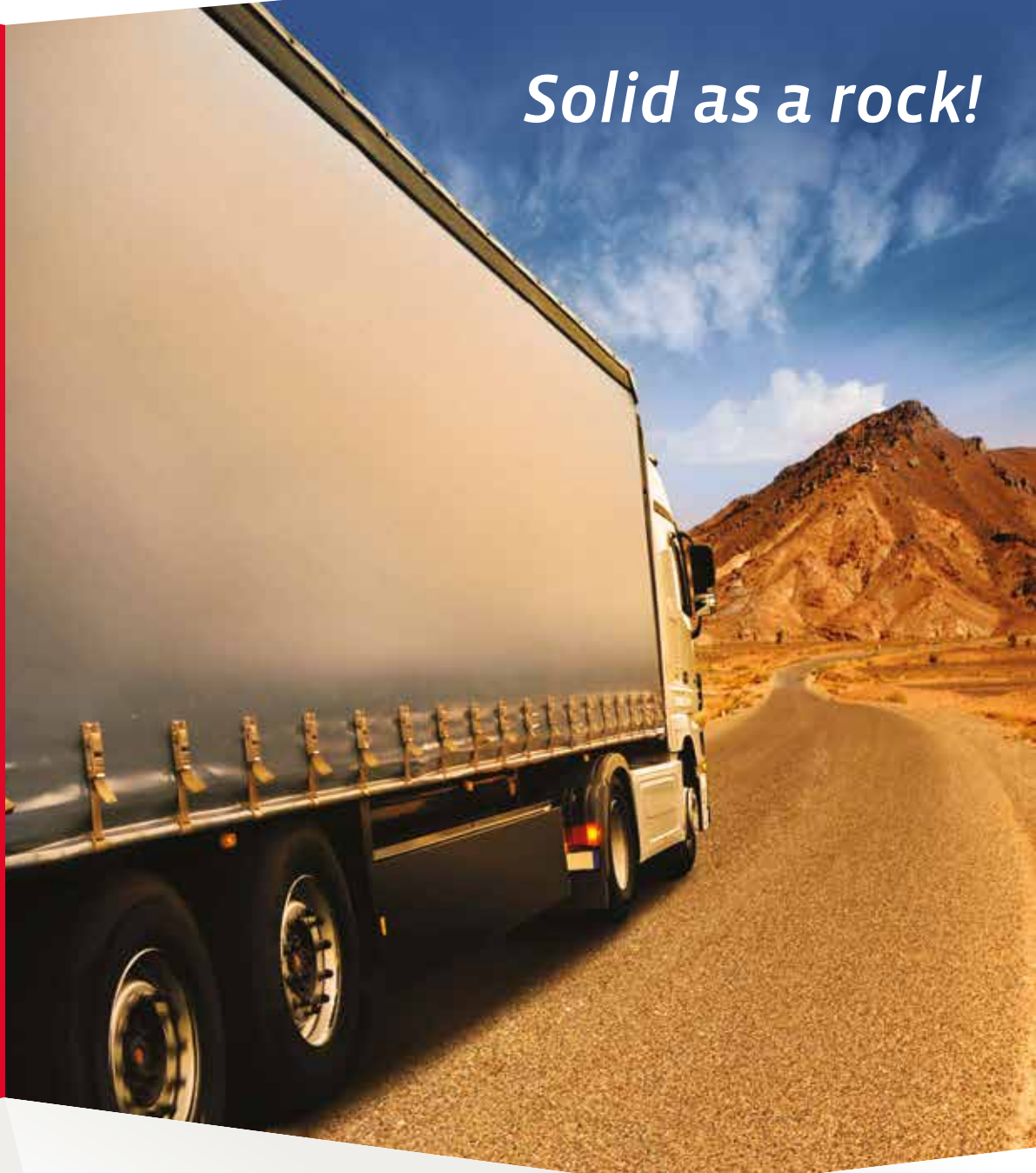


Commercial Vehicle Battery Solutions

Solid as a rock!



norwatt@norwatt.es

www.norwatt.es

Comprehensive
battery range
for all commercial
vehicle needs:

Expert HVR[®]

Professional Power

Professional

Made in Europe
by Exide Technologies
Original Equipment
Manufacturer



Save time & money with new battery technologies

To help dealers and vendors who work with batteries, Tudor continuously transfers to its customers all the benefits from its advanced battery developments, as soon as they are proven in collaboration with leading vehicle manufacturers.

