

BATTERIES

CYCLIC BATTERIES

NICETO KNOW



CYCLIC BATTERIES

Cyclic batteries can withstand many deep discharges. This makes these batteries perfect for mobile elevating work platforms, industrial cleaning machines, forklifts, golf carts and other electric powered vehicles...

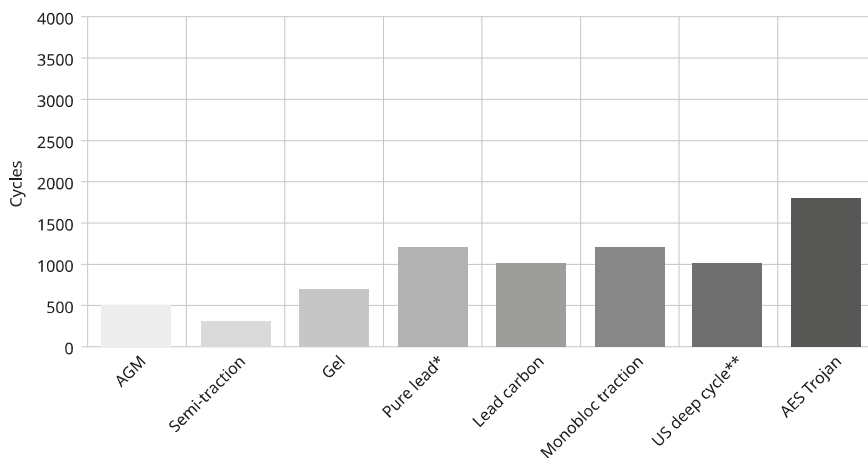
Within this battery category, we distinguish open lead-acid and maintenance-free batteries.

Cyclic batteries differ in their number of cycles (according to DIN), below you find an overview of the number of cycles per technology.

With this information we want to help you to make the right choice to power your vehicle.

The electrolyte of flooded batteries is in liquid form and required a regular water level up. Whereas the electrolyte of sealed batteries is gel form or acid soaked glass mat form. Hence sealed batteries don't require any water and these batteries can be placed upside down or on their side. When selecting the battery do make sure that your charger is suitable for your battery and it has the right charge profile for your battery type (open lead-acid / maintenance-free).

CYCLIC BATTERIES (80% D.O.D)



* @ 60% (D.o.D)

** Depending on model

CROWN BATTERY

The Power Behind Performance



Over 90 years ago, Crown Battery opened its doors as a sole-proprietary battery repair shop. Today, thanks to their loyal global customer network, dedicated workforce, commitment to manufacturing excellence and use of advanced technology, Crown Battery has become one of the major manufacturers of deep-cycle batteries. Customers have trusted Crown Battery innovation since 1926 to meet their power needs.

The line-up of deep-cycle batteries includes models designed for mobile elevating work platforms, industrial cleaning machines, golf & utility carts and other EV leisure applications, solar energy storage, traffic control and marine applications. Our batteries are proudly manufactured in the USA and distributed globally.

Key product features:

- Exclusive C-Force Active Mass for increased charge acceptance, even in less than optimal charging conditions and discharge times.
- Rugged, solidcast plates that result in longer battery lifetime.
- Posi-Wrap plate separators and other proprietary Crown components reduced maintenance and prevent failure due to short circuit.
- PROeye level indicator to easily inspect electrolyte levels that signals when watering is required.

WE PUT MORE IN OUR DEEP-CYCLE BATTERIES

So you can get better performances, higher productivity and less maintenance.

1. Z3 PLATE CONSTRUCTION

The Z3 plate design combines four integrated features for superior performance and durability.

- The signature "Diamond Z" grid architecture
- An inset lug position
- Upgraded "Active Life Plus" paste material!
- Heavy-duty – construction: more lead = more power!

2. POSI-WRAP ENVELOPE SEPARATORS

Posi-Wrap separators reduce maintenance and prevent failure due to short circuiting and plate shredding, ensuring reliability and durability.

