type	Type 12, 3R, 4 Stainless steel 304: Typ 4X	Type 12, 3R, 4 Stainless steel 304: Typ 4X	Type 12, 3R, 4 Stainless steel 304: Typ 4X	Type 12, 3R, 4 Stainless steel 304: Typ 4X	Type 12, 3R, 4 Stainless steel 304: Typ 4X
Approvals	CE / EAC / cUL	CE / EAC / cUL	CE / EAC / cUL	CE / EAC / cUL	CE / EAC / cUL

* 4X without heater

INDUSTRY STANDARDS

**UL/cUL Listed; Type 12, 3R, 4; 4X optional;
File No. SA6453. UR/cUR Recognized**

UR/cUR recognized on select models, reference performance data tables. CE, EAC, Telcordia GR-487 capable

DELIVERY CONTENTS

- Air conditioner unit
- Mounting gasket and hardware kit
- Cutout template
- Installation instruction





Cooling Units for Roof Mounting DEK

Internal enclosure air is sucked up from the top of it, cooled inside the cooling unit and blown back into the enclosure with a high speed aimed towards the bottom. This ensures optimum cooling of the whole panel. All cooling units use the CFC-free and ozone-friendly refrigerant R134a. Different outer and inner air circle ensure the protection level IP 54 for the enclosure. An electronic control with temperature display, fault message and door contact monitoring is built into the unit.

COMPRESSOR COOLING UNITS DEK TECHNICAL DATA

Type	DEK 04	DEK 08	DEK 12	DEK 20	DEK 30	DEK 40
Part number	40 D04 150	40 D08 150	40 D12 150	40 D20 150	40 D30 150	40 D40 150
Operating voltage	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz
Cooling capacity [W]	410	820	1150	2050	2900	3850
Dimensions [mm]	259 x 260 x 481	341 x 339 x 600	401 x 415 x 572	401 x 415 x 572	492 x 496 x 784	492 x 496 x 784
Max. nominal current [A]	1.5	2.9	3.2	6	8.2	9
Starting current [A]	4	12	11	24	38.4	38.2
Weight [kg]	18	23	40	50	80	83
Operating temperature [°C]	+10 to +55	+10 to +55	+10 to +55	+10 to +55	+10 to +55	+10 to +55
Setting temperature range [°C]	+20 to +46	+20 to +46	+20 to +46	+20 to +46	+20 to +46	+20 to +46
Degree of protection internal loop	IP54	IP54	IP54	IP54	IP54	IP54
Degree of protection external loop	IP34	IP34	IP34	IP34	IP34	IP34
Approval	CE	CE	CE	CE	CE	CE

COMPRESSOR COOLING UNITS DEK ACCESSORIES

Accessories	Part number					
Filter mat (PU = 5)	C15000171	C15000173	AADFP12	AADFP12	AADFP30	AADFP30
Metal filter (PU = 1)	C15000172	C15000174	AADFM12	AADFM12	AADFM30	AADFM30



Internal and Small Fans

INTERNAL FANS IL 120

- complete with mounting bracket and retaining clip
- Connection terminal
- 230 V AC or 24 V DC

SMALL FANS KL 50

- Size 80 x 80 mm
- Connection leads
- 230 V AC or 24 V DC

SMALL FANS KL 100

- Size 119 x 119 mm
- plug-in or terminal connection
- 230 V AC or 24 V DC

INTERNAL AND SMALL FANS TECHNICAL DATA

Type	IL 120	IL 120	KL 50	KL 50	KL 100 S	KL 100 X	KL 100 X
Part number	10 IL1 100	10 IL1 500	10 050 110	10 050 510	10 100 105S	10 100 107	10 100 507
Operating voltage	230 V AC	24 V AC	230 V AC	24 V AC	230 V AC	230 V AC	24 V AC
Air flow free air [m³/h]	160/180	160/180	50/61	54	160/180	160/180	184
Power input [W]	19	3,5	11/12	2,5	19/18	19/18	4,1
Dimensions [mm]	140 x 160 x 48	140 x 160 x 48	79.5 x 79.5 x 38	79.5 x 79.5 x 32	119 x 119 x 38	119 x 119 x 38	119 x 119 x 38
Operating temperature [°C]	-10 to +55	-20 to +65	-10 to +75	-10 to +75	-40 to +75	-10 to +50	-20 to + 70
Service life [h]	27,500	50,000	52,500	70,000	37,500	37,500	65,000
Noise level dB [A]	40	44	30/34	36	40/45	40/45	42
Approval/s	CE	CE	CE / UL / CSA	CE / UL / CSA	CE / UL / CSA	CE / UL / CSA	CE / UL / CSA

INTERNAL AND SMALL FANS ACCESSORIES



Connection cable AK 100 for KL 100
Part number: 16 100 000



Metal guard grille BG 50 for KL 50
Part number: 14 050 000

Metal guard grille BG 100 for KL 100
Part number: 14 100 000



Plastic guard grille KG 50 for KL 50
Part number: 14 050 010

Plastic guard grille KG 100 for KL 100
Part number: 14 K10 000



Filter Fans LV

Filter fans can be used as an effective and low cost solution for removing dissipated heat from cabinets and enclosures. The ambient air with lower temperature is filtered and blown into the bottom of the cabinet and the warm air is conveyed outside via an exhaust filter in the upper part of the enclosure.

VERSIONS

The LV series offers 15 rating categories with air flows from 15 to 930 m³/h

The air-conditioning of enclosures in many applications is based on filter fans. ELMEKO's updated range of LV fans is the most comprehensive available on the market today. The LV series consists of 15 rating categories with air flows from 15 to 930 m³/h (free blowing). These fans offer a wide range of performance possibilities and variety of operating voltages available, from 12 V DC to 400 V AC (depending on type), so it is always possible to find the optimum solution for the required application conditions.

As an option, the filter fans can be equipped with Z-line filters of filter class F5. This ensures the degree of protection IP55. Furthermore, this version is equipped with a UV-resistant outer grid and is suitable for outdoor applications. To receive a higher degree of protection the stainless steel gill plates are suitable as an accessory.

