Made in Germany
QUALITY since 1946

MOLL BATTERIEN

BATTERY INNOVATIONS

CAR | TRUCK



General catalogue

MOLL General catalogue

Contents

MOLL *the Company*

75 years success story “Made in Germany”

More than 75 years ago, the first MOLL battery ensured a good start.

Since then, millions of MOLL batteries have left the factory in Bad Staffelstein / Bavaria for use all over the world.

Pioneering technical developments with numerous own patents and the highest quality standards in production have been the company’s guidelines right from the beginning. They have given distinction to the MOLL corporate philosophy to date and guarantee the premium quality of the MOLL brand in the future.

Original Equipment Manufacturer for the Automotive Industry

As an expert, MOLL has decisively influenced the entire battery technology by innovations. The success of the medium-sized company is based upon technical expertise, practical and future-oriented development as well as a constantly high quality level. For this reason, MOLL has been supplying premium batteries as original equipment for premium brands in the German automotive industry for decades.

Premium quality for premium brands

MOLL supplies well-known automotive and utility vehicle manufacturers in the original equipment sector, e.g.: Audi, Daimler, Porsche, Seat, Škoda, Volkswagen, Ammann, Delko, Frankia, Hamm, Hammelmann, Holmer, Kaeser, Liebherr, Tadano Faun, Prinoth, Weber MT and many more.

MOLL the Company

Company History and Product Development

1946 Company was founded by Peter J. Moll

1953 Patent for the KAMINA system (central degassing) for Auto-Union

1976 Inter-cell connection with patented “Schneidring”

1991 First truck battery with KAMINA system

2004 Development of K2 double-chambered lid (spill-proof battery, patented)

2007 VRLA / AGM batteries for the automotive industry

2010 Development of Enhanced Flooded Batteries (EFB) for Start-Stop application

2014 Expansion of production capacity to 1.6 millions units

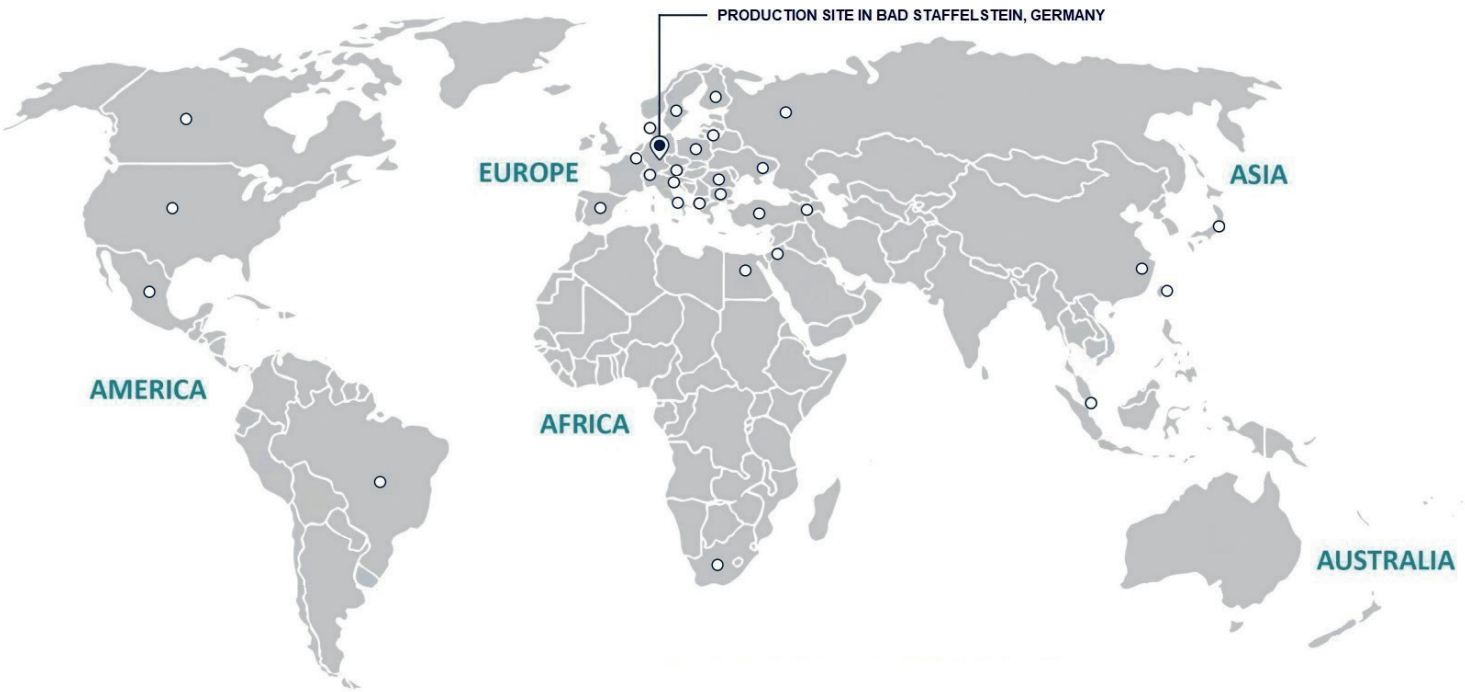
2018 Start of development of AFB for Start-Stop and recuperation applications to replace AGM

2021 New shareholders

2022 SOP of HOT-Climate and Advanced Flooded Batteries (AFB)

Continuous advancement

Worldwide Presence



MOLL Philosophy

Sense of responsibility within the MOLL company

Corporate Social Responsibility

Ever since the company was founded in 1945, the battery manufacturer MOLL has demonstrated social responsibility. In addition to merely economic aspects, social concerns, the wellbeing of society and environmental issues are always taken into account by the company‘s management.

