Made in Germany
Quality since 1946

MOLL BATTERIEN

BATTERY INNOVATIONS

CAR | TRUCK



August 2024

General catalogue

MOLL *General catalogue*

Contents

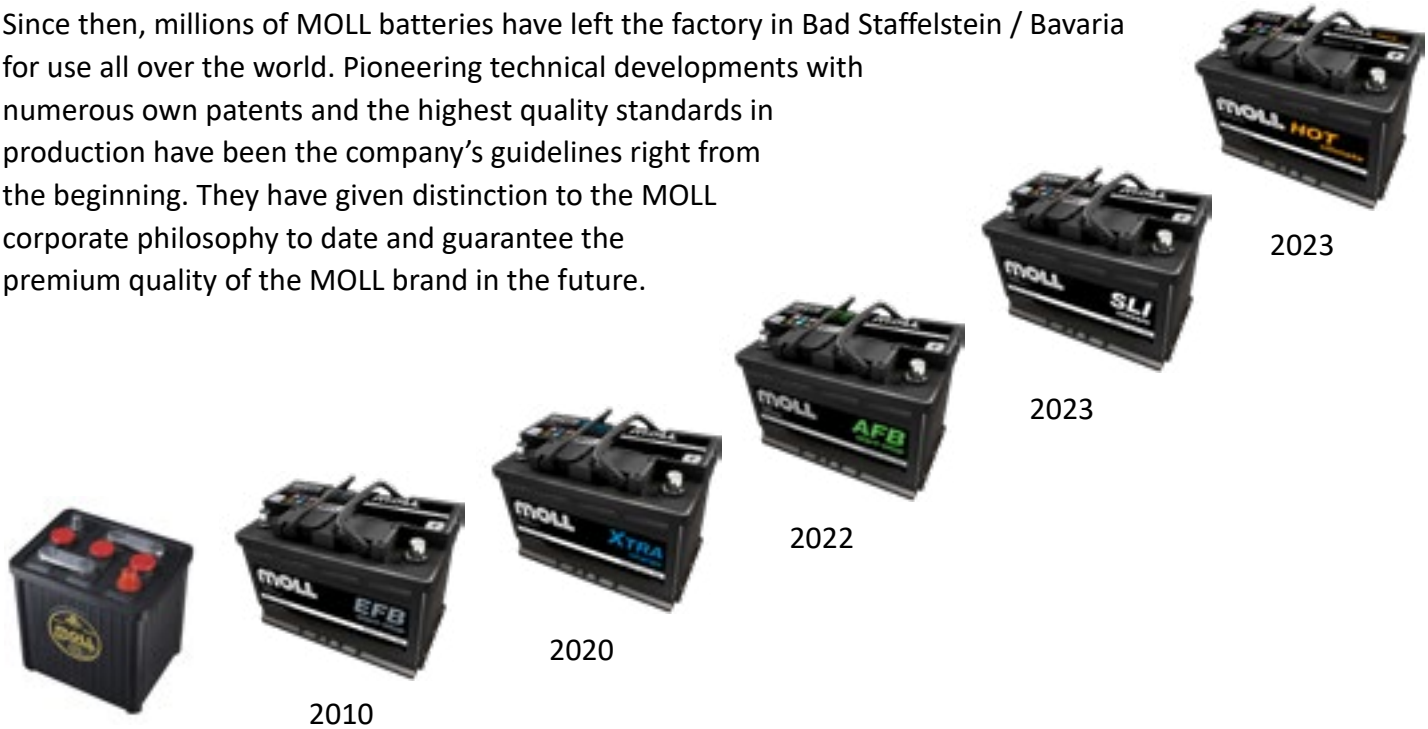
MOLL *The Company*

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.

77 years success story „Made in Germany“

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.



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 *Philosophy*

Corporate Social Responsibility

Ever since the company was founded in 1946, 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 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 batteries are more than 99% recyclable.

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

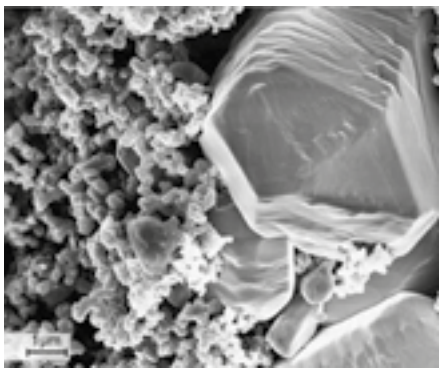
- Same production lines for original equipment and aftermarket
- Same quality standards for original equipment and the aftermarket
- All batteries are 100% tested
- Development in close cooperation with vehicle manufacturers
- Outstanding process, product and development quality in accordance with IATF 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 77 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

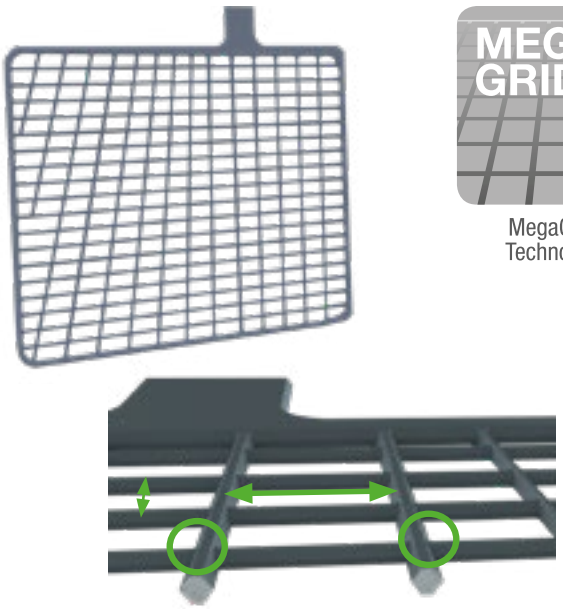
Nano-Carbon-Technology

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.