The renewed Tudor Heavy offer provides new fitment advantages and saves on labour through newly developed features such as HVR[®] (high vibration resistance) and Maintenance Free technology.

Selecting the right Tudor Heavy battery for each commercial vehicle means much simpler handling and extended shelf and service life. These benefits increase everyone's value for money – distributors, installers and end-users.

What makes Tudor Heavy solid as a rock

1. Joint development with vehicle manufacturers

Examples of commercial vehicle manufacturers supplied with our batteries include:



TRUCK & BUS



IRISBUS
ISUZU
IVECO
MAN
NISSAN
RENAULT TRUCKS
SCANIA

AGRICULTURAL



CASE & NEW HOLLAND
CLAAS
JOHN DEERE
MASSEY FERGUSON
SAME & DEUTZ-FAHR
WEIDEMANN

CONSTRUCTION



BOBCAT
CASE & NEW
HOLLAND
KOMATSU
TEREX
WACKER
NEUSON

Working closely with manufacturers helps keep Tudor Heavy batteries at the highest level of quality and with the most innovative design, to cover the widest range of trucks, buses, agricultural vehicles and construction machines.



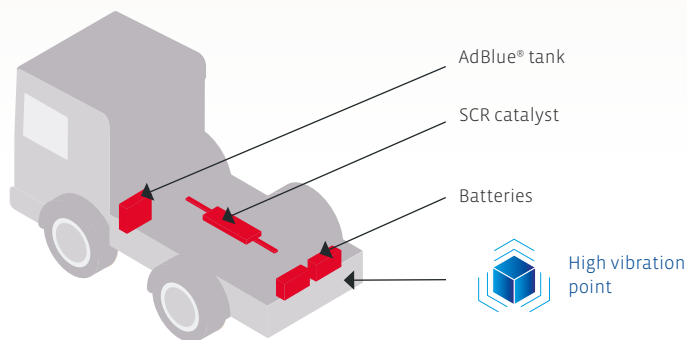
2. High Vibration Resistant technology



HVR® battery design, with its specially locked internal components, is now available for the first time in the aftermarket. It is Tudor's response to the increased vibrations a battery experiences at the end of the chassis – its new location due to the use of AdBlue® and SCR catalyst. HVR® technology neutralises the effect of high vibrations, allowing batteries to operate normally.

Vehicle manufacturers' solution

AdBlue® and SCR catalyst ensure heavy vehicles comply with EURO-4/5/6 emission requirements.



The new Expert HVR® range combines the superior cycling resistance of the older EXPERT design with the new HVR® special insulation. Together they produce a much longer battery life for any kind of truck. The official "HVR® Technology" logo helps users recognise this exceptional combination.

HVR® is a registered name by Exide Technologies - AdBlue® is a registered name by VDA (German car industry association)

3. Maintenance Free technology

The new Expert HVR® and Professional Power ranges boast Maintenance Free technology, which enables distributors, installers and end-users to reduce their need for new batteries. They have an extended shelf life before installation, have spark/spill-proof handling, and are absolutely maintenance free for their entire service life. Maintenance Free construction, developed in collaboration with leading vehicle manufacturers, uses a new Pb/Ca alloy, a new lid design with an internal labyrinth, which is able to condense acid traces from collected gas, and a spark arrestor filter which increases handling safety.



Battery Fitment Recommendations

1 Select the electrical demand level for each vehicle type & use

HIGH
demand level



Post 2000 Heavy Trucks



National & Regional coaches



Municipal & Emergency vehicles

MEDIUM
demand level



Regional & City deliveries



Heavy agricultural



Heavy construction

LOW
demand level



Vans & Old trucks



Classic Tractors



Regular Loaders



Optional upgrade
Extra life duration



Recommended
Standard life duration*



Not apply
Reduced life duration

*EUROBAT reports the standard life duration for heavy batteries is 3 years in Europe.