What we believe in and what we stand for

- we respect people, the environment and nature – without exception
- we respect the laws and cultures of the countries in which we operate
- we live and work according to ethical principles and generally recognised legal principles
- we act honestly and with integrity
- we engage in open and constructive dialogues with all groups in society
- we respect the interests of our customers, shareholders, employees, partners and suppliers and involve them appropriately in our success
- we act in an environmentally conscious manner and thus sustainably protect climate and resources

Environmentally conscious handling of resources

Environmental protection and the careful and considerate use of our resources by continuously improving our production processes is an elementary component of our corporate goals. Environmental protection is on an equal footing with other important goals such as economic efficiency and our quality policy.

We encourage all employees to act safely and responsibly with an open information policy and with regular trainings and instructions. We also maintain an open dialogue with the public and the authorities.

All resources are used responsibly and ecologically.
MOLL takes back used batteries and guarantees proper recycling. MOLL is certified according to ISO 14001 environmental management and ISO 50001 energy management.

MOLL Highest Quality

Certified Quality, Environment and Energy Management

- Quality management according to IATF 16949
- Quality management according to ISO 9001
- Environmental management system according to ISO 14001
- Energy management system according to ISO 50001

Original equipment quality also in the aftermarket

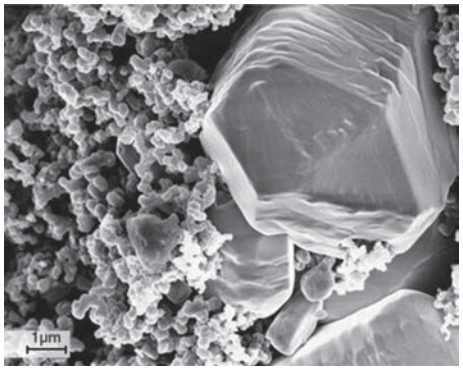
- Same production lines for original equipment and aftermarket
- Same quality standards for original equipment and the aftermarket
- All batteries are 100% tested
- Development in close cooperation with vehicle manufacturers
- Outstanding process, product and development quality in accordance with IATF 16949/2016
- MOLL is regularly among the test winners in independent battery tests

MOLL High-Tech

Innovations from MOLL

Nano Carbon Technology

The **Nano Carbon Technology** embodies 75 years of MOLL battery know-how. The recipes of the active masses for the various MOLL product ranges have been individually adapted and further optimised over the years. Each recipe has an individual mix of different carefully selected carbons that ensures a high active surface area and a pore structure that is favourable for the specific application.



Nano Carbon Technology

Benefits of the **Nano Carbon Technology:**

- Larger surface
- Favourable pore structure
- High charge acceptance
- High cycling stability

MegaGrid Technology

The **MegaGrid technology** is also the result of many decades of experience. To manufacture the positive electrode, the well-proven, robust gravity grid casting process is used. The grid design, the casting process and the grid alloys have been continuously further developed.

MegaGrid Technology

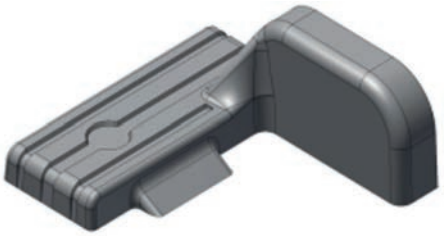
Benefits of the **MegaGrid Technology:**

- Highest corrosion resistance
- Reinforced grid design
- Optimised wire geometry
- Optimised wire spacings
- Optimised current distribution
- Improved grid-mass bonding
- Low grid growth
- Long service life