FEATURES

- Low shape and quick mounting
- Screw fastening is possible for all types
- Protection class IP 54 with filter mat (standard)
- Protection class IP 55 with Z-line filter
- Foamed polyurethane gasket
- Housing colour RAL 7035
- Available for various other supply voltages
- Scope of supply: ready to install, incl. filter mat
- Also available in EMC version
- Various models also available with state-of-the-art EC technology

INFORMATION REGARDING THE BLOWING DIRECTION:

Blowing: from the outside into the bottom of the enclosure (standard version, positive pressure inside)

Sucking: sucking warm air out of the enclosure (special version)

FILTER FANS LV TECHNICAL DATA



Type	LV 80	LV 80	LV 85	LV 100	LV 100	LV 200	LV 200
Part number	10 080 150	10 080 550	10 085 550	10 115 150	10 115 550	10 235 150	10 235 550
Operating voltage	230 V AC 50/60 Hz	24 V DC	24 V DC	230 V AC 50/60 Hz	24 V DC	230 V AC 50/60 Hz	24 V DC
Air flow free air [m³/h]	11	15	20	25	25	58	58
Power input [W]	5	2.6	3	12	2.2	20	4.1
Width [mm]	80	80	80	105	105	130	130
Height [mm]	80	80	80	105	105	130	130
Depth (outside) [mm]	4	4	4	4.5	4.5	5	5
Installation depth [mm]	40.5	40.5	40.5	55	55	72	72
Installation cut-out [mm]	68 x 68	68 x 68	68 x 68	92 x 92	92 x 92	116 x 116	116 x 116
Operating temperature [°C]	-20 to +65	-20 to +65	-20 to +65	-10 to +55	-20 to +65	-10 to +55	-20 to +65
Service life [h]	40,000	70,000	60,000	37,500	70,000	27,500	50,000
Noise level dB [A]	27/28	42.3	48.5	30	36	42	42
Approval	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

Filter fans also available with supply voltage 115 V

FILTER FANS LV ACCESSORIES

Accessories	GV 80	GV 80	GV 80	GV 100	GV 100	GV 200	GV 200
Exhaust filters	11 080 050	11 080 050	11 080 050	11 115 050	11 115 050	11 235 050	11 235 050
Spare filter mat	12 080 15VE	12 080 15VE	12 080 15VE	12 100 15VE	12 100 15VE	12 200 35VE	12 200 35VE
Z-line filter IP 55	–	–	–	–	–	–	–
Gill plate	–	–	–	14 100 070	14 100 070	14 200 070	14 200 070
Filter fan shrouds	–	–	–	–	–	14 200 700	14 200 700
Cover plates	–	–	–	–	–	–	–
Digital thermostat TER 150	15 TER 200	–	–	15 TER 200	–	15 TER 200	–
Thermostat TRS 60	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060
Thermostat TWR 60	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060
Hygrostat HYW 90	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090
Speed controller TLR 400	15 TLR 400	–	–	15 TLR 400	–	15 TLR 400	–

FILTER FANS LV TECHNICAL DATA CONTINUED



Type	LV 250	LV 250	LV 300	LV 300	LV 405	LV 405
Part number	10 253 150	10 253 550	10 335 150	10 335 550	10 405 150	10 405 550
Operating voltage	230 V AC 50/60 Hz	24 V DC	230 V AC 50/60 Hz	24 V DC	230 V AC 50/60 Hz	24 V DC
Air flow free air [m³/h]	63	63	115	115	160	160
Power input [W]	20	4.1	20	4.1	18	6.5
Width [mm]	148	148	204	204	250	250
Height [mm]	148	148	204	204	250	250
Depth (outside) [mm]	5.5	5.5	6	6	6	6
Max. installation depth [mm]	64.5	64.5	90	90	102	102
Installation cut-out [mm]	125 x 125	125 x 125	177 x 177	177 x 177	223 x 223	223 x 223
Operating temperature [°C]	-10 to +55	-20 to +65	-10 to +55	-20 to +65	-10 to +55	-20 to +65
Service life [h]	27,500	50,000	27,500	50,000	40,000	57,500
Noise level dB [A]	42	42	51	51	44	46
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

Filter fans also available with supply voltage 115 V

FILTER FANS LV ACCESSORIES

Accessories	GV 250	GV 250	GV 300	GV 300	GV 400/500	GV 400/500
Exhaust filters	11 253 050	11 253 050	11 335 050	11 335 050	11 435 050	11 435 050
Spare filter mat	12 001 35VE	12 001 35VE	12 300 35VE	12 300 35VE	12 400 35VE	12 400 35VE
Z-line filter IP 55	12 250 ZF	12 250 ZF	12 300 ZF	12 300 ZF	12 400 ZF	12 400 ZF
Gill plate	14 250 070	14 250 070	14 300 070	14 300 070	14 400 070	14 400 070
Filter fan shrouds	14 250 700	14 250 700	14 300 700	14 300 700	14 400 700	14 400 700
Cover plates	–	–	11 300 05B	11 300 05B	11 400 05B	11 400 05B
Digital thermostat TER 200	15 TER 200	–	15 TER 200	–	15 TER 200	–
Thermostat TRS 60	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060
Thermostat TWR 60	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060
Hygrostat HYW 90	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090
Speed controller TLR 400	15 TLR 400	–	15 TLR 400	–	15 TLR 400	–

FILTER FANS LV TECHNICAL DATA CONTINUED



Type	LV 410	LV 410	LV 550	LV 600	LV 700	LV 800
Part number	10 413 150	10 413 550	10 553 150	10 635 150	10 735 150	10 835 150
Operating voltage	230 V AC 50/60 Hz	24 V DC	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz
Air flow free air [m³/h]	250	250	370	580	730	876
Power input [W]	45/39	16	65/93	64/80	115/165	136/195
Width [mm]	250	250	250	323	323	323
Height [mm]	250	250	250	323	323	323
Depth (outside) [mm]	6	6	6	6.5	6.5	6.5
Max. installation depth [mm]	120	120	125	148	162	140
Installation cut-out [mm]	223 x 223	223 x 223	223 x 223	292 x 292	292 x 292	292 x 292
Operating temperature [°C]	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-15 to +55
Service life [h]	40,000	40,000	40,000	40,000	40,000	40,000
Noise level dB [A]	52	52	69	60	70	69
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

Filter fans also available with supply voltage 115 V and 400/460 V

FILTER FANS LV ACCESSORIES

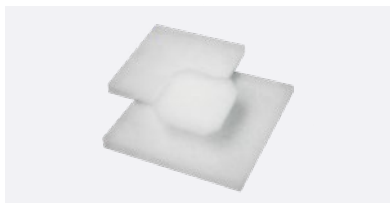
Accessories	GV 400/500	GV 400/500	GV 400/500	GV 600/700	GV 600/700	GV 600/700
Exhaust filters	11 435 050	11 435 050	11 435 050	11 635 050	11 635 050	11 635 050
Spare filter mat	12 400 35VE	12 400 35VE	12 400 35VE	12 700 35VE	12 700 35VE	12 700 35VE
Z-line filter IP 55	12 400 ZF	12 400 ZF	12 400 ZF	12 700 ZF	12 700 ZF	12 700 ZF
Gill plate	14 400 070	14 400 070	14 400 070	14 600 070	14 600 070	14 600 070
Filter fan shrouds	14 400 700	14 400 700	14 400 700	14 600 700	14 600 700	14 600 700
Cover plates	11 400 05B	11 400 05B	11 400 05B	14 700 05B	14 700 05B	14 700 05B
Digital thermostat TER 200	15 TER 200	–	15 TER 200	15 TER 200	15 TER 200	15 TER 200
Thermostat TRS 60	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060
Thermostat TWR 60	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060
Hygrostat HYW 90	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090	15 HYW 090
Speed controller TLR 400	15 TLR 400	–	15 TLR 400	15 TLR 400	15 TLR 400	15 TLR 400