3. IGID CONNECTORS

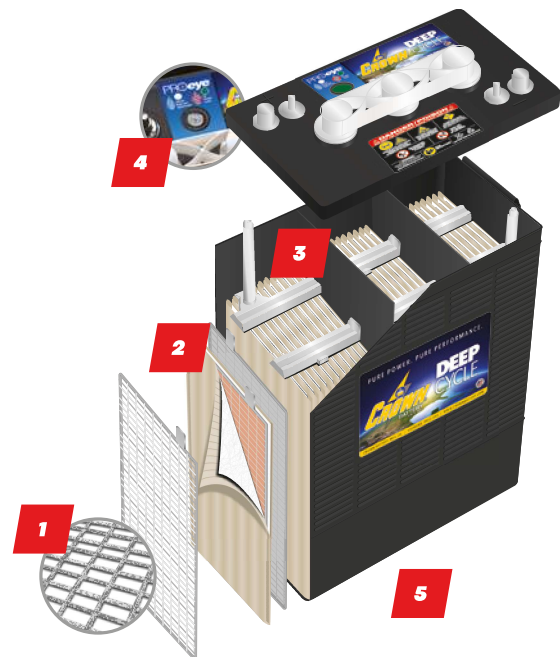
Heavy-duty TTP, COS and Post connectors deliver maximum electrical efficiency and durability.

4. PROEYE LEVEL INDICATOR

A simple, safe and reliable system for inspecting electrolyte levels that signals when watering is required.

5. X-TEND CONTAINER DESIGN

X-Tend provides more electrolyte above the battery plates so batteries can perform longer between watering intervals.



BATTERIES

CYCLIC BATTERIES

US DEEP-CYCLE



CR165



CR185HD



CR195HD



CR220HD



CR240HD



Kit filler caps



CR250



CR305HD



CR330HD



CR350HD



CR390HD

*This kit is suitable for providing exactly one battery with the necessary filler caps and floats

CROWN/CROSS REFERENCES

| Model | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | PRO Eye | REF Batteries | Kit filler caps* | Old REF Kit filler caps* |
|--|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------|---------------------------|---------------------------|--------------------------------|
| Batteries 6 V deep-cycle | | | | | | | | | | | | |
| CR220HD | 220 | 180 | 260 | 179 | 278 | 27.2 | 0 | DT 1 + 8 | No | 168TA1047 | 168TA1071 | BAT/47541 |
| CR235HD | 235 | 190 | 260 | 179 | 278 | 28.6 | 0 | DT 1 + 8 | No | 168TA1048 | 168TA1071 | BAT/47541 |
| CR240HD | 240 | 195 | 260 | 179 | 278 | 30.8 | 0 | DT 1 + 8 | No | 168TA1049 | 168TA1071 | BAT/47541 |
| CR240E | 240 | 195 | 245 | 191 | 273 | 29.0 | 0 | 1 | No | 168TA1050 | 168TA1072 | BAT/47548 |
| CR260HD | 260 | 215 | 260 | 179 | 295 | 34.0 | 0 | DT 1 + 8 | No | 168TA1051 | 168TA1073 | BAT/47549 |
| CR250 | 250 | 200 | 298 | 183 | 283 | 33.1 | 0 | DT 1 + 8 | No | 168TA1052 | 168TA1073 | BAT/47549 |
| CR305HD | 305 | 255 | 310 | 183 | 359 | 40.8 | 0 | DT 1 + 8 | Yes | 168TA1053 | 168TA1070 | BAT/47550 |
| CR330HD | 330 | 270 | 310 | 183 | 359 | 42.2 | 0 | DT 1 + 8 | Yes | 168TA1054 | 168TA1070 | BAT/47550 |
| CR350HD | 350 | 290 | 310 | 183 | 359 | 45.8 | 0 | DT 1 + 8 | Yes | 168TA1055 | 168TA1073 | BAT/47549 |
| CR370HD | 370 | 295 | 314 | 183 | 410 | 46.0 | 0 | DT 1 + 8 | Yes | 168TA1056 | 168TA1070 | BAT/47550 |
| CR390HD | 390 | 310 | 314 | 183 | 410 | 52.2 | 0 | DT 1 + 8 | Yes | 168TA1057 | 168TA1070 | BAT/47550 |
| CR390HD-ZHV | 390 | 310 | 292 | 183 | 410 | 52.2 | 0 | DT 1 + 8 | Yes | 168TA1058 | 168TA1070 | BAT/47550 |
| CR430HD | 430 | 340 | 314 | 183 | 410 | 55.3 | 0 | DT 1 + 8 | Yes | 168TA1059 | 168TA1073 | BAT/47549 |
| Batteries 8 V deep-cycle | | | | | | | | | | | | |
| CR165 | 165 | 140 | 262 | 179 | 275 | 29.0 | 1 | S | No | 168TA1060 | 168TA1074 | BAT/47551 |
| CR190 | 190 | 155 | 262 | 179 | 275 | 31.3 | 1 | S | No | 168TA1061 | 168TA1074 | BAT/47551 |
| Batteries 12 V deep-cycle | | | | | | | | | | | | |
| 24DC95 | 95 | 75 | 278 | 171 | 238 | 22.7 | 1 | DT 1 + 8 | No | 168TA1062 | - | - |
| 27DC115 | 115 | 95 | 321 | 171 | 238 | 23.6 | 1 | DT 1 + 8 | No | 152TA4591 | - | - |
| 31DC130 | 130 | 105 | 330 | 171 | 238 | 30.4 | 1 | DT 1 + 8 | No | 152TA7108 | - | - |
| GCCR150 | 150 | 123 | 328 | 179 | 267 | 36.7 | 1 | DT 1 + 8 | No | 168TA1063 | 168TA1075 | BAT/47552 |
| GCCR155 | 155 | 125 | 328 | 179 | 267 | 39.9 | 1 | DT 1 + 8 | No | 168TA1064 | 168TA1075 | BAT/47552 |
| CR185HD | 185 | 150 | 394 | 178 | 372 | 48.5 | 0 | DT 1 + 8 | Yes | 168TA1065 | 168TA1076 | BAT/47570 |
| CR195HD | 195 | 160 | 394 | 178 | 372 | 49.9 | 0 | DT 1 + 8 | Yes | 168TA1066 | 168TA1076 | BAT/47570 |
| CR215HD | 215 | 180 | 394 | 178 | 372 | 54.4 | 0 | DT 1 + 8 | Yes | 168TA1067 | 168TA1076 | BAT/47570 |
| Accessories | | | | | | | | | | | | |
| Quick release for 6 V batteries with 3 plugs | | | | | | | | | | 115TA6845 | - | BAT/21157 |
| Quick release for 8V batteries with 4 plugs | | | | | | | | | | 168TA1077 | - | BAT/21158 |