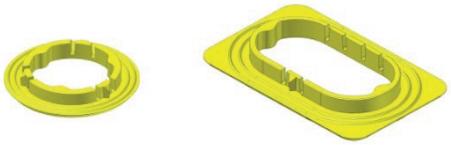
MOLL High-Tech

High quality components

New connector design:
– Low internal resistance
– High vibration resistance



Oval Schneidring:
– Larger cross-sectional area
– High vibration resistance

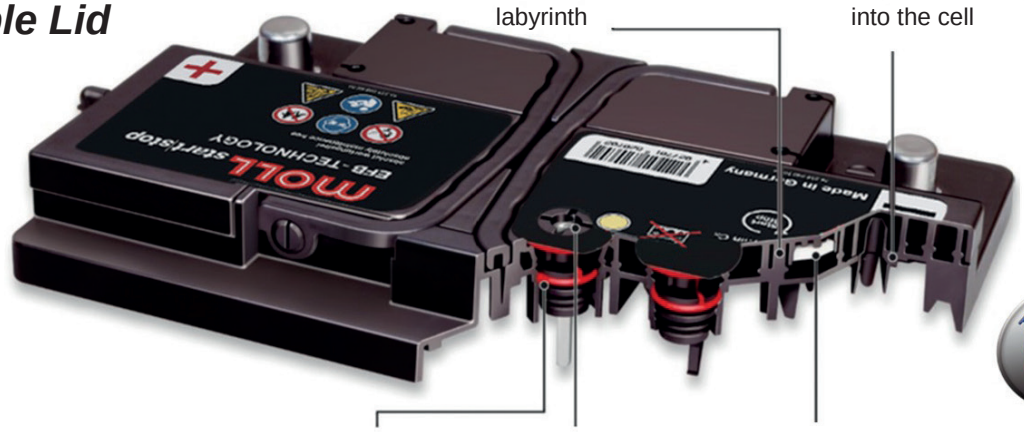


Old (round) New (oval)

K2 Double Lid Technology:
– Leakproof according to VW specification
– Plug and electrolyte level indicator (ELI) with electrostatic discharge tightness (ESD)

K2 Double Lid

patented



MOLL Starter Batteries

Performance parameters and fields of application

	MOLL AFB start | stop	MOLL EFB start | stop	MOLL XTRA Charge	MOLL HOT climate
Micro-Hybrid lifetime	■■■■■	■■■■■	■■□□□	■■□□□
Breaking energy recuperation	■■■■■	■■■■■	■■■□□	■■□□□
Cranking performance	■■■■■	■■■■■	■■■■□	■■■■□
Capacity	■■■■■	■■■■■	■■■■■	■■■■□
Maintenance-free according to EN	■■■■■	■■■■■	■■■■■	■■■■■
Cycle lifetime	>400 %	>400 %	150 %	150 %
Electrolyte level indicator	yes	yes	yes	yes
Central degassing	yes	yes	yes	yes
Spill-proofness	■■■■□	■■■■□	■■■■□	■■■■□
Hot place of installation	■■■■□	■■■■□	■■■■□	■■■■■
Can be used as AGM in the vehicle	yes	no	no	no
Application	Vehicles with micro-hybrid systems (start|stop and recuperation)	Vehicles with micro-hybrid systems (start|stop and recuperation)	Vehicles with numerous electrical consumers / diesel vehicles	Vehicles with numerous electrical consumers / diesel vehicles / hot environment / hot climate zones
Passenger car/vans	✔	✔	✔	✔
Taxi	✔	✔		
Vehicles for special applications	✔	✔		
Construction machines	✔	✔	✔	✔
Off-road	✔	✔	✔	✔
Caravans	✔	✔		
Motorboats	✔	✔	✔	✔

MOLL AFB start | stop

MOLL, the inventor of the modern EFB, sets new standards with the product innovation **MOLL AFB**. The **MOLL AFB** is based on the **MOLL EFB technology** and has been specifically adapted to the AGM on-board network behaviour. The newly developed active mass formulations ensure higher charge acceptance and improved micro-hybrid capability compared to the AGM battery. Combined with the corrosion-resistant alloys, this ensures excellent temperature stability and high cold-cranking performance. This makes the **MOLL AFB** the “better AGM battery”.

MOLL Type no.	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking current A (EN)	Max. outer dimensions [mm]		
					Length	Width	Height
86066	0	1	66	640	242	175	190
86076	0	1	76	760	278	175	190
86086	0	1	86	820	315	175	190
86096	0	1	96	900	353	175	190
86106	0	1	106	980	394	175	190