FILTER FANS LV ACCESSORIES DETAILS



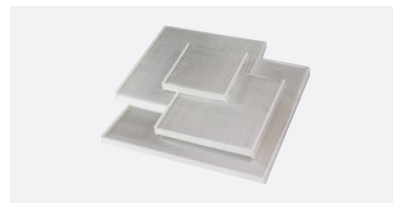
Exhaust Filters

- Suitable for filter fans Series LV and roof-mount fans
- Low shape and quick mounting
- Scope of supply: ready to install, incl. filter mat
- Also available in IP 55 or EMC version



Spare filter mat

- Spare filter mat for filter fans, exhaust filters and roof-mount fans
- Available in various filter classes
- Packing unit: 5 pieces



Z-Line filter IP55

- Z-line filter for filter fans and exhaust filters with protection class IP 55
- Filter class F5
- Packing unit: 1 piece



Gill plate

- For outdoor use of filter fans and exhaust filters
- Material: polished stainless steel 1.4301
- Solid, vandal resistant



Filter fan shrouds

- Cover hood to increase the protection class up to IP 55
- Protection for hose water and extremely storm rainfall
- With mounting accessories and gasket



Extension frame

- Extension frame to install Filter Fans at the control cabinet, when there is no space inside the enclosure.
- With mounting accessories and gasket
- Steel sheet painted in RAL 7035



Cover plates

- To close installation cut outs
- Same design and dimensions as GV
- With foamed gasket



Thermostat TRS 60

- Control range: 0 – 60 °C
- Contact: NO



Thermostat TWR 60

- Control range: 0 – 60 °C
- Contact: CO



Hygrostat HYW 90

- Control range: 40 – 90 % relative humidity
- Contact: CO



Speed controller TLR 400

- Operating voltage: 230 V 50/60 Hz
- Max. power of fans: 400 W
- Continuous thermally speed regulation for AC-fans



Digital thermostat TER 200

- Operating voltage: 230 V 50/60 Hz
- Number of relay outputs: 2
- Control range: -50 to +99 °C



Special Versions of LV Filter Fans

Modified variants of filter fans and outlet filters are available for special requirements. For outdoor applications, the IP55 version is used. If increased requirements are placed on the EMC protection of the control cabinet, the fans must also meet these requirements. The EC versions of the filter fans are particularly energy-efficient and durable. The dimensions and mounting cut-outs remain unchanged for all special versions. The variants can also be combined with the accessories on page 42.

IP55 VERSION

IP55 versions with increased protection against dust and water are available for switchgear systems that are cleaned with water jets e.g. in the food and beverage industry and outdoor applications.

- Z-line filter with filter class F5 and additional expanded metal grille
- UV-resistant outer grid for outdoor applications
- Optional with stainless steel gill plate or hose water cover
- Types available: LV/GV 250 – 800

EMC VERSION

For a switchgear cabinet meet electromagnetic compatibility requirements, it must be fitted with EMC fans and exhaust filters to ensure that the entire enclosure is EMC compliant.

- The EMC version features a metallised inner grille and an additional wire grid.
- A contact spring strip is glued to the mounting cut-out.

- Achieved magnetic shielding value: 40 dB.
- Types available: LV/GV 80 – 800-EMC

EC VERSION

EC fans are recommended when efficiency and long service life are particularly important.

- Energy-efficient axial fans with EC technology
- Electronics are integrated in the fan but dimensions remain unchanged
- Lower power consumption and greater efficiency than AC fans
- Significantly longer service life
- Wider supply voltage range for LV 200 – 300 (230 V version: 195 – 265 V AC)
- Fan models LV 410, 600 + 800-EC have two running speeds
- Types available: LV 200, 250, 300, 410, 600, 800-EC



Roof-mounted Fans DL and DE

A roof-mounted fan extracts warm air from inside the switchgear cabinet, thereby helping the circulation of warm air and preventing heat accumulation in the upper section of the cabinet. A robust sheet-steel hood with a stepped rim prevents water from entering. An all-round filter mat for protection class IP54 is available as an option. Radial fans generate a high air flow with low noise emissions. The roof vent DE 400 without fan is fitted with a filter mat that can be replaced from indoors as standard. Roof-mounted fan DL 1500, which is characterised by its high air flow and particularly low noise emission, is predestined for use in server cabinets.

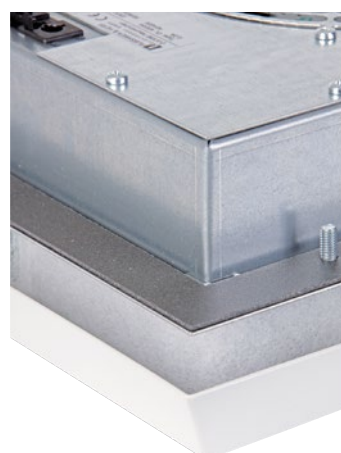
APPLICATION

Roof-mounted fans are used in applications that require a high throughput of air but no particular or specific protection type. If the cabinet also contains devices with a built-in fan e.g. frequency converters, air flow is increased and warm air optimally conducted upwards. It is important to ensure that the bottom of the cabinet is fitted with fresh air vents, ideally intake filters GV 400/500 or GV 600/700.

Roof-mounted fans prevent heat accumulation in the upper part of switchgear cabinets.