2 Make your battery choice from our 3 construction levels

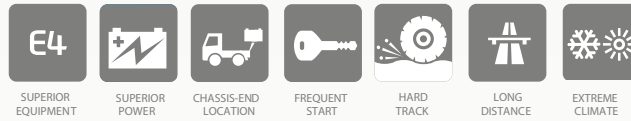
Extreme	Reinforced	Standard
Expert HVR	Professional Power	Professional

Key factors

- SUPERIOR EQUIPMENT**
 Heavy tail lifts/platforms, sleeper cabins, navigation devices, cameras/sensors, video systems, extra front/roof lights
- MEDIUM EQUIPMENT**
 Lifters for medium loads, classic electronic devices, cabin accessories. (for types applied to light CV this medium level uses the symbol >E2)
- STANDARD EQUIPMENT**
 Basic equipped vehicles
- SUPERIOR POWER**
 Large engines, electrical braking systems, other devices consuming high current peaks
- MEDIUM POWER**
 Standard engine sizes
- CHASSIS END LOCATION**
 Chassis design with batteries placed close to rear shaft, to equip long haul tanks with AdBlue and fuel
- FREQUENT START**
 Intensive deliveries/stops, very short journeys, dense urban traffic
- HARD TRACK**
 Difficult uneven roads, country tracks, tilted driving (sloped surface), agricultural or construction activities
- LONG DISTANCE**
 International transport, long highway journeys, intensive 24-hour vehicle use
- EXTREME TEMPERATURES**
 Driving through cold (<-10°C) or hot (>30°C) regions, frequent overnight parking out in the open, agricultural or construction activities
- LOW MAINTENANCE**
 Low maintenance cell construction. Electrolyte level inspection for topping up is recommended

Product Description

EXPERT HVR®



- › Designed to last longer in the most demanding heavy commercial vehicles
 - › Absolutely maintenance free and has a unique battery construction that is proven to resist the extremely rough conditions at the end of the chassis
 - › Uses built-in HVR® technology with Ca/Ca alloy and filtered central degassing
- Powerful choice for vehicles produced after the year 2000, or for any older vehicles under intensive use**

Technology	Plate alloy	Plate thickness	Plate separator	Cell blocking	Cell venting	Power (A)	Endurance	Vibration resistance	Maintenance & handling	Quality
HVR®	Lead/Calcium	Extra thick	Glass material on Polyethylene envelope	Hot melt & HVR® plastic spacers	Central degassing & porous filter	Superior (+10% from standard)	Excellent (216 cycles)	Excellent (60h at 6g)	Maintenance free & spark/spill-proof	SPARK ORIGINAL PART

According to EN50342

PROFESSIONAL POWER



- › Designed to supply the highest starting power for the most popular commercial vehicles
 - › Absolutely maintenance free and provides a perfect balance between high electrical performance and robust cell construction
 - › Uses reinforced cell technology with Ca/Ca alloy and filtered central degassing
- Flexible and robust choice for any type of road, agricultural or construction vehicle under regular use**

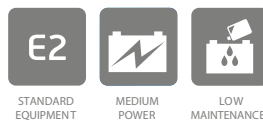
Technology	Plate alloy	Plate thickness	Plate separator	Cell blocking	Cell venting	Power (A)	Endurance	Vibration resistance	Maintenance & handling	Quality
HDX	Lead/Calcium	Thick	Polyethylene envelope	Hot melt	Central degassing & porous filter	Superior (+15% from standard)	Superior (144 cycles*)	Superior (20h at 6g**)	Maintenance free & spark/spill-proof	QUALITY

According to EN50342.

* 110 cycles for types applied to light CV

** 10h at 6g for types applied to light CV

PROFESSIONAL



- › Designed for traditional, pre-2000 and older commercial vehicles
- › Built for regular mounting conditions
- › Uses built-in standard flooded technology with Ca/Ca alloy* and single plug venting

Great value for classic parc vehicles under regular use

Technology	Plate alloy	Plate thickness	Plate separator	Cell blocking	Cell venting	Power (A)	Endurance	Vibration resistance	Maintenance & handling	Quality
HD	Lead/Calcium*	Standard	Polyethylene envelope	Hot melt	6 individual plugs	Medium	Good (90 cycles)	Good (2h at 6g)	Low maintenance & spill-proof	QUALITY

According to EN50342

* Some references feature Sb/Ca alloy

Type List

norwatt@norwatt.es

www.norwatt.es

CODE	HVR®	M.FREE	PERFORMANCES		DIMENSIONS			TECHNICAL CHARACTERISTICS		
			CAPACITY	CCA	L (mm)	W (mm)	H (mm)	POLARITY	HOLD DOWN	BOX
			Ah	A (EN)						