MEGA GRID

MegaGrid-Technology

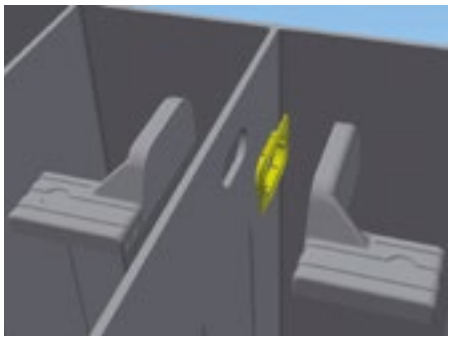
Benefits of the **MegaGrid Technology:**

- 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

High quality components

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

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



intercell connection
(through the partition)

K2 Double Lid
Patent granted

Precipitation of aerosols at vapour traps of the labyrinth

Labyrinth design to warrant safe return flow of acid and aerosols into the cell

Special vent plug

Integral twofold flashback protection

- Leak proof according to VW specification
- Plug with electrostatic discharge tightness (ESD)

MOLL Starter batteries

Performance parameters and fields of application

	AFB start-stop	*EFB start-stop*	*XTRA charge*
Capacity range	**66Ah - 106Ah**	**64Ah - 94Ah**	**48Ah - 110Ah**
Cranking current range (EN)	**680A - 950A**	**620A - 860A**	**470A - 960A**
Size range	**H5(L2) - H9(L6)**	**H5(L2) - H8(L5) T6(Lb3); T7(Lb4)**	**H5(L2) - H9(L6) T4(Lb1) -T6(Lb3)**
Central degassing	**yes**	**yes**	**yes**
Charge Acceptance (fast chargeability)	**++**	**++**	**+++**
Cyclability	**E3**	**E3**	**E2**
Vibration resistance	**V3**	**V3**	**V3**
Water consumption	**W4**	**W4**	**W4**
Spill proofness	**yes**	**yes**	**yes**
Hot place of installation	**++**	**++**	**++**
Micro-Hybrid ability	**+++**	**+++**	**+**
Brake energy recovery (recuperation)	**+++**	**+++**	**+**
Suitable as replacement for AGM	**yes**	**no**	**no**
maintenance free, no refilling of water	**yes**	**yes**	**yes**
Application	Vehicles with micro-hybrid-systems (start-stop and recuperation), replaces AGM	Vehicles with micro-hybrid-systems (start-stop and recuperation)	Vehicles with numerous electrical consumers / diesel vehicles; used and classic vehicles. Especially suitable for colder climates

SLI classic	*HOT climate*	*EVR extreme vibration resistance*	*EFB Super Heavy Duty*
46Ah - 95Ah	**63Ah - 103Ah**	**40Ah**	**110Ah - 225Ah**
440A - 800A	**540A - 830A**	**300A**	**760A - 1150A**
H4(L1) - H8(L5)	**H5(L2) - H9(L6)**	**T4(Lb1)**	**DIN A,B,C MAC 110**
yes	**yes**	**yes**	**yes**
++	**++**	**+**	**++**
E1	**E2**	**E1**	**E2**
V3	**V3**	**>V4**	**V3**
W4	**W5**	**W4**	**W4**
yes	**yes**	**yes**	**yes**
++	**+++**	**++**	**+**
+	**-**	**-**	**++**
+	**-**	**-**	**++**
no	**no**	**no**	**no**
yes	**yes**	**yes**	**yes**
Used and classic vehicles with less electrical consumers	Vehicles with numerous electrical consumers. Especially suitable for hot climates	Vehicles, machines, applications with very high vibration loads	Truck, construction machinery, special vehicles, agricultural machinery

MOLL *AFB start-stop*

The innovative alternative to AGM

MOLL, the inventor of the modern EFB, sets new standards with the product innovation MOLL *AFB start-stop*. The MOLL *AFB start-stop* 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 start-stop* the "better AGM battery".

