

Компоненты и системы для аккумуляторных электромобилей и транспортных средств на топливных элементах

Технические характеристики

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Россия +7(495)268-04-70

Казахстан +(727)345-47-04

Беларусь +(375)257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: men@nt-rt.ru || сайт: <https://mahle.nt-rt.ru/>



TWO TOP TEAMS: MAHLE AND NAGARES

With around 77,000 employees, MAHLE is represented in all global markets. At 16 major development centers in Germany, Great Britain, Luxembourg, Spain, Slovenia, the USA, Brazil, Japan, China, and India, 6,000 MAHLE engineers and technicians are working on products and concepts for the mobility of tomorrow.

As a global development partner for the international automotive and engine industry, MAHLE stands for innovative, efficient solutions in the areas of engine systems, filtration, thermal management, and electrics/mechatronics.

The Spanish electronics specialist Nagares develops and produces control and power electronics for electric auxiliary components, thermal management systems, and e-mobility. Its portfolio includes the following products:

- **Actuators and switches**
- **Electronic products such as diesel glow plugs and Nidervolt motor control units, acoustic warning signal controllers or battery separation electronics**
- **High-performance electronics like the DC/DC converter**
- **Various sensors**



Nagares was founded in 1971. Today, at its three locations (Mortilla del Palancar, Valencia, and Valladolid), it employs around 460 people, of whom 12 percent work exclusively in research and development.



Not only do MAHLE and Nagares have identical customers and markets—they both stand for innovative mobility solutions and excellent performance when it comes to quality and service.

HIGH PERFORMANCE FOR ALL MOBILITY CONCEPTS

The two companies' product ranges complement each other perfectly. For a long time, Nagares has supplied various MAHLE business units with control and power electronics. The electronics specialist has been part of the MAHLE Group since May 2017 and was integrated into the Mechatronics division as the BXE product division.

In the future, the spare parts business of MAHLE Nagares will be included under the MAHLE brand as part of the MAHLE Aftermarket business unit. This means that the innovative electronics components from MAHLE Nagares will benefit from the image and well-developed distribution network of MAHLE, a globally established quality brand.

IF IT SAYS MAHLE ON THE OUTSIDE, IT'S NOW GOT VEHICLE ELECTRONICS ON THE INSIDE TOO

The packaging design for MAHLE Nagares products will eventually change, but during this transitional phase, they will be labelled with the MAHLE part number.



IT'S STILL TRUE: IF IT SAYS MAHLE ON THE OUTSIDE, IT'S GOT ORIGINAL EQUIPMENT QUALITY ON THE INSIDE

Members of the same family usually share a surname, and that's why the MAHLE Nagares products will be given new names—making it immediately obvious that they have the high product quality offered by MAHLE Aftermarket.







Greater added value for trade and workshop:

- Global MAHLE network with a personal contact on site
- An even bigger product range from a single source—for all mobility solutions
- Comprehensive technical support from the MAHLE Aftermarket product specialists
- Knowledge transfer at MAHLE Aftermarket product training sessions

Even more benefits:

- Control and power electronics for passenger cars and commercial vehicles in uncompromising original equipment quality from MAHLE Nagares
- Many years of expertise in vehicle electronics development and manufacturing in the new Electronics product division
- Access to the expanded product range, which now includes pioneering electronics applications and is constantly adapted to market requirements

The letter combinations stand for the following parts:

Product category	Product group	Product name	MAHLE sales naming
 <p data-bbox="140 515 231 571">Actuators and switches</p>	<p data-bbox="491 313 547 504">Switches/ relays/ coils/ ashers/ connectors/ timers</p>	<p data-bbox="715 313 770 504">Flashers Relay connectors Timers Relays</p>	<p data-bbox="970 313 1026 504">MFL MRC MT MR</p>
 <p data-bbox="140 985 220 1008">Electronics</p>	<p data-bbox="491 593 547 750">Heater control units Acoustic warning device control units Motor controllers Electronic battery disconnects Other electronics</p>	<p data-bbox="715 593 818 1008">Diesel glow plug controllers Warning devices Electronic horns Low-voltage motor controllers Electronic battery disconnects Electronic units</p>	<p data-bbox="970 593 1026 1008">MHG MEWD MWH MELM MB MECU</p>
 <p data-bbox="140 1232 199 1254">Sensors</p>		<p data-bbox="715 1030 794 1254">Temperature sensors Crankshaft sensors Water sensors Other Sensors</p>	<p data-bbox="970 1030 1026 1254">MST MSC MSW MSO</p>
 <p data-bbox="140 1590 263 1646">High-performance electronics</p>		<p data-bbox="715 1276 794 1366">DC/DC converters/ transformers</p>	<p data-bbox="970 1276 1026 1310">MPD</p>