EXPERT HVR®



TE1403	●	●	140	760	513	189	223	3	B0	D04
TE1853	●	●	185	1100	513	223	223	3	B0	D05
TE2253	●	●	225	1150	518	279	240	3	B0	D06

PROFESSIONAL POWER



TF1202		●	120	870	349	175	235	0	B1	D02
TF1420		●	142	850	349	175	290	0	B0	B03
TF1421		●	142	850	349	175	290	1	B0	D03
TF1453		●	145	900	513	189	223	3	B0	D04
TF1853		●	185	1150	513	223	223	3	B0	D05
TF2353		●	235	1300	518	279	240	3	B0	D06

TG1008			100	680	413	175	220	0	B3	D01
TG1009			100	680	413	175	220	1	B3	D01
TG1100			110	750	349	175	235	0	B0	D02
TG1101			110	750	349	175	235	1	B0	D02
TG1102			110	750	349	175	235	0	B1	D02
TG110B			110	950	330	173	240	9	B0	G31
TG1250			125	760	349	175	290	0	B0	D03
TG1251			125	760	349	175	290	1	B0	D03
TG1257			125	1100	286	269	230	2	B0	D07
TG1353			135	1000	514	218	210	3	B0	DB9
TG1355			135	1000	514	175	210	3	B3	DB8
TG1402			140	900	508	178	205	0	B1	ATM
TG1403			140	800	513	189	223	3	B0	D04
TG1406			140	800	510	175	225	4	B3	D08
TG145A			145	1000	360	253	240	6	B0	F21
TG165A			165	850	354	241	285	6	B0	D67
TG1703			170	950	513	223	223	3	B0	D05
TG1705			170	950	514	218	210	3	B3	DB9
TG1803			180	1000	513	223	223	3	B0	D05
TG1806			180	1000	510	218	225	4	B3	D09
TG2153			215	1200	518	279	240	3	B0	D06
TG2154			215	1200	518	279	240	4	B0	D06

PROFESSIONAL



Complementary range for old vehicles with basic requirements.

TH0960			96	640	349	175	235	0	B0	D02
TH1105			110	760	514	175	210	3	B3	DB8
TH1203			120	680	513	189	223	3	B0	D04
TH1206			120	680	510	175	225	4	B3	D08
TH1553			155	900	513	223	223	3	B0	D05
TH1556			155	900	510	218	225	4	B3	D09

ECONOMY




Did you know?

For commercial vehicles exposed to extreme conditions, discover the Exide Multifit offer to find, among others, AGM and GEL fitment options. Updated fitment information per individual vehicle is available from our smartphone application **Exide Battery Finder** and on www.exide.com.

Exide Technologies, with operations in more than 80 countries and more than 120 years of experience, is one of the world's largest producers and recyclers of lead-acid batteries. The company develops state-of-the-art energy storage solutions for the automotive and industrial market. Leading car, truck and lift truck manufacturers trust in Exide Technologies as an original equipment supplier. Exide also serves the aftermarket through a portfolio of successful and well-known brands.

Exide Transportation manufactures batteries for light and commercial vehicles, as well as agricultural and marine leisure applications. Industrial markets – under the division **GNB Industrial Power** – include efficient energy storage solutions for motive power applications such as lift trucks, cleaning machines and other commercial electrical vehicles, and network power applications such as telecommunications systems, renewables, and uninterruptible power supply (UPS).

Exide's engineers have always been at the forefront of bringing important innovations to the industry.

Exide's ISO/TS-certified manufacturing facilities ensure that customers receive products that are produced with maximum efficiency and fulfil the highest quality standards, while minimising impact on the environment.

Exide's extensive sales and distribution network provides quality service and delivers on time to its customers. Its world-class recycling facilities ensure that batteries will be reused, helping to make a positive contribution to the environment. Exide also provides services, accessories and energy consulting to its clients.



Local Office

Exide Technologies SAS
5 allée des Pierres Mayettes,
92636 Gennevilliers
France
Tel: +33 1 41 21 23 00
Fax +33 1 41 21 27 15
www.exide.com

European Headquarter

Exide Technologies SAS
5 allée des Pierres Mayettes,
92636 Gennevilliers
France
Tel: +33 1 41 21 23 00
Fax +33 1 41 21 27 15
www.exide.com

Exide Battery Finder