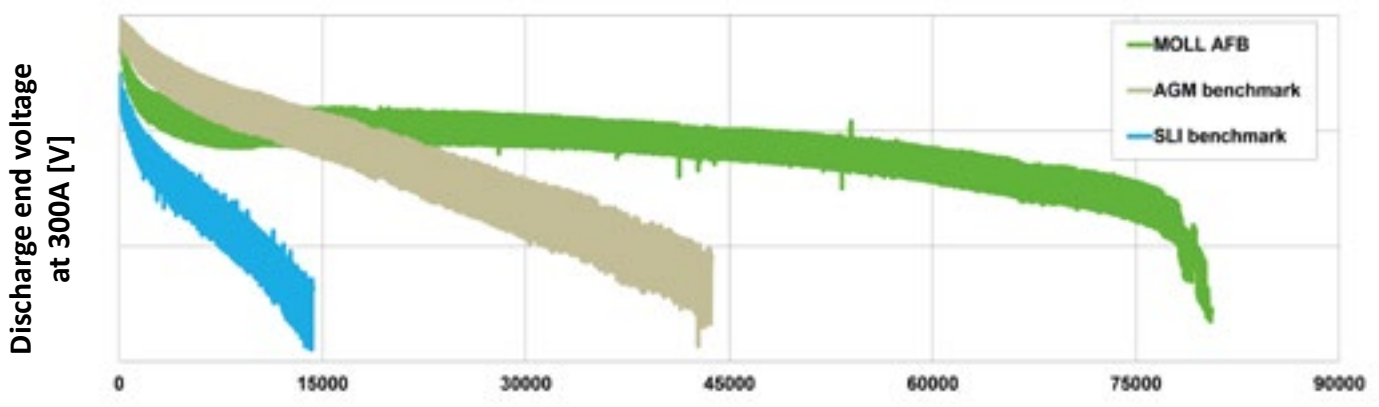
MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
86066	H5/L2	0	1	66	680	242	175	190
86076	H6/L3	0	1	76	760	278	175	190
86086	H7/L4	0	1	86	800	315	175	190
86096	H8/L5	0	1	96	860	353	175	190
86106	H9/L6	0	1	106	950	394	175	190

all data according to EN 50342

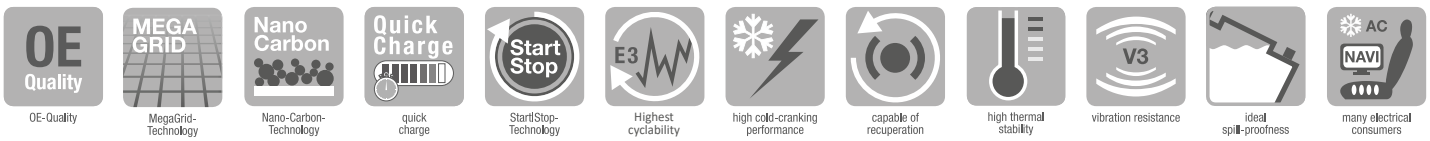
- ✓ Replaces AGM
- ✓ Economical alternative to AGM
- ✓ Use of particularly corrosion-resistant alloys
- ✓ Highest charge acceptance due to specially developed active masses, thus also especially suitable for vehicles with frequent short journeys
- ✓ Robust gravity casting technology with reinforced grid design
- ✓ Low water consumption - maintenance-free due to calcium grid technology
- ✓ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✓ Longer shelf life due to calcium grid technology
- ✓ High vibration resistance
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable

AGM replaced by MOLL *AFB start-stop*

Comparison of Micro-Hybrid Capability



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



MOLL *EFB start-stop*

Developed for micro-hybrid applications

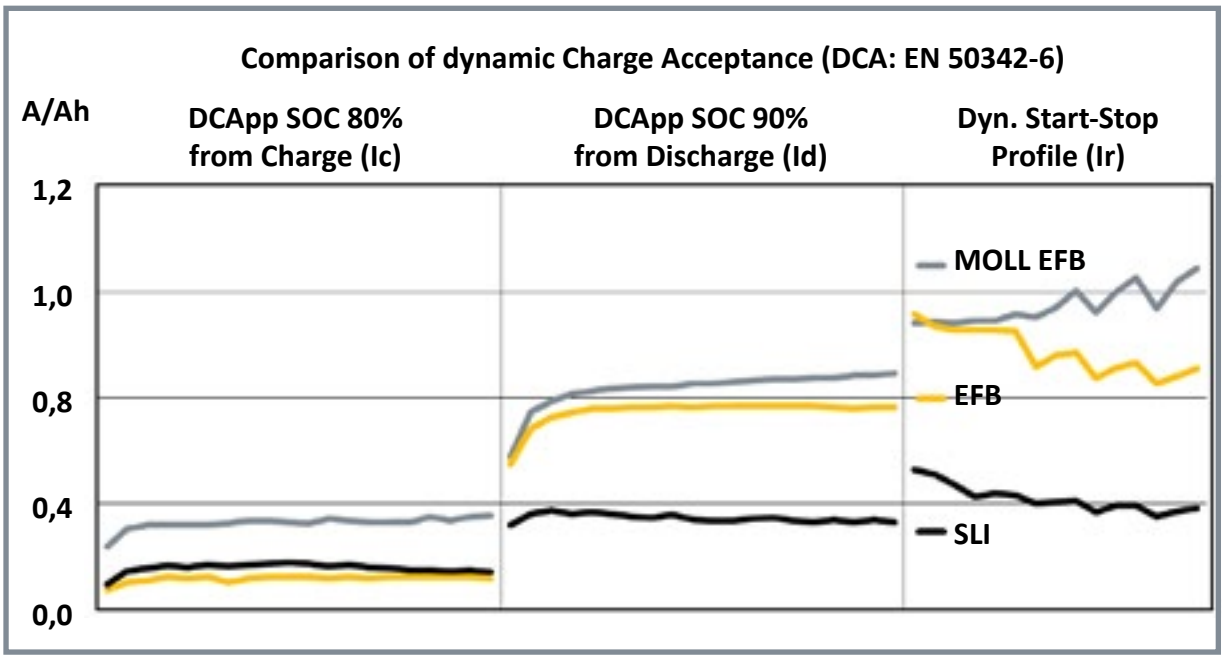
The MOLL *EFB start-stop* was developed as an alternative technology to the AGM and has been used successfully by well-known car manufacturers for over 10 years. Thanks to **nano carbon technology**, the MOLL *EFB start-stop* is particularly impressive with its excellent micro-hybrid cycle performance 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 start-stop* is a power pack that meets the highest requirements.

MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
82064	H5/L2	0	1	64	620	242	175	190
82068	T6/Lb3	0	1	68	660	278	175	175
82074	H6/L3	0	1	74	720	278	175	190
82078	T7/Lb4	0	1	78	740	315	175	175
82084	H7/L4	0	1	84	800	315	175	190
82094	H8/L5	0	1	94	860	353	175	190

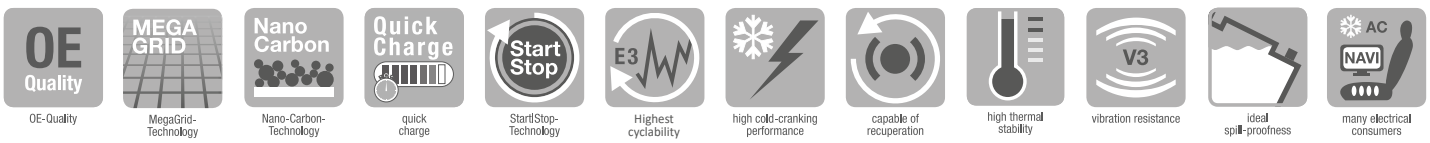
all data according to EN 50342

- ✓ Extremely high cycle performance in micro-hybrid application
- ✓ Highest charge acceptance due to specially developed active masses, thus also especially suitable for vehicles with frequent short journeys
- ✓ Low water consumption - maintenance-free due to calcium grid technology
- ✓ Robust gravity casting technology with reinforced grid design
- ✓ Use of particularly corrosion-resistant alloys
- ✓ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✓ Longer shelf life due to calcium grid technology
- ✓ High vibration resistance
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable

The MOLL *EFB start-stop* features outstanding charge acceptance



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



MOLL *XTRA charge*

For faster charging

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 Cabon 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.

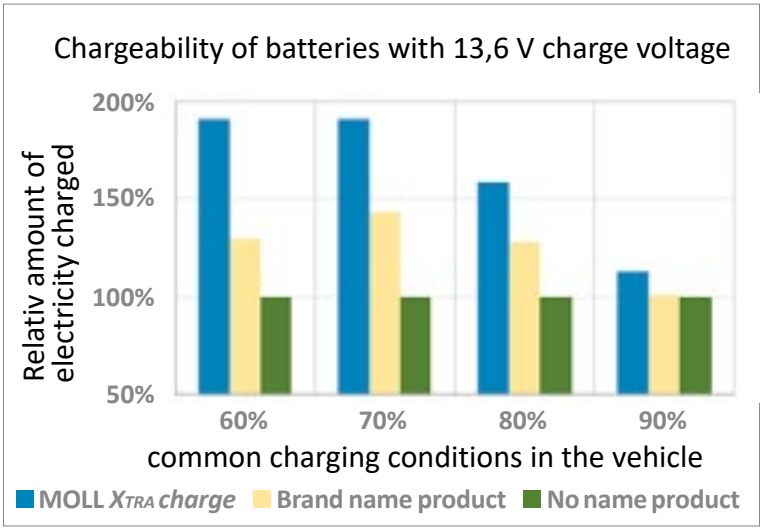
MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
84048	T4/Lb1	0	1	48	470	207	175	175
84060	T5/Lb2	0	1	60	600	242	175	175
84064	H5/Lb2	0	1	64	620	242	175	190
84070	T6/Lb3	0	1	70	700	278	175	175
84075	H6/L3	0	1	75	720	278	175	190
84085	H7/L4	0	1	85	800	315	175	190
84100	H8/L5	0	1	100	900	353	175	190
84110	H9/L6	0	1	110	960	394	175	190

all data according to EN 50342

- ✓ Extra fast charging due to Nano Carbon technology, thus also especially suitable for vehicles with frequent short journeys
- ✓ 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
- ✓ Suitable for vehicles with many electrical consumers
- ✓ Longer shelf life due to calcium grid technology
- ✓ High vibration resistance
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable

MegaGrid Technology together with **Nano Carbon Technology** ensures the **MOLL *XTRA charge*** the 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

MOLL *SLI classic*

The reliable standard

The **MOLL *SLI classic*** is the inexpensive alternative to our **MOLL *Xtra charge*** for standard applications that do not require particularly high cold start performance. The **MOLL *SLI classic*** is exactly the right choice if you have a standard application but still value the highest quality. Due to the fast charging thanks to the nano-carbon technology, the **MOLL *SLI classic*** is also well suited for older vehicles or for vehicles with frequent short trips. We also use OE quality for the **MOLL *SLI classic***, thus achieving maximum service lives.