FEATURES

- Optimum airflow in the control cabinet
- Sturdy, painted sheet steel enclosure
- Radial fan with high air flow and low noise emission
- Low depth inside the cabinet
- Available as EMC and IP 54 version (see detailed diagram) as an option



ROOF-MOUNTED FANS DL AND DE TECHNICAL DATA

Housing made of sheet steel



Type	DL 400	DL 420	DL 1500	DE 400
Part number	50 400 150	50 420 150	50 150 150	51 400 050
Operating voltage	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	–
Air flow free air [m³/h]	405 / 475	690 / 780	1500	–
Power input [W]	40 / 45	40 / 45	68 / 90	–
Width [mm]	420	420	528	420
Height [mm]	108	108	230	83
Depth [mm]	340	340	528	340
Installation depth [mm]	50	50	0	28
Installation cut-out [mm]	345 x 265	345 x 265	410 x 410	345 x 265
Operating temperature [°C]	-10 to +60	-10 to +60	-10 to +55	–
Noise level dB(A)	58 / 62	73 / 76	40	–
Weight [kg]	7.6	8.1	20	4.5
Degree of protection	IP44 (54*)	IP44 (54*)	IP21	IP44 (54*)
Approval/s	cURus / CE	cURus / CE	CE	cURus / CE

* also available in protection class IP54

ROOF-MOUNTED FANS DL AND DE ACCESSORIES

Accessories	Part number			
Exhaust filters	11 435 050	11 635 050	11 635 050*	–
Spare filter mat	12 420 35VE	12 420 35VE	–	–
Thermostat TRS 60	15 TRS 060	15 TRS 060	15 TRS 060	–
Thermostat TWR 60	15 TWR 060	15 TWR 060	15 TWR 060	–
Digital thermostat TER 200	15 TER 200	15 TER 200	15 TER 200	–
Speed controller TLR 400	15 TLR 400	15 TLR 400	15 TLR 400	–

* exhaust filter for DL 1500 is required 2x



Roof Filter Fans DVL and DVE

The DVL/DVE series is based on the filter fan series LV and provides a wide variety of low-cost solutions for roof-mounted ventilation. The hood features labyrinth-pattern air ducts to prevent the ingress of dust and water. Easy fitting without tools; simply remove the hood for easy filter replacement from outside. Available in 3 sizes fitted with different fans, or as roof ventilator DVE without fan. DVE ventilator can also be combined with LV filter fans.

APPLICATION

The cost-effective, versatile solution for roof-mounted ventilation of switchgear cabinets

The range of available fan types makes it easy to find the right DVL type for any given dissipation requirement. Combination with the appropriate GV intake filter enables an optimum air flow through the switchgear cabinet, thereby expelling warm air rapidly and preventing heat accumulation. Various thermostats and control units are available as accessories.

FEATURES

- Optimum airflow inside the cabinet
- Mounting and filter change without tools
- Same mounting cut-outs as filter fans LV
- Low depth inside the cabinet
- Combination possibilities with all filter fans types LV 300 – 800
- Housing consists of high-quality ABS plastic

DVE version



Type	DVE 300	DVE 400	DVE 600
Part number	51 V30 05X	51 V45 05X	51 V67 05X
Width x Depth x Height [mm]	242 x 242 x 87	287 x 287 x 85	361 x 361 x 96
Installation depth [mm]	26	31	33
Installation cut-out [mm]	177 x 177	223 x 223	292 x 292
Weight [kg]	0.73	0.73	1.1
Degree of protection	IP54	IP54	IP54
Approvals	cURus / CE	cURus / CE	cURus / CE

ROOF FILTER FANS DVL AND DVE TECHNICAL DATA

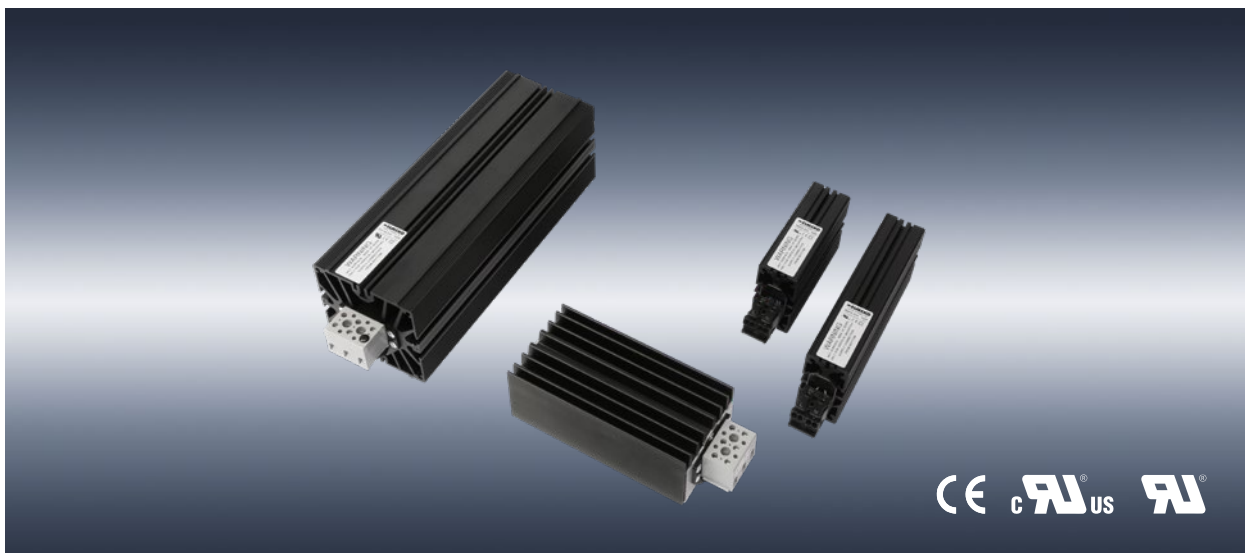
Housing made of ABS plastic



Bezeichnung	DVL 302	DVL 310	DVL 410	DVL 440	DVL 600	DVL 640	DVL 800
Part number	50 V32 15U	50 V31 15X	50 V41 15X	50 V44 15U	50 V60 15X	50 V64 15U	50 V80 15X
Operating voltage	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz
Air flow free air [m³/h]	103	183	240	71	550	232	840
Power input [W]	20	45/39	45 / 39	40 / 32	64 / 80	68 / 60	135/215
Width [mm]	242	242	287	287	361	361	361
Height [mm]	102	149	174	104	211	114	203
Depth [mm]	242	242	287	287	361	361	361
Installation depth [mm]	41	88	120	50	148	51	140
Installation cut-out [mm]	177 x 177	177 x 177	223 x 223	223 x 223	292 x 292	292 x 292	292 x 292
Operating temperature [°C]	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +60
Noise level dB(A)	53	62	52	k.A.	60	k.A.	69
Weight [kg]	1.14	1.68	2.5	2.5	4.1	4.9	5.6
Degree of protection	IP54	IP54	IP 54	IP 54	IP 54	IP 54	IP 54
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