PARTS FOR THE FUTURE



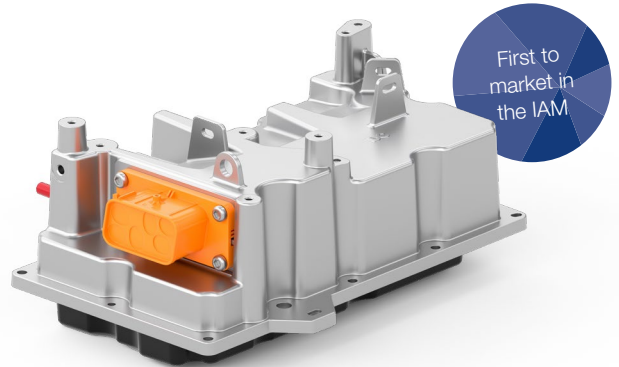
Input Filters — Protecting the Heart of E-mobility

MAHLE Lifecycle and Mobility is introducing OE-quality input filters for battery electric and plug-in hybrid electric vehicles to the independent aftermarket (IAM), becoming the first IAM supplier to offer these filters. These filters are an addition to our comprehensive e-mobility range.

What does an input filter do?

Placed between the power source and power electronics, an input filter has the following functions:

- Controls the passage of electrical signals by frequency, blocking unwanted signals and suppressing interference
- Smooths out voltage ripples and protects the traction battery and other sensitive components
- Improves power quality and ensures the HV battery charges safely and efficiently
- Ensures electromagnetic compatibility (EMC) within the high-voltage system



Causes and consequences of failure

Input filter failures can be caused, for example, by overheating, damage from vibration, and moisture ingress. Damaged or improperly working input filters can cause charging issues or complete charging failure, making replacement necessary.

Product highlights

- **HV system protection** — protects traction batteries and other components from harmful electrical interference, ensuring stable power flow
- **Precisely matched** — vehicle-specific variants for the perfect fit
- **Durable** — replace only when defective or damaged

For which vehicles the MAHLE input filter is suitable:

Product description	MAHLE article no.	Vehicle	Model	Max charge	Engine	OE number*
Input filter	MPI1	Renault	Twingo III Z.E. Electric (2020–)	22 kW	5AL*601 5AL*605	296G99047R
Input filter	MPI2	Renault	Zoe I Ph2 (2020–)	22 kW	5AQ*605 5AQ*609	296G95974R 296G90943R

* OE numbers are provided for comparative purposes only.



The cable for the mobility of the future

The charging cable is the lifeline of your personal electric mobility. A high-quality connection between charging station and vehicle means that you can always charge your electric or hybrid vehicle safely, reliably, and at an optimal speed. Here's why you should choose the high-quality MAHLE MX 485 charging cable:

Robust original equipment quality

The MAHLE MX 485 charging cable is manufactured from high-quality components in OE quality. It is waterproof, weather-resistant (protection class IP 44), and designed for a tough everyday charging routine at temperatures from -30°C to $+50^{\circ}\text{C}$.

Optimal compatibility

All common electric and hybrid vehicles as well as charging stations and wallboxes with type 2 plugs (EU standard) can be connected using the MAHLE MX 485 charging cable. And a cable length of 5 meters gives you the necessary flexibility in almost any situation.

Reliable charging

With the handy three-phase (mode 3) cable, you can charge reliably and quickly with up to 22 kW of charging power and 32 amps of charging current—for more than 10,000 charging cycles.

Product details

- MAHLE MX 485 charging cable, length 5 meters
- High-quality original equipment quality for more than 10,000 charging cycles
- Type 2 plug in accordance with the EU standard (MENNEKES design)
- Three-phase (mode 3), 32 A, 22 kW, 480 VAC (in accordance with the IEC 62196 standard)
- Waterproof, weather-resistant, and usable at temperatures from -30°C to $+50^{\circ}\text{C}$



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