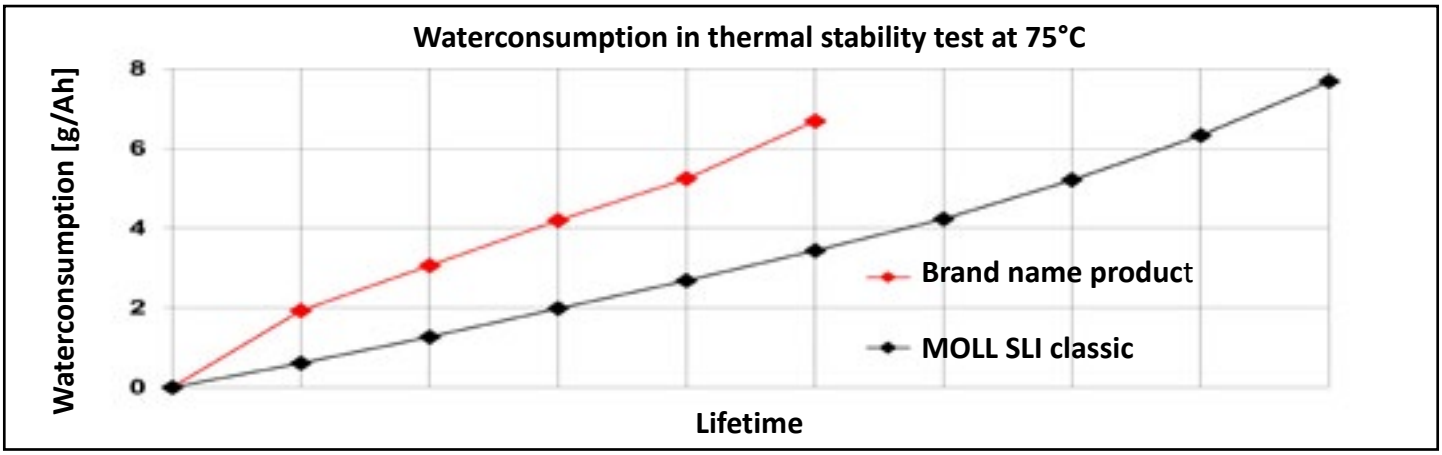
MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
80046	H4/L1	0	1	46	440	207	175	190
80060	H5/L2	0	1	60	540	242	175	190
80072	H6/L3	0	1	72	640	278	175	190
80080	H7/L4	0	1	80	720	315	175	190
80095	H8/L5	0	1	95	800	353	175	190

all data according to EN 50432-2

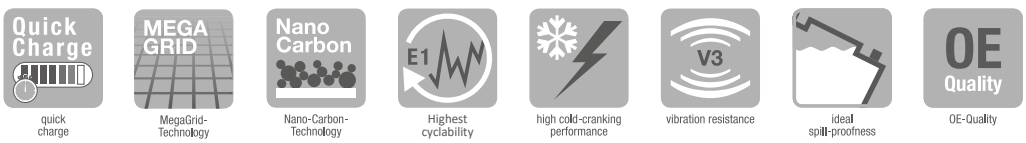
- ✓ Extra fast charging due to nano carbon technology,
  thus also especially suitable for vehicles with frequent short journeys
- ✓ Low water consumption – maintenance-free due to calcium grid technology
- ✓ Robust gravity casting technology
- ✓ Use of particularly corrosion-resistant alloys
- ✓ Use of specially developed active masses
- ✓ Highest leakage safety due to patented double lid with ESD-proof screw plug
- ✓ Longer shelf life due to calcium grid technology
- ✓ High vibration resistance
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable

MegaGrid Technology together with **Nano Carbon Technology** ensures low internal resistance and superior charge acceptance even at low charging voltages like the big brother **MOLL *X_{TRA} charge***.

We also use OE quality for the **MOLL *SLI classic***, this means among other things that we use only very pure materials. This can be clearly seen from the very low water consumption in the thermal stability test, thus achieving maximum service live.