ROOF FILTER FANS DVL AND DVE ACCESSORIES

Accessories	Part number						
Exhaust filters	11 335 050	11 335 050	11 435 050	11 435 050	11 635 050	11 635 050	11 635 050
Spare filter mat	52 340 35VE	52 340 35VE	52 440 35VE	52 440 35VE	52 640 35VE	52 640 35VE	52 640 35VE
Thermostat TRS 60	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060	15 TRS 060
Thermostat TWR 60	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060	15 TWR 060
Digital thermostat TER 200	15 TER 200	15 TER 200	15 TER 200	15 TER 200	15 TER 200	15 TER 200	15 TER 200
Speed controller TLR 400	15 TLR 400	15 TLR 400	15 TLR 400	15 TLR 400	15 TLR 400	15 TLR 400	15 TLR 400



Heaters without Fans

Heaters protect components in a switchgear cabinet from excessively low temperatures and prevent the occurrence of condensation in the cabinet as a result of marked fluctuations in temperature or increased humidity. We offer heaters with or without fan for different operating voltages. The electrical power capacity ranges from 10 W up to 1,500 W. Special designs, for example with mounting plates, are available at short notice.

FEATURES

Our heaters are fitted with self-regulating PTC heating elements, which limit surface temperature and reduce heat output when the temperature rises. PTC heaters maintain practically the same heat output across a wide range of input voltages. The profiled structure of the aluminium housing ensures good heat dissipation and warm air circulation. Power supply via spring-cage or screw terminal. Heaters are fixed to the mounting rail with clips.

Heaters prevent condensation, corrosion and malfunctions in switchgear cabinets installed outdoors.

APPLICATION

Switchgear cabinet heaters prevent corrosion and switching malfunctions. They are used mainly in outdoor applications such as traffic technology, ticket machines, traffic monitoring systems, traffic lights, packing stations and cranes. They are also used in machinery for the food and beverage industry and the textile industry.

VERSIONS

Series SM

- Electrical power capacity from 10 to 45 W
- PTC heating element
- Compact design
- Attachment with clip on mounting rail



Series SH

- PTC heating elements or fixed resistors
- Heating capacity from 50 to 150 W
- Special versions for wind turbines



Series SF

- Heating capacity from 30 to 50 W
- For special voltages
- Fixed resistor



HEATERS WITHOUT FANS SM TECHNICAL DATA

Type	SM 10	SM 10	SM 20	SM 20	SM 30	SM 30	SM 45
Part number	20 M10 70X	20 M10 80X	20 M20 70X	20 M20 80X	20 M30 70X	20 M30 80X	20 M45 70X
Operating voltage	110 – 240 V AC/DC	12 – 24 V AC/DC	110 – 240 V AC/DC	12 – 24 V AC/DC	110 – 240 V AC/DC	12 – 24 V AC/DC	110 – 240 V AC/DC
Thermal output at 20 °C [W]	10	10	20	20	30	30	45
Width [mm]	30	30	30	30	30	30	30
Height [mm]	80	80	100	100	120	120	170
Depth [mm]	60	60	60	60	60	60	60
Service life [h]	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Approvals	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE	cURus / CE

HEATERS WITHOUT FANS SH TECHNICAL DATA

Type	SH 60	SH 75	SH 75D	SH 100	SH 100D	SH 150
Part number	20 60S 70X	20 75S 70X	20 75S D0X	20 10S 70X	20 10S D0X	20 15S 70X
Operating voltage	110 – 240 V AC/DC	110 – 240 V AC/DC	400 V AC/DC	110 – 240 V AC/DC	400 V AC/DC	110 – 240 V AC/DC
Thermal output at 20 °C [W]	60	75	70	100	100	150
Width [mm]	80	80	80	80	80	80
Height [mm]	105	155	185	185	215	245
Depth [mm]	83	83	83	83	83	83
Service life [h]	100,000	100,000	100,000	100,000	100,000	100,000
Approval/s	UR / CE	UR / CE	CE	UR / CE	CE	UR / CE

HEATERS WITHOUT FANS SF TECHNICAL DATA

Type	SF 35	SF35	SF 55	SF55
Part number	20 F35 50X	20 F35 D0X	20 F55 50X	20 F55 D0X
Operating voltage	24 V AC/DC	400 V AC/DC	24 V AC/DC	400 V AC/DC
Thermal output at 20 °C [W]	30	35	45	45
Width [mm]	64.5	64.5	64.5	64.5
Height [mm]	158	158	193	193
Depth [mm]	60.7	60.7	60.7	60.7
Service life [h]	100,000	100,000	100,000	100,000
Approval	CE	CE	CE	CE



Heaters with Fans

To ensure ideal air circulation inside the enclosure, we recommend our heaters with fan. Depending on the model, the fans can be switched separately, thus ensuring a permanently optimal air circulation. Various controllers for temperature and humidity for external control are available as accessories.

VERSIONS

Series SM, Series SH

- Compensation of temperature fluctuations in the switchgear cabinet
- Prevention of condensation
- PTC heating elements
- Heating capacity from 50 to 400 W
- Special versions for wind turbines
- Plug-in connection terminal



Series HL

HL heaters are especially suitable for use in outdoor switchgear cabinets

Their robust, compact design, wide operating temperature range of -40 °C to +70 °C, and long service life of 50,000 h mean that HL heaters are particularly suitable for use in outdoor switchgear cabinets.



Series SL

- Various power levels from 250 to 650 W in the same housing
- Two heating circuits with different switching options for SL 500 and SL 650
- Fan and heating separately connectable at SL 500 and SL 650
- Integrated temperature limiter for shutdown if the fan fails
- Compact design, low weight
- Eyelets for screw fastening and clip for mounting rail
- Connection via spring-cage terminals
- Cover over the terminals



Series ML

- very compact construction
- low-noise operation
- Mounting clip for mounting rail
- 3-pole spring-cage terminal



HEATERS WITH FANS SM, SH UND ML TECHNICAL DATA

Type	SM 50L	SM 100L	SH 130L	SH 250L	SH 400L	ML 150
Part number	20 M50 50X	20 10M 10X	20 13S 10X	20 25S 10X	20 40S 10X	20 15M 10X
Operating voltage	24 V DC	230 V 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V 50/60 Hz
Thermal output at 20 °C [W]	50	100	130	250	400	150
Width [mm]	60	60	80	80	80	66
Height [mm]	130	150	155	155	235	88
Depth [mm]	90	90	110	110	110	97
Service life [h]	50,000	50,000	50,000	50,000	50,000	50,000
Approval/s	CE	CE	UR* / CE	UR* / CE	UR* / CE	CE