* ZHV = without handles

SNAPCAP™ VENTS



REF [168TA1648](#)
Old: BAT/48840



REF [168TA1649](#)
Old: BAT/48839

One-piece design

Now available on Crown 6 and 12 V deep-cycle batteries

The new convenience

Crown battery will begin producing our range of high capacity 6 and 12 V deep-cycle batteries with the company's proprietary one-piece SnapCap vent component.

The SnapCap vent component delivers a number of major benefits to battery owners and users:

A highly convenient one-piece locking vent component that makes battery inspection easier and more efficient.

The SnapCap utilizes a lock-in base that secures the vent to the cell opening by manual compression. Installation is fast and easy and does not require tightening of the vent after installation.

The SnapCap design includes a low-profile and multiple safety features that makes it one of the safest vents on the market.

Flooded lead deep-cycle batteries with "SnapCap" vents

Vent component design change

Effective in June 2016 for the following deep-cycle group sizes and battery models:

BCI Group 901: CR-250 and CR-275

BCI Group 903: CR-370, CR-390 and CR-430

BCI Group 902: CR-305, CR-330 and CR-350

BCI Group 921: CR-185, CR-195 and CR-215

HANDLE



REF [115TA6846](#)
Old: BAT/20016

CONNECTIONS & CABLES



Battery connection Ø 25 mm

| Length mm | REF | Old REF |
|--------------|---------------------------|-----------|
| 75 | 168TA1650 | BAT/23477 |
| 95 | 168TA1651 | BAT/23479 |
| 190 | 168TA1652 | BAT/23481 |
| 280 | 168TA1653 | BAT/23483 |
| 300 | 168TA1654 | BAT/23485 |
| 350 | 168TA1655 | BAT/23487 |
| 400 | 168TA1656 | BAT/23489 |

* Other dimensions are available on demand.



Terminal cable Ø 25 mm

| Length mm | REF | Old REF |
|--------------|---------------------------|-----------|
| 75 | 168TA1657 | BAT/23651 |
| 95 | 168TA1658 | BAT/23653 |
| 190 | 168TA1659 | BAT/23655 |
| 280 | 168TA1660 | BAT/23657 |
| 300 | 168TA1661 | BAT/23659 |

QUICK RELEASE



REF [115TA6845](#) – Quick release for 6 V batteries with 3 plugs
Old: BAT/21157
REF [168TA1077](#) – Quick release for 8 V batteries with 4 plugs
Old: BAT/21158