MOLL *SLI classic* – Most important features at a glance



MOLL *HOT climate*

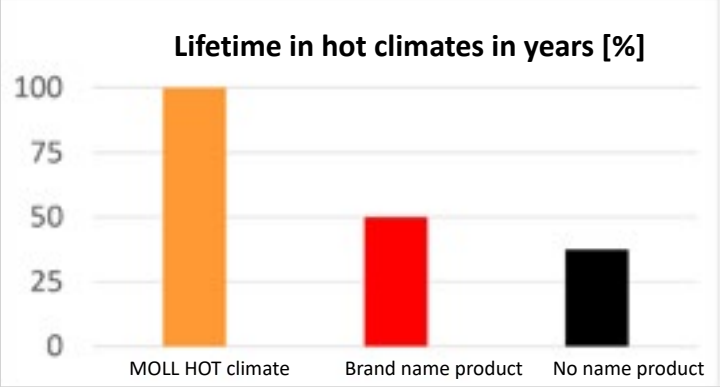
The Premium Battery for hot climates

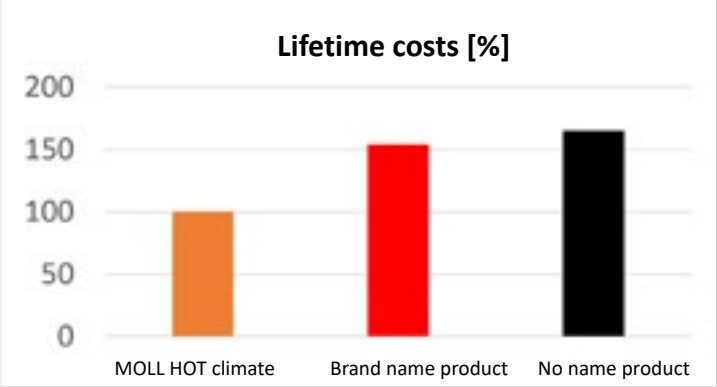
Due to its special design, the **MOLL HOT *climate*** achieves a significantly longer service life in hot climates compared to standard batteries. The very good corrosion resistance, even at high temperatures, is achieved by special lead alloys and the proven, robust gravity casting technology. Due to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

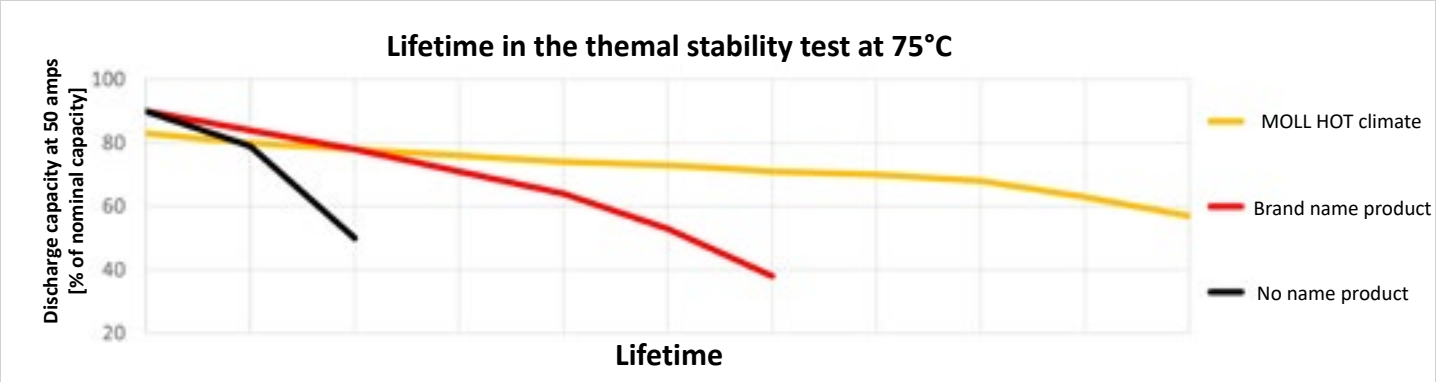
MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
85063	H5/L2	0	1	63	540	242	175	190
85073	H6/L3	0	1	73	620	278	175	190
85083	H7/L4	0	1	83	700	315	175	190
85093	H8/L5	0	1	93	750	353	175	190
85103	H9/L6	0	1	103	830	394	175	190

all data according to EN 50342

- ✓ 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
- ✓ High vibration resistance
- ✓ OE- Quality
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable







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

MOLL EFB Super Heavy Duty

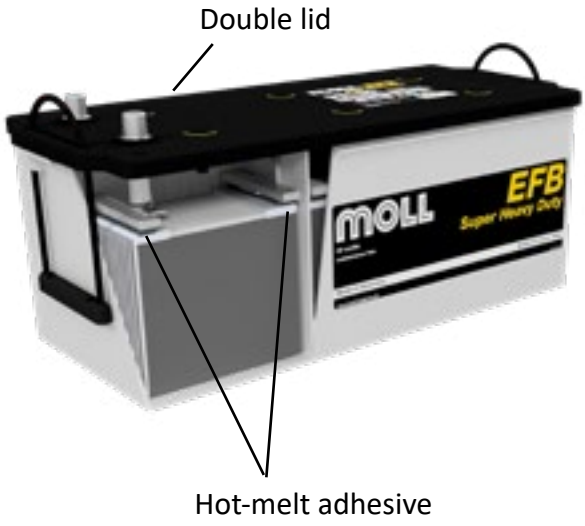
Designed for long service live

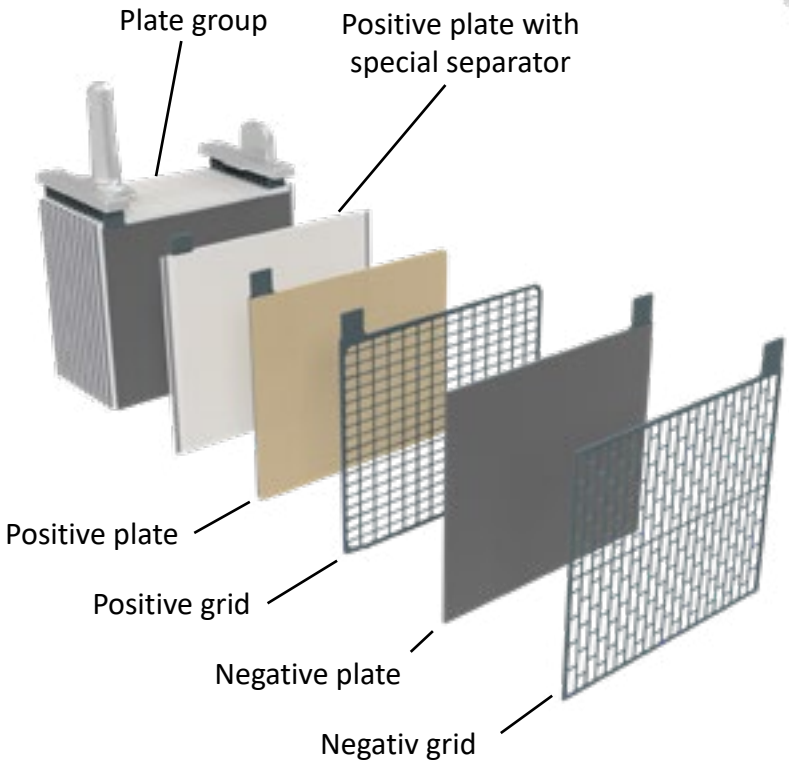
After the redesign, **MOLL EFB Super Heavy Duty** is even more powerful and durable than its predecessor. It is the right choice for demanding applications in trucks, construction or agricultural machinery or in special vehicles. **MOLL EFB Super Heavy Duty** is a battery in OE quality for the replacement market and it is extremely durable even with daily use.

MOLL Type no.	Terminal position/ Terminal type	Box	Capacity Ah (20h)	Cold-cranking current A (EN)	Central degassing	Double lid	Max. outer dimensions [mm]		
							Length	Width	Height
93 110	3/1	MAC110	110	760	x		514	175	210
93 125	2/1	NATO	125	1000			286	269	230
93 135	3/1	MAC110	135	1000	x		514	175	210
93 140	3/1	DIN A	140	760	x	x	513	189	223
93 180	3/1	DIN B	180	1000	x	x	513	223	223
93 225	3/1	DIN C	225	1150	x	x	518	276	242

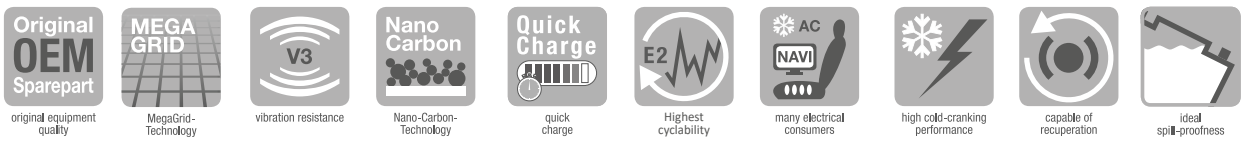
all data according to EN 50342

- ✓ Extra fast charging due to Nano Carbon technology
- ✓ MegaGrid technology in heavy gravity-casting quality
- ✓ Very high cycle stability
- ✓ Extremely long service life
- ✓ Use of specially developed active masses
- ✓ Highest leakage safety due to double lid
- ✓ ESD-proof screw plugs
- ✓ Suitable for vehicles
- ✓ With many electrical consumers
- ✓ Extraordinarily vibration resistant
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable





MOLL *EFB Super Heavy Duty* – Most important features at a glance



MOLL *EVR extreme vibration resistance*

Designed for highest vibration resistance

The **MOLL** ***EVR extreme vibration resistance*** is a special development for extreme vibration resistance requirements. It was developed together with a well-known manufacturer of vibrating plates. The enormously high vibration resistance is achieved by the extremely stable gravity-cast grids for the positive and negative electrode, a particularly robust separator with fleece layer for vibration absorbing and the extra strong hot melt bondings of the plate group at the top and bottom.

MOLL Type no.	Box	Terminal position	Terminal type	Capacity Ah (20h)	Cold-cranking currrent A (EN)	Max. outer dimensions [mm]		
						Length	Width	Height
88040	T4/Lb1	0	1	40	300	207	175	175

all data according to EN 50342

- ✓ Highest vibration resistance due to special separator with fleece layer for vibration absorbing
- ✓ Highest vibration resistance due to extra strong hot melt bonding of the plate group at the top and bottom
- ✓ Original equipment quality, also for the aftermarket
- ✓ Robust gravity casting technology with reinforced grid design for positive and negative grids
- ✓ Use of particularly corrosion-resistant alloys
- ✓ Use of specially developed active masses
- ✓ Highest leakage safety due to patented double lid with ESD-proof screw plugs
- ✓ Longer shelf life due to calcium grid technology
- ✓ Quality Made in Germany
- ✓ Over 99% recyclable