* for UL versions, please add the suffix "UL" to the article number

HEATERS WITH FANS SL AND HL TECHNICAL DATA

Type	SL 250	SL 350	SL 500	SL 650	HL 1200	HL 1500
Part number	20 25SL 102	20 35SL 102	20 50SL 106	20 65SL 106	20 1200 10X	20 1500 10X
Operating voltage	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz	230 V AC 50/60 Hz
Thermal output at 20 °C [W]	250	350	280/500	380/650	1200	1500
Width [mm]	115	115	115	115	120	120
Height [mm]	100	100	100	100	130	130
Depth [mm]	114	114	114	114	165	165
Service life [h]	50,000	50,000	50,000	50,000	50,000	50,000
Approval	CE	CE	CE	CE	CE	CE

HEATERS WITH AND WITHOUT FANS ACCESSORIES



Thermostat TFH 05
Part number: 15 TFH 005



Thermostat TKW 60
Part number: 15 TKW 060



Hygrostat HYW 90
Part number: 15 HYW 090



Digital thermostat TER 200
Part number: 15 TER 200



Thermostat TRO 60
Part number: 15 TRO 060



Thermo-Hygrostat ETUH 22
Part number: 15 ETUH 022



Thermostats and Controllers

We offer a wide range of thermostats and control units for the regulation of temperature, humidity or rotation speed to ensure that all switchgear cabinet components work efficiently and consume less power. We supply the right product for every application – everything from a simple bimetallic thermostat to an adjustable control unit with sensors and interface.

APPLICATION

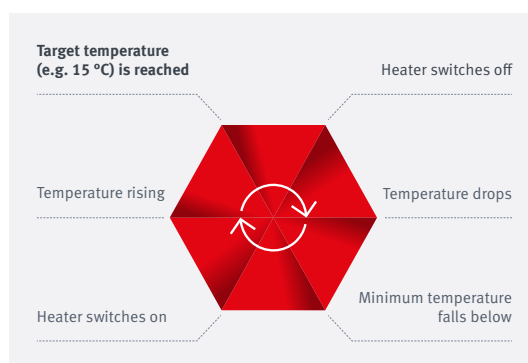
A range of temperature and humidity control units ensure that various components such as fans, heaters or coolers can be switched on and off as and when required. Thermostats are also used as contacts to signal malfunctions. There are control units with fixed settings for standard applications to prevent unintentional adjustment. Peltier coolers require special control units for regulation of their heating and cooling function.

A wide range of thermostats and control units provides tailor-made solutions.

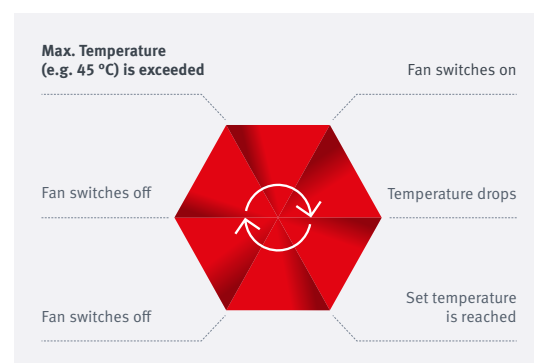
FEATURES

- Temperature controllers with bimetallic or external sensors
- Humidity controllers for the monitoring of relative humidity
- Compact enclosures for fixing to mounting rails
- Switch contact to actuate opening, closing or changeover functions
- Switching of air-conditioning components or as signal contact
- Special control units for Peltier coolers
- Rotational speed controller with temperature-dependent control to reduce noise emission

PRINCIPLE OF OPERATION TRO 60



PRINCIPLE OF OPERATION TRS 60



BIMETALLIC THERMOSTATS TECHNICAL DATA



Type	TFH 05	TFC 35	TRO 60	TRS 60	TRW 60	TWR 60
Part number	15 TFH 005	15 TFC 035	15 TRO 060	15 TRS 060	15 TRW 060	15 TWR 060
Regulating variable	temperature	temperature	temperature	temperature	temperature	temperature
Suitable for	heaters	fans and heat exchangers	heaters	fans and heat exchangers	fans, heaters	fans, heaters, heat exchangers
Control range	5 °C (fix)	35 °C (fix)	0 to 60 °C	0 to 60 °C	0 to 60 °C	0 to 60 °C
Contact	NC	NO	NC	NO	CO	CO
Hysteresis	10 K	10 K	4 to 7 K	4 to 7 K	4 to 7 K	1 K
Max. switching capacity*	AC: 5 (1,6) A DC: max. 30 W	AC: 5 (1,6) A DC: max. 30 W	AC: 10 (2) A DC: max. 30 W	AC: 10 (2) A DC: max. 30 W	AC: 10 (2) A DC: max. 30 W	AC: 10 (2) A DC: max. 30 W

TEMPERATURE, HUMIDITY AND SPEED CONTROLLERS TECHNICAL DATA



Type	TKW 60	TER 200	THRV 22	ETUH 22	HYW 90	TLR 400
Part number	15 TKW 060	15 TER 200	15 THRV 022	15 ETUH 022	15 HYW 090	15 TLR 400
Regulating variable	temperature	temperature	temperature	temperature, humidity	humidity	speed
Suitable for	fans, heaters	fans, heaters	fans, heaters	heaters, dehumidifiers	heaters, dehumidifiers	fans, heat exchangers
Control range	0 to 60 °C	-100 to +600 °C	0 to 60 °C	0 to 60 °C 20 to 90 % r. F.	40 % to 90 % r. F.	0 to 100 %
Contact	CO	2 CO	1 NO, 1 NC	CO	CO	electrical connection: fans
Hysteresis	3 K	1 bis 50 K	7 K	2 K / 5 % r. F.	5 %	0.5 K
Max. switching capacity*	AC: 10 (2) A DC: max. 30 W	15 A bei 250 V AC	AC: 10 A (1.6 A) DC: max. 30 W	AC: 10 A (250 V) DC: 8 A (30 V)	AC: 2 (0.2) bei 24 V min 100 mA	400 W

PELTIER CONTROLLERS TECHNICAL DATA



Type	TES 60	TRP 205	HPC 100	TPC 300 V2
Part number	15 TES 060	45 TRP 205	45 HPC 100	45 TPC 300V2
Regulating variable	temperature	temperature	humidity	temperature, humidity
Suitable for	thermoelectric coolers, heaters	thermoelectric coolers	dehumidifiers	thermoelectric coolers, dehumidifiers
Control range	0 to +60 °C	heating: 0 to 20 °C cooling: 30 to 50 °C	10 to 90%	0 °C to + 60 °C 10 to 90%
Contact	CO	electrical connection: peltier + fans	electrical connection: peltier + fans	electrical connection: peltier + fans
Hysteresis	2 to 3 K	2 K	5 to 20 %	0.5 to 9.5 °C
Max. switching capacity*	16 A at 24 V DC	16 A at 24 V DC	4.5 A at 24 V DC	24 A at 24 V DC