All data according to EN 50342

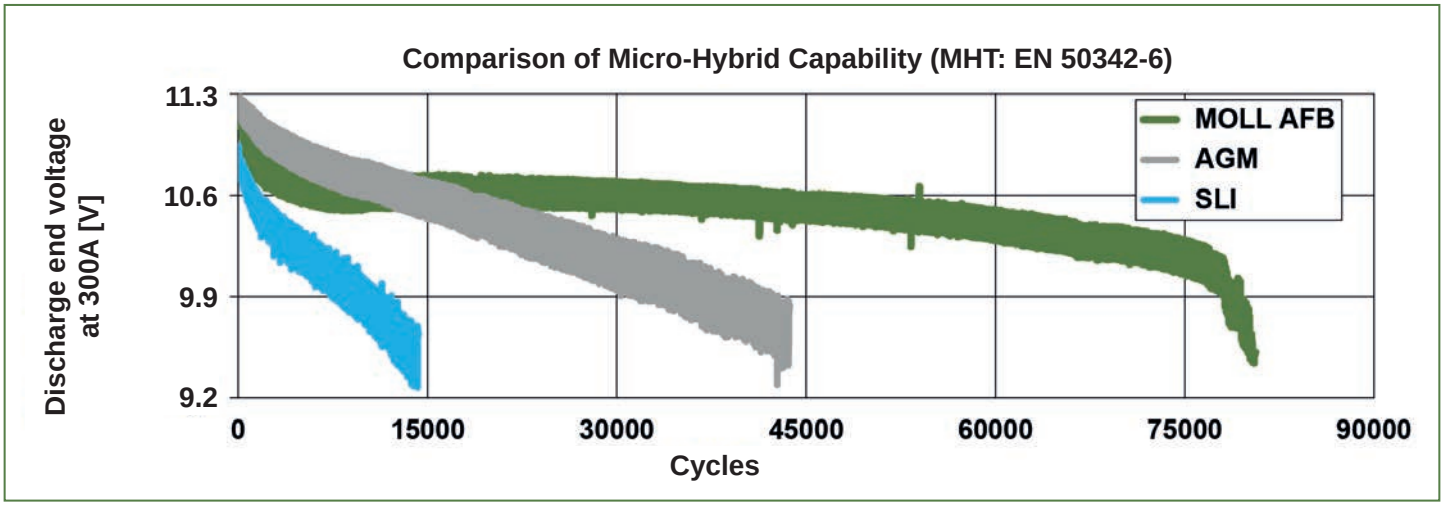
MOLL *AFB start | stop*

The innovative alternative to AGM

Benefits:

- ✔ Replaces AGM
- ✔ Economical alternative to AGM
- ✔ Use of particularly corrosion-resistant alloys
- ✔ Use of specially developed active masses
- ✔ Robust gravity casting technology with reinforced grid design
- ✔ Low water consumption - maintenance-free due to calcium grid technology
- ✔ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✔ Electrolyte level indicator (ELI) according to the requirements of the automotive industry
- ✔ Longer shelf life due to calcium grid technology
- ✔ High vibration resistance
- ✔ Quality Made in Germany
- ✔ 100% recyclable

MOLL *AFB start | stop* replaces *AGM*



MOLL *AFB start | stop* – Most important features at a glance

MOLL EFB start | stop

The **MOLL EFB** was developed as an alternative technology to the AGM and has been used successfully by well-known car manufacturers for over 10 years. Thanks to **nano carbon technology**, the **MOLL EFB** is particularly impressive with its excellent micro-hybrid cycle performance and simultaneously high cold-cranking performance. The exceptional corrosion resistance of the grids in **MegaGrid technology** ensures a long service life even at higher temperatures. The **MOLL EFB** is a power pack that meets the highest requirements.

MOLL Type no.	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking current A (EN)	Max. outer dimensions [mm]		
					Length	Width	Height
82060	0	1	60	640	242	175	190
82065	0	1	65	680	278	175	175
82070	0	1	70	700	278	175	190
82075	0	1	75	760	315	175	175
82080	0	1	80	800	315	175	190
82095	0	1	95	900	353	175	190

All data according to EN 50342

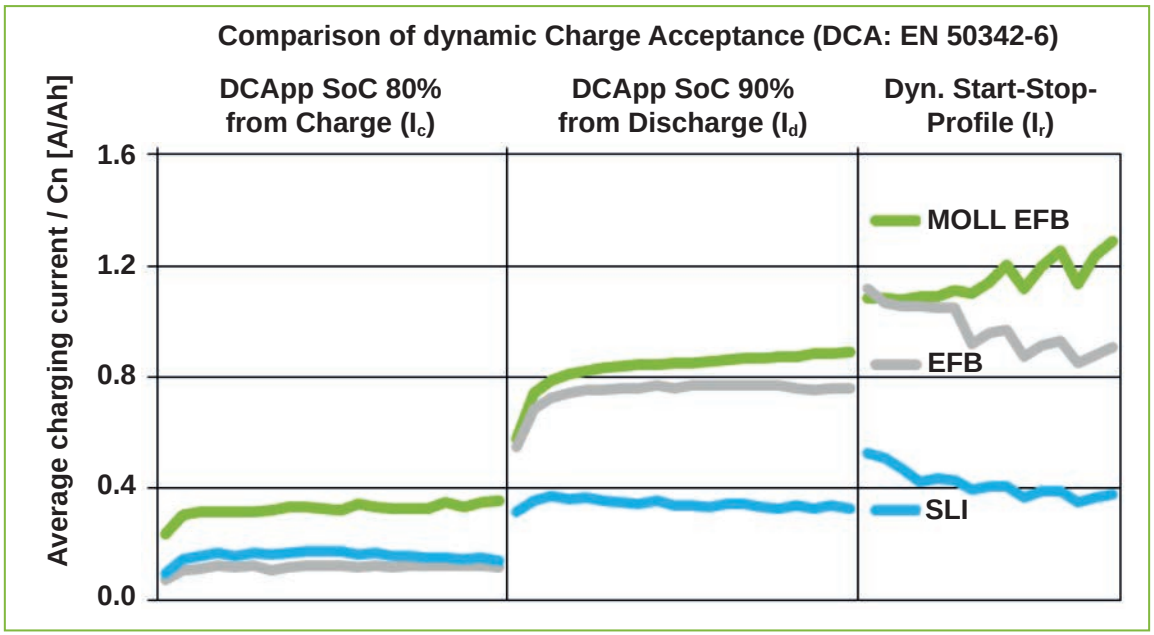
MOLL *EFB start | stop*

Developed for micro-hybrid applications

Benefits:

- ✔ Extremely high cycle performance in micro-hybrid application
- ✔ Low water consumption - maintenance-free due to calcium grid technology
- ✔ Robust gravity casting technology with reinforced grid design
- ✔ Use of particularly corrosion-resistant alloys
- ✔ Use of specially developed active masses
- ✔ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✔ Longer shelf life due to calcium grid technology
- ✔ Electrolyte level indicator (ELI) according to the requirements of the automotive industry
- ✔ High vibration resistance
- ✔ Quality Made in Germany
- ✔ 100% recyclable

The MOLL EFB features outstanding charge acceptance



MOLL *EFB start | stop* – Most important features at a glance

MOLL XTRA Charge

The **MOLL XTRA Charge** has been designed to charge almost twice as fast as conventional batteries, especially at low states of charge, thanks to **Nano Carbon Technology**, which has a significant effect on battery life. This also applies to low charging voltages, making the **MOLL XTRA Charge** particularly suitable for older vehicles. The excellent cold-cranking performance of the **MOLL XTRA Charge** ensures driving pleasure even in winter.

MOLL Type no.	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking current A (EN)	Max. outer dimensions [mm]		
					Length	Width	Height
84050	0	1	50	450	207	175	175
84060	0	1	60	600	242	175	175
84062	0	1	62	600	242	175	190
84074	0	1	74	700	278	175	175
84075	0	1	75	720	278	175	190
84085	0	1	85	800	315	175	190
84090	0	1	90	800	353	175	175
84100	0	1	100	850	353	175	190
84110	0	1	110	900	394	175	190

All data according to EN 50342

MOLL *XTRA Charge*

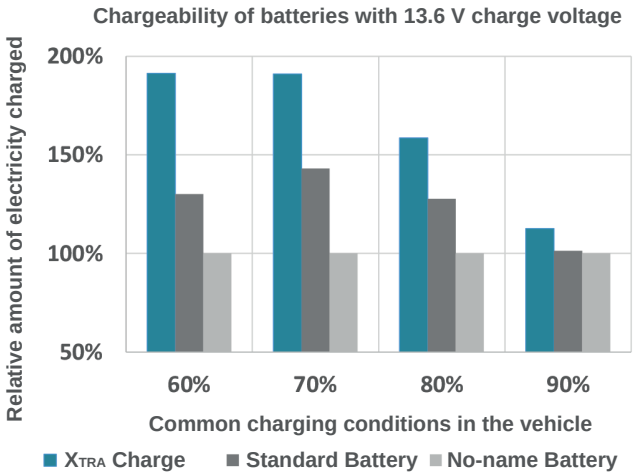
For faster Charging

Benefits:

- ✔ Extra fast charging due to nano carbon technology
- ✔ Low water consumption – maintenance-free due to calcium grid technology
- ✔ Robust gravity casting technology
- ✔ Use of particularly corrosion-resistant alloys
- ✔ Use of specially developed active masses
- ✔ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✔ Electrolyte level indicator (ELI) according to the requirements of the automotive industry
- ✔ Suitable for vehicles with many electrical consumers
- ✔ Longer shelf life due to calcium grid technology
- ✔ High vibration resistance
- ✔ Quality Made in Germany
- ✔ 100% recyclable

MegaGrid Technology together with Nano Carbon Technology ensures low internal resistance and superior charge acceptance even at low charging voltages.

The high capacity combined with highest cold cranking performance makes the ***MOLL XTRA Charge*** a robust workhorse suitable for all sectors that do not require start|stop functionality.



MOLL *XTRA Charge* – Most important features at a glance

Quick Charge | MegaGrid Technology | Nano Carbon Technology | many electrical consumers | long cycle lifetime | high cold-cran-king performance | vibration resistance | ideal spill-proofness

MOLL HOT climate

Due to its special design, the **MOLL HOT climate** achieves a significantly longer service life in hot climates compared to standard batteries. The very good corrosion resistance, even at high temperatures, is achieved by special lead alloys and the proven, robust gravity casting technology. Due to its very low water consumption in combination with specially developed active masses, the **MOLL HOT climate** is especially suitable for hot climates.