special separator with fleece layer

stable gravitiy casting grid

Top gluing

Bottom gluing

EVR extreme vibration resistance - Most important features at a glance

MOLL *Small series specialist*

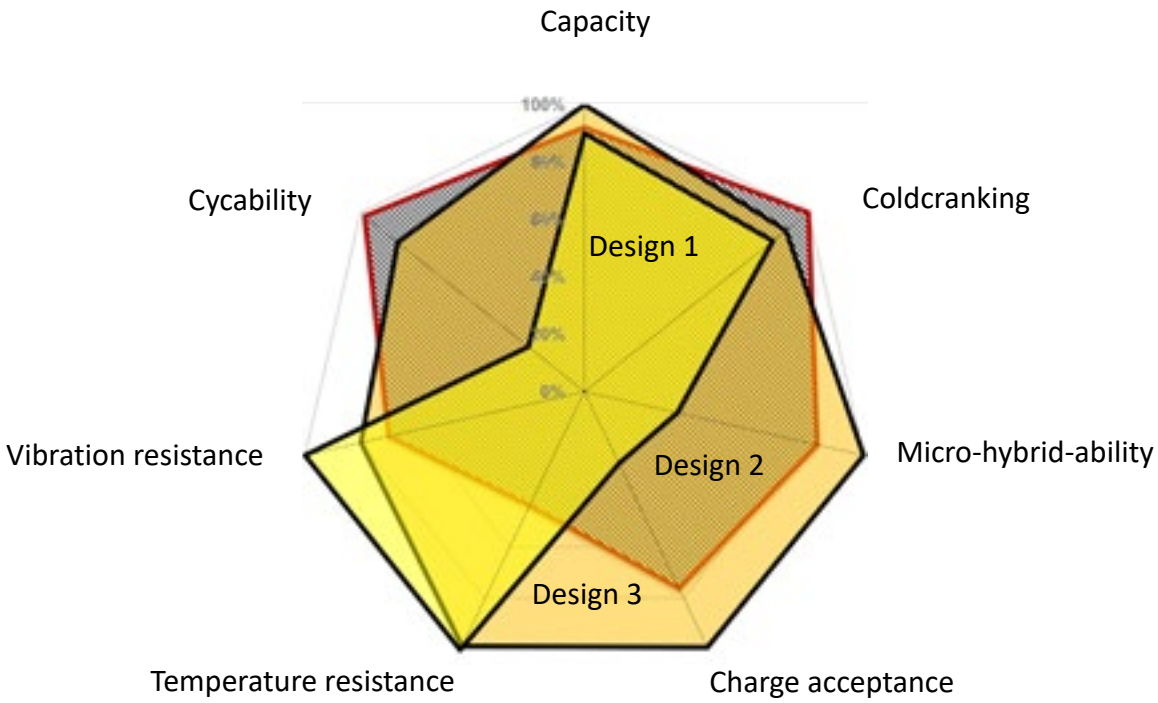
Battery performance - There is no „One fits all“

Over 77 years of experience as a supplier and development partner to the automotive, construction vehicle and special machinery industry guarantee the highest level of know-how, also for your application!

The following examples from the exotic to the simple give you an impression of our possibilities.

- A special designed battery as energy source in 10 000 m water depth (1 000 bar), with special water tight connectors and a special tool for easy handling (charging, acid fill up)
- A special designed battery for Rallye Paris-Dakar with particular high vibration- and temperature resistance
- Batteries with a private label in your desired design

Based on the key requirements of your application, we can design a battery optimized for your specific need – starting from a volume of 5,000 batteries!



Do you need a battery for a specific application?
We will develop the perfect solution!

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

B3/13

B3: 3 Notches | B13: 5 Notches

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

B4/14

B4: 3 Notches | B14: 5 Notches

Hold-downs with a height of 19 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

B6

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

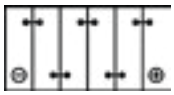
B11

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

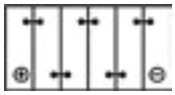
Terminal positions

12 V

0



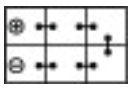
1



2

12 V

3



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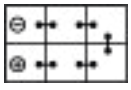

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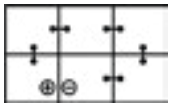
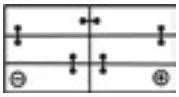


12 V

6



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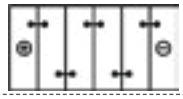
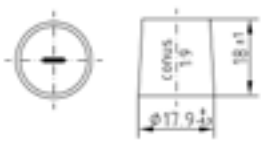


Terminal types

1



3

1 Terminal according to EN 50342

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

MOLL Battery features

Icons for quick guidance

Original equipment quality
also for the aftermarket

Very fast charging capability

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

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

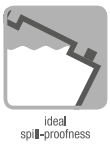
MegaGrid: High-performance grid with lead-calcium-silver alloy

High thermal stability, ideal for installation in the engine compartment

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

Vibration resistance levels (V3-SHD = max.)

Very high start|stop capability and enormous performance



Ideal spill-proofness due to patented K2 double lid

Cycle lifetime E3 according to EN 50342-1

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

Very high cold-cranking performance

Balanced price-performance ratio

Notes

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