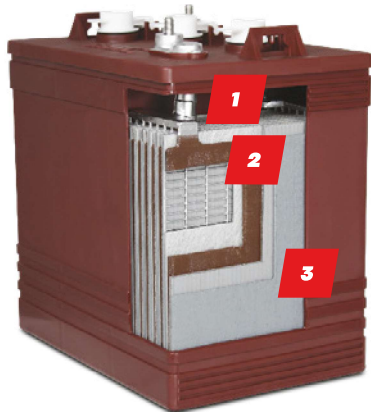
| Diameter mm | Colour | REF | Old REF |
|----------------|--------|---------------------------|-----------|
| 32 | Red | 131TA7018 | BAT/38794 |
| 32 | Black | 131TA7019 | BAT/38796 |
| 30 | Red | 131TA7020 | BAT/38792 |
| 30 | Black | 131TA7021 | BAT/38285 |
| 26 | Red | 131TA7022 | BAT/38788 |
| 26 | Black | 131TA7023 | BAT/38790 |
| 24 | Red | 131TA7024 | BAT/38784 |
| 24 | Black | 131TA7025 | BAT/38786 |
| 20 | Red | 131TA7026 | BAT/38780 |
| 20 | Black | 131TA7027 | BAT/38782 |

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TROJAN BATTERIES

With nearly 100 years of experience powering business and industry, Trojan is the world's leading supplier of deep-cycle batteries. Trojan batteries are synonymous with high performance, reliability, durability and a long lifespan. A truly outstanding battery is ready for action, day in and day out. At TVH, we know you need to be able to count on your batteries at all times. That's why we recommend Trojan. We offer a broad range of high-quality Trojan batteries to suit any need: deep-cycle flooded batteries, AGM batteries and gel batteries. Trojan has become the leading supplier of deep-cycle batteries for industries ranging from transportation to renewable energy. Their superior batteries power a wide range of vehicles, such as mobile elevating work platforms (MEWPs), industrial cleaning machines, golf carts, marine and recreational vehicles.

INNOVATIVE DEEP-CYCLE FLOODED BATTERIES

Trojan's deep-cycle flooded batteries are their flagship product. They're engineered to provide durability, outstanding performance and a long lifespan, even in rugged conditions. This makes them perfect for a variety of electric vehicles. Featuring Trojan's historically proven engineering and T2 Technology™, an advanced battery technology for maximum sustained performance, these powerful deep-cycle flooded batteries are the best in the business.



For more information



LITHIUM

Next in a long line of trusted Trojan power, our new GC2 deep cycle lithium-ion batteries deliver the ultimate in performance and requires virtually no maintenance. And with a smart battery maintenance system (BMS) that self-protects against short circuits and overheating, Trojan lithium-ion deep cycle batteries take safety to the next level.

- 24 V, 36 V and 48 V
- Long life cycle
- Safe chemistry



TROJAN AES

The new Trojan AES Batteries deliver up to 3 x the cycle life with high, sustained performance versus standard AGM. And, the battery maintains high capacity in extreme deep-cycling (up to 100% DoD), partial charging, and challenging environments.

It outperforms the competition in these areas:

- Up to 3 x life of AGM
- Robust performance
- Maintenance free



FLOODED LEAD-ACID

Trojan flooded lead-acid batteries, also called wet or wet cell lead-acid batteries, are our all-around powerhouse and workhorse batteries. Utilizing Trojan advanced T2™ technology, these rugged, durable, long life batteries deliver maximum sustained performance for your golf and utility vehicles, AWP, floor machine, marine, RVs, renewable energy and more.

Trojan flooded deep cycle batteries are the longest lasting of the lead-acid batteries. They require regular watering with distilled water after charging, and to prevent spillage, they must remain upright.