MOLL Type no.	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking current A (EN)	Max. outer dimensions [mm]		
					Length	Width	Height
85063	0	1	63	540	242	175	190
85073	0	1	73	620	278	175	190
85083	0	1	83	700	315	175	190
85093	0	1	93	750	353	175	190
85103	0	1	103	830	394	175	190

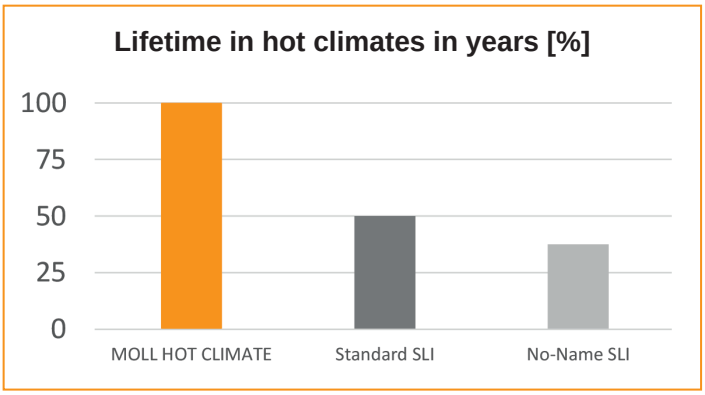
All data according to EN 50342

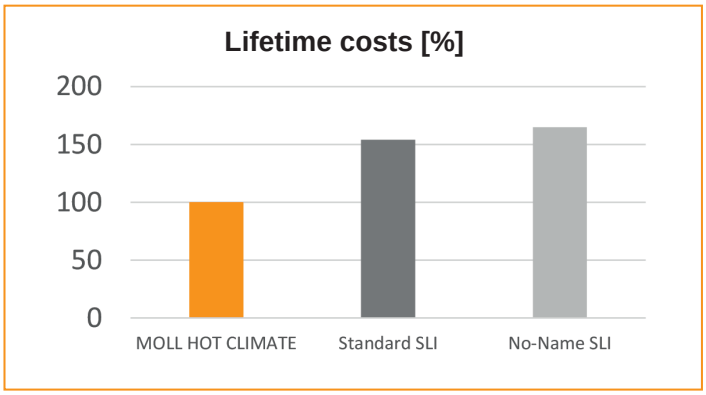
MOLL *HOT climate*

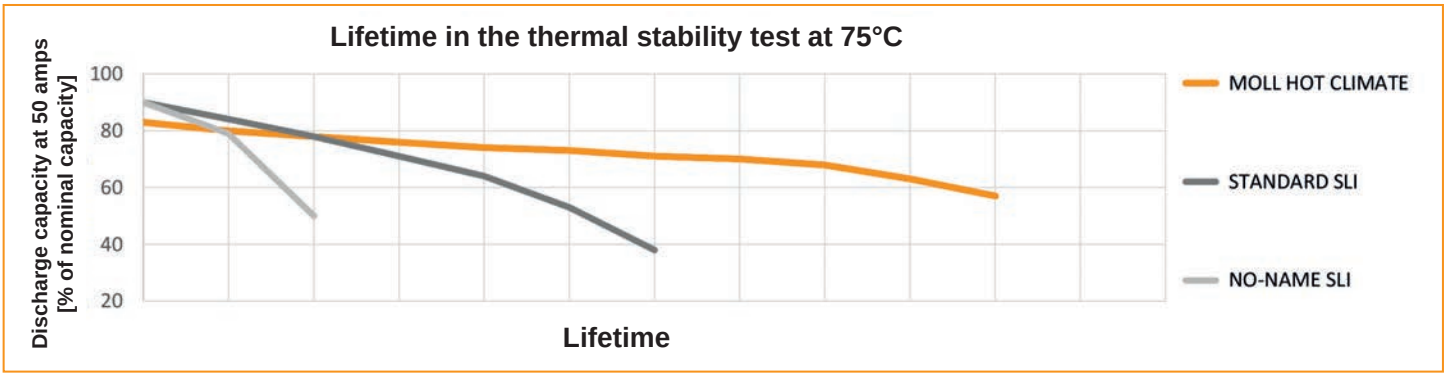
The Premium Battery for hot climates

Benefits:

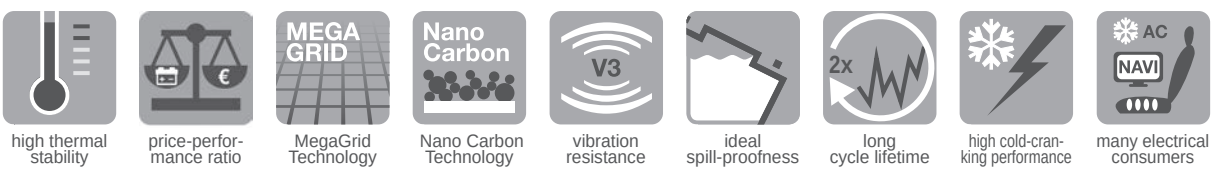
- ✔ Up to two times longer lifetime at high temperatures compared to standard batteries
- ✔ Lowest life cycle costs
- ✔ Low water consumption - maintenance-free due to calcium grid technology
- ✔ Low self-discharge at hot temperatures
- ✔ Robust gravity casting technology with reinforced grid design
- ✔ Use of highly corrosion-resistant alloys
- ✔ Use of specially developed active masses
- ✔ Highest leakage safety due to patented double lid with ESD-proof screw plugs
- ✔ Electrolyte level indicator (ELI) as required by the automotive industry
- ✔ High vibration resistance
- ✔ Quality Made in Germany
- ✔ 100% recyclable