* values in brackets apply to inductive load



Pressure Equalization Units DEM

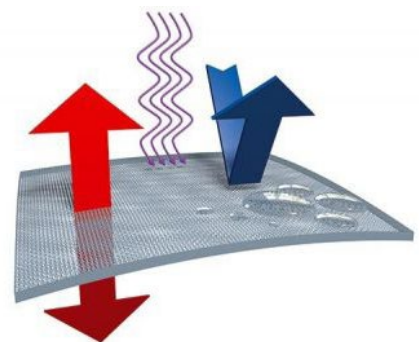
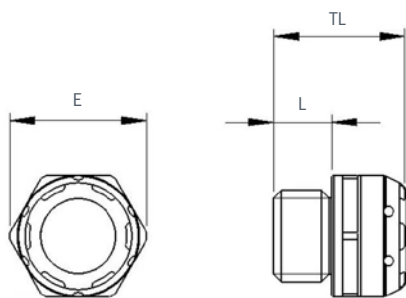
For electronics enclosures with a high degree of protection, care must be taken to ensure that no negative pressure is created inside. Pressure compensation elements DEM ensure a high air flow rate, with a high-performance ePTFE membrane preventing dirt and moisture from penetrating. Protection degree IP68/IP69 is maintained.

DESCRIPTION

- For pressure equalization in enclosures with a high degree of protection
- Flat and space-saving
- High air flow
- Reduces the formation of condensed water
- No penetration of dirt and moisture

EPTFE-MEMBRAN

High performance ePTFE-Membran which is resistant against UV radiation, salt water, oils and grease. Moisture and dirt are prevented from entering the enclosure. Air molecules are able to penetrate both sides of the membrane.



DIMENSIONS

Type	DEM 12	DEM 20	DEM 40	DEM 12 MS
Total length TL	17.4 mm	15.4 mm	15.4 mm	17.5 mm
Thread length L	8 mm	9 mm	9 mm	10 mm
Collar diameter E	18 mm	27 mm	51 mm	18 mm

PRESSURE EQUALIZATION UNITS DEM TECHNICAL DATA

Type	DEM 12	DEM 20	DEM 40	DEM 12 MS
Part number	74 DE12 PAHF	74 DE20 PAHF	74 DE40 PAHF	74 DE12 MSHF
Airflow at 70 mbar [l/h]	34	280	1650	34
Degree of protection	IP68, IP69	IP68, IP69	IP68, IP69	IP67, IP69
Operating temperature [°C]	-40 to +100	-40 to +100	-40 to +100	-40 to +100
Material cable gland	Polyamide	Polyamide	Polyamide	Brass nickel-plated
Material membrane	ePTFE HF	ePTFE HF	ePTFE HF	ePTFE HF
Material sealing gasket	TPE	Silikon	Silikon	EPDM, Silikon
Thread	M12 x 1.5	M20 x 1.5	M40 x 1.5	M12 x 1.5
Wrench size	SW 16	SW 24	SW 46	SW 16
Tightening torque [Nm]	1	2	6	2
Product color	RAL 7035	RAL 7035	RAL 7035	Nickel-plated
Approval	CE	CE	CE	CE

PRESSURE EQUALIZATION UNITS DEM ACCESSORIES



GM 12

- Lock nut M12 x 1.5, SW 18, Polyamide GF
- Part number: 74 GM12 PA



GM 12 MS

- Lock nut M12 x 1.5, SW 15, Brass nickel-plated
- Part number: 74 GM12 MS



GM 20

- Lock nut M20 x 1.5, SW27, Polyamide GF
- Part number: 74 GM20 PA



GM 40

- Lock nut M40 x 1.5, SW 50, Polyamide GF
- Part number: 74 GM40 PA



Drainage OUT-FIT

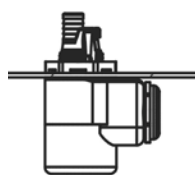
Temperature fluctuations in or outside an enclosure result in pressure changes. This leads to moisture formation and condensation inside. Malfunctions, short circuits and corrosion are the result. Permanent pressure compensation reduces the formation of condensation. If condensation cannot be avoided, optimal condensate drainage must be ensured.

DESCRIPTION

- Reduction of maintenance intervals and costs
- High performance ePTFE-Membran for pressure equalization
- Integrated check valve for a safe drainage
- A high degree of enclosure protection is maintained – water and dustproof
- Universal hose connection for versatile condensate hoses
- Drainage of water on the bottom of the enclosure



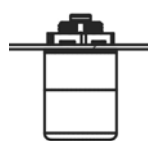
FOUR VERSIONS FOR EVERY APPLICATION



Mounting in the
Floor



Mounting in the
Floor



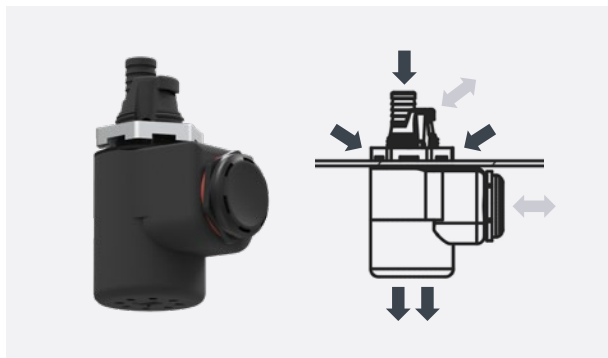
Mounting in the
Floor



Mounting in the
side wall

DRAINAGE OUT-FIT PRODUCT VARIANTS

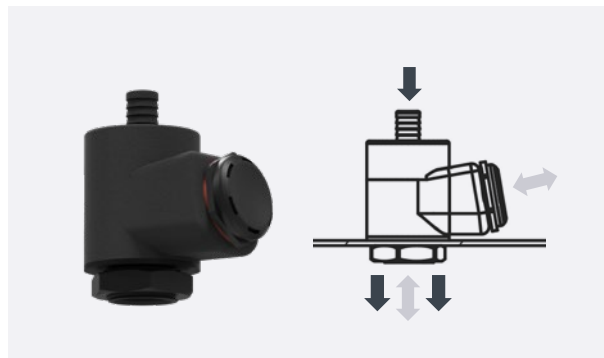
↓ Water ↔ Pressure equalization



OUT-FIT: OF-M20-BA

Part number: 74 OF20 BA

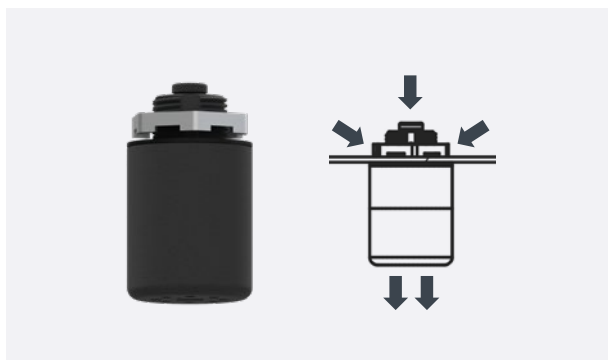
- Simultaneous drainage of condensate from cooling / dehumidifying devices and from the housing bottom
- Pressure equalization function
- Mounting below the enclosure bottom