MOLL *HOT climate* – Most important features at a glance



MOLL Kamina truck SHD

The **MOLL Kamina truck SHD** is characterised by an exceptionally high cyclabilty. This results from the combination of two specially developed, different alloys for the production of the **MegaGrid** using the proven and robust gravity casting technology. Excellent vibration resistance and the advantages of **Nano Carbon Technology** make the **MOLL Kamina truck SHD** the long-lasting solution for professionals. The double lid with the ESD-safe screw plugs ensures maximum leakage safety.

MOLL Type no.	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking current A (EN)	Central degassing	Double lid	Max. outer dimensions [mm]		
							Length	Width	Height
610 040 076	3	1	110	760	x		516	175	211
625 023 000	2	1	125				286	269	230
635 043 100	3	1	135	1000	x		516	175	211
640 020 076	3	1	140	760	x	x	513	190	219
670 018 100	3	1	170	1000	x	x	513	224	219
670 033 100	3	1	170	1000	x		516	219	211
680 032 100	3	1	180	1000	x	x	513	224	219
725 012 115	3	1	225	1150	x	x	518	275	240

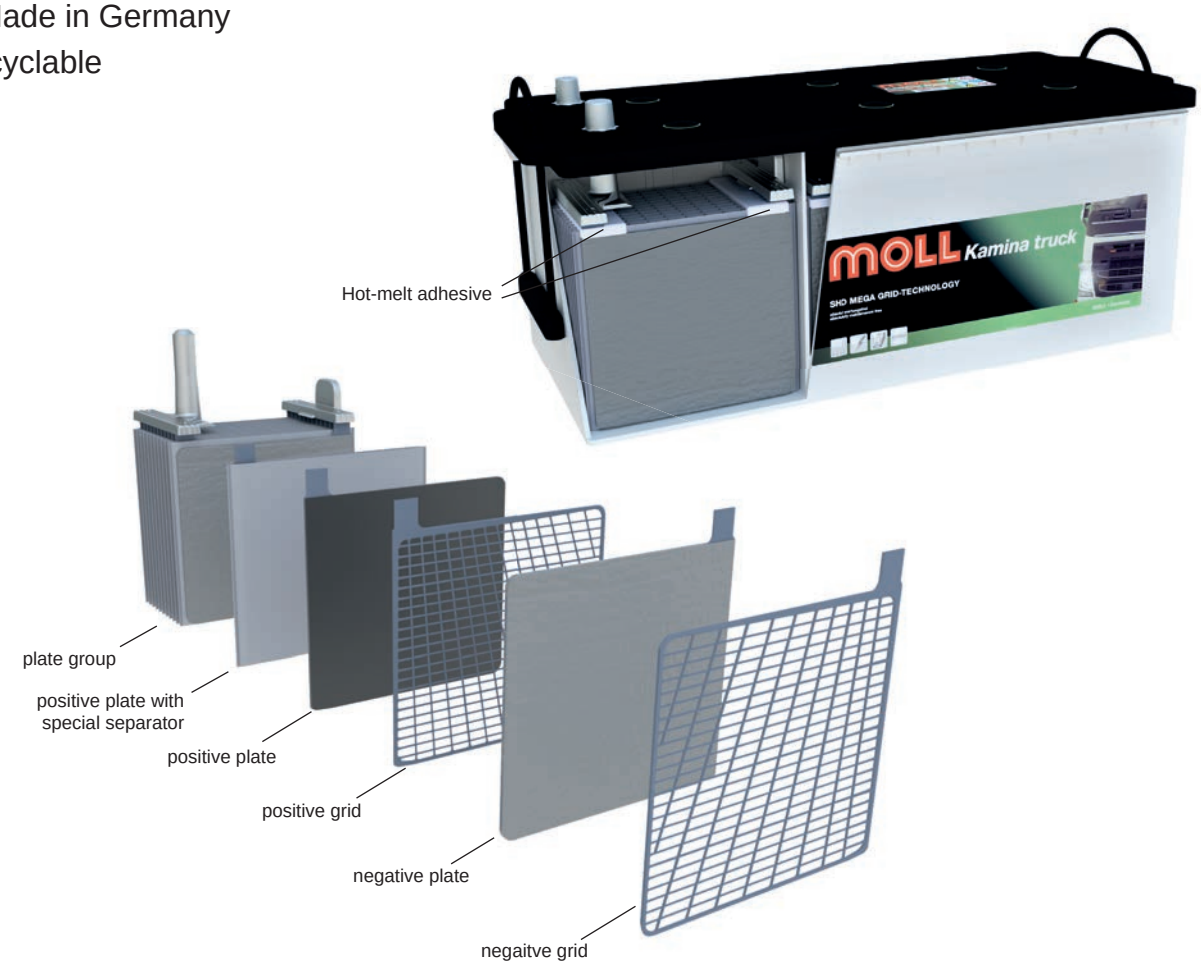
All data according to EN 50342

MOLL *Kamina truck SHD*

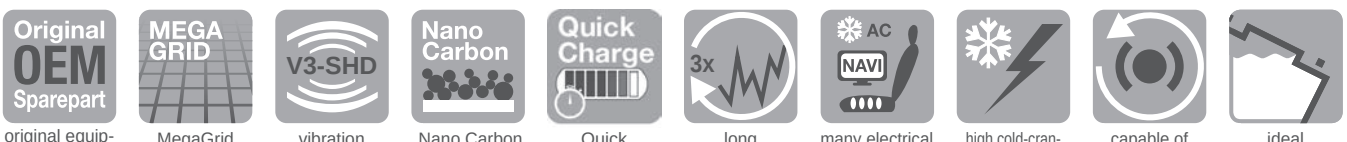
Designed for long service life

Benefits:

- ✔ Extra fast charging due to Nano Carbon technology
- ✔ MegaGrid technology in heavy gravity-casting quality
- ✔ Extraordinarily vibration resistant
- ✔ Very high cycle stability
- ✔ Extremely long service life
- ✔ Use of specially developed active masses
- ✔ Highest leakage safety due to double lid with ESD-proof screw plugs
- ✔ Suitable for vehicles with many electrical consumers
- ✔ Quality Made in Germany
- ✔ 100% recyclable



MOLL *Kamina truck SHD* – Most important features at a glance

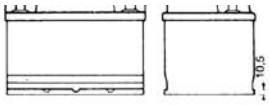


MOLL Standards

Base hold-downs, terminal positions and terminal types

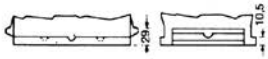
Base hold-downs

B1



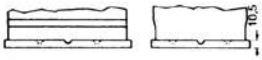
Hold-downs with a height of 10.5 mm on the long sides

B5



Hold-downs with a height of 10.5 mm on the long sides and of 29 mm on the narrow sides

B3/13



B3: 3 Notches | B13: 5 Notches

Hold-downs with a height of 10.5 mm on the long and narrow sides

B6

Hold-downs with a height of 29 mm on the narrow sides

B4/14

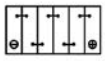
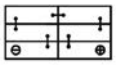
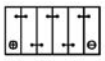
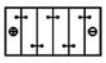
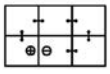
B4: 3 Notches | B14: 5 Notches

Hold-downs with a height of 19 mm on the long sides

B11

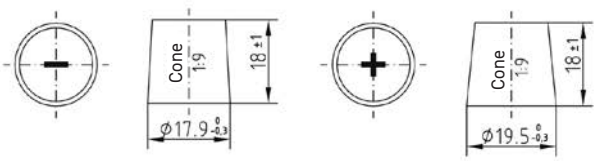
Hold-downs with a height of 10.5 mm on the narrow sides

Terminal positions

	12 V		12 V		12 V
0		3		6	
1		4		9	
2		5			

Terminal types

1



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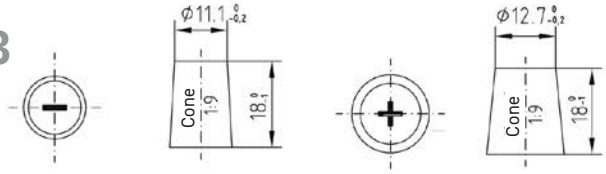

1 Terminal according to DIN 72 311

1/3 Terminals for Japanese vehicles with adapter for European vehicles

MOLL Battery features

Icons for quick guidance

OE Quality

Original equipment quality also for the aftermarket

Quick Charge

Very fast charging capability

original equip-ment quality

Meets all requirements of of the car manufacturers for the original equipment


capable of recuperation

Meets all demands of the vehicle manufacturers for micro-hybrid applications (recuperation and start|stop)

MegaGrid Technology

MegaGrid: High-performance grid with lead-calcium-silver alloy


high thermal stability

High thermal stability, ideal for installation in the engine compartment

Nano Carbon Technology

Special nano carbon additives to prevent sulphation and for maximum cycle life

vibration resistance

Vibration resistance levels (V3-SHD = max.)

start|stop-Technology

Very high start|stop capability and enormous performance


ideal spill-proofness

Ideal spill-proofness due to patented K2 double lid

long cycle lifetime

Cycle lifetime in comparison to a conventional flooded battery

many electrical consumers

Highest number of electrical consumers, especially in vehicles with auxiliary heating


high cold-cran-king performance

Very high cold-cranking performance

price-perfor-mance ratio

Balanced price-performance ratio compared to AGM batteries

Notes

AFB start | stop

EFB start | stop

XTRA Charge

HOT climate

Kamina truck SHD

Made in Germany
QUALITY since 1946

MOLL BATTERIEN

Status: October 2022

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