OUT-FIT: OF-M20-BI

Part number: 74 OF20 BI

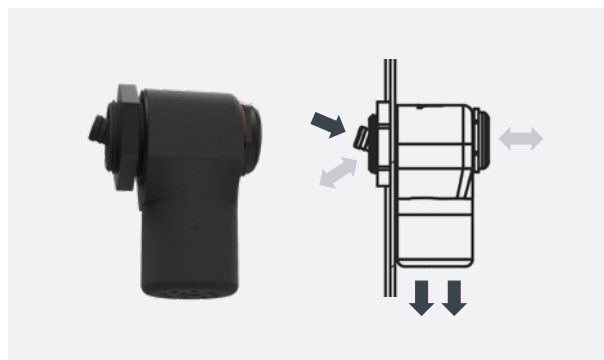
- Drainage of condensate from cooling / dehumidifying devices
- Pressure equalization function
- Mounting inside of the enclosure



DRAIN-FIT: DF-M20-BA

Part number: 74 DF20 BA

- Simultaneous drainage of condensate from cooling / dehumidifying devices and from the housing bottom
- Recommended in combination with Pressure equalization elements of the DEM series (page 18)
- Mounting below the enclosure bottom



OUT-FIT: OF-M25-W

Part number: 74 OF25 W

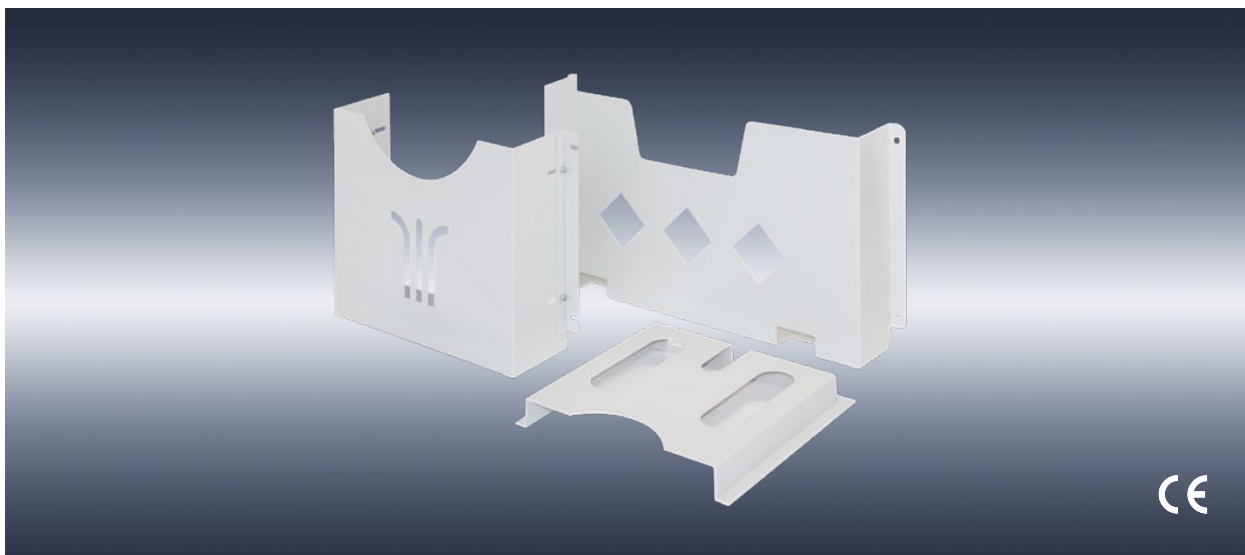
- Drainage of condensate from cooling / dehumidifying devices
- Pressure equalization function
- Mounting inside of the enclosure

OUT-FIT OF-M20-BI ACCESSORIES



FL-M20-BI

- Flange for floor level mounting of OF-M20-BI
- Part number: 79 FL20 BI



Document Pockets

No switchgear cabinet is complete without a document pocket for storing circuit diagrams, parts lists, operating instructions and other documents required for immediate access. There is a wide range of versions for all sorts of applications. Document pockets are also invaluable in production areas or warehouses.

FEATURES

- For storage of circuit diagrams in switchgear cabinets
- Wide range of different uses in production and warehouse areas
- Material: plastic, film or sheet steel
- Other sizes and versions available on request

APPLICATION

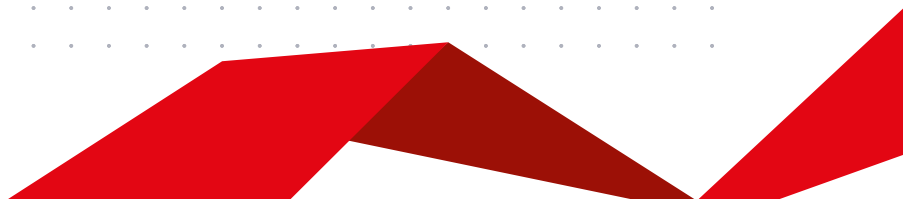
ST-A4-U with adjustable mounting brackets for individual fixing to the switchgear cabinet profile frame.



Type	ST-A5-F	ST-A4-F	ST-A4	ST-A4-B4	ST-A4-U	ST-A3-B6	ST-A3-B8
Part number	71 St5 0VE*	71 ST4 0VE*	71 ST4 050	71 ST4 450	71 ST4 U50	71 ST3 650	71 ST3 850
Width [mm]	157	220	230	255	330	450	650
Height [mm]	220	300	220	260	257	260	260
Depth [mm]	–	–	30	87	87	87	87
Material	foil	foil	plastic	sheet steel	sheet steel	sheet steel	sheet steel
Colour	transparent	transparent	RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035
Fastening	adhesive bonding	adhesive bonding	adhesive bonding	screws	screws	screws	screws

* PU = 10 pieces

Notes





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