- Low cost
- Robust and reliable
- 99% recyclable

DEEP-CYCLE FLOODED BATTERIES WITH T2 TECHNOLOGY



Motive 6 V



Rugged Motive 6 V



Motive 8 V



Motive 12 V

| Model | BCI Group size | Capacity 5-Hr | Capacity 20-Hr | Length | Width | Total height | Compatible with Hydrolink | Terminal type | Vents | Handle | Hardware | Max qty/pallet | REF |
|--|----------------|---------------|----------------|--------|-------|--------------|---------------------------|---------------|----------|--------|------------|----------------|---------------------------|
| | | | | mm | mm | mm | | | | | | | |
| 6 V deep-cycle flooded batteries | | | | | | | | | | | | | |
| J250G | 901 | 195 | 235 | 309 | 174 | 290 | ✓ | EUTR | Bayo | | Nuts/bolts | 28 | 166TA4197 |
| J250P | 901 | 215 | 250 | 296 | 176 | 293 | | DT | Bayo | ✓ | Hex nut | 28 | 166TA4198 |
| J305E-AC | 902 | 250 | 305 | 312 | 174 | 366 | ✓ | EUTR | Bayo | ✓ | Nuts/bolts | 30 | 166TA4199 |
| J305G-AC | 902 | 258 | 315 | 312 | 174 | 366 | ✓ | EUTR | Bayo | ✓ | Nuts/bolts | 30 | 145TA1961 |
| J305H-AC | 902 | 295 | 360 | 296 | 176 | 366 | | DT | Bayo | ✓ | Hex nut | 30 | 166TA4201 |
| J305P-AC | 902 | 271 | 330 | 296 | 176 | 366 | | DT | Bayo | ✓ | Hex nut | 30 | 106TA8679 |
| L16E-AC | 903 | 303 | 370 | 311 | 174 | 417 | ✓ | EUTR | Bayo | ✓ | Nuts/bolts | 28 | 166TA4203 |
| L16G-AC | 903 | 320 | 390 | 311 | 174 | 417 | ✓ | EUTR | Bayo | | Nuts/bolts | 28 | 166TA4204 |
| L16H-AC | 903 | 357 | 435 | 296 | 176 | 425 | | DT | Bayo | ✓ | Hex nut | 26 | 166TA4206 |
| L16HG-AC | 903 | 357 | 435 | 311 | 174 | 417 | ✓ | EUTR | Bayo | ✓ | Nuts/bolts | 26 | 166TA4207 |
| L16P-AC | 903 | 344 | 420 | 296 | 176 | 425 | | DT | Bayo | ✓ | Hex nut | 28 | 106TA8680 |
| T-105 | GC2 | 185 | 225 | 262 | 181 | 281 | ✓ | ELPT | Bayo | | Hex nut | 48 | 106TA8677 |
| T-105-EUT | GC2 | 185 | 225 | 262 | 181 | 281 | ✓ | EUT | Bayo | | Hex nut | 48 | 166TA4211 |
| T-125 | GC2 | 195 | 240 | 262 | 181 | 281 | ✓ | ELPT | Bayo | | Hex nut | 48 | 166TA4216 |
| T-145 | GC2H | 215 | 260 | 262 | 181 | 302 | ✓ | EHPT | Bayo | | Hex nut | 45 | 106TA8678 |
| T-605 | GC2 | 175 | 210 | 262 | 181 | 281 | ✓ | ELPT | Bayo | | Hex nut | 48 | 166TA4228 |
| TE35 | DIN | 200 | 245 | 244 | 191 | 269 | | AP | Screw in | ✓ | N/A | 48 | 166TA4230 |
| 8 V deep-cycle flooded batteries | | | | | | | | | | | | | |
| DC-8V | GC8 | 135 | 160 | 259 | 179 | 283 | ✓ | EHPT | Master | | Hex nut | 48 | 166TA4231 |
| T-875 | GC8 | 145 | 170 | 259 | 179 | 283 | ✓ | ELPT | Bayo | | Hex nut | 48 | 166TA4234 |
| T-890 | GC8 | 155 | 190 | 259 | 179 | 283 | ✓ | ELPT | Bayo | | Hex nut | 48 | 166TA4237 |
| 12 V deep-cycle flooded batteries | | | | | | | | | | | | | |
| 24TMX | 24 | 70 | 85 | 277 | 168 | 235 | | AP | Pod | ✓ | Nuts/bolts | 54 | 166TA4238 |
| 27TMH | 27 | 95 | 115 | 323 | 168 | 235 | | AP | Pod | ✓ | N/A | 28 | 166TA4241 |
| 27TMX | 27 | 85 | 105 | 323 | 168 | 235 | | AP | Pod | ✓ | N/A | 42 | 165TA4535 |
| 27TMXWNT | 27 | 85 | 105 | 323 | 168 | 235 | | WNT | Pod | ✓ | WNT | 28 | 166TA4247 |
| 30XH5 | 30H | 105 | 130 | 355 | 171 | 256 | | AP | Pod | ✓ | N/A | 36 | 166TA4248 |
| 31XH5 | 31 | 105 | 130 | 329 | 171 | 243 | | Stud | Screw in | ✓ | Hex nut | 24 | 166TA4251 |
| J185P-AC | 921 | 168 | 205 | 380 | 176 | 374 | | DT | Bayo | ✓ | Hex nut | 24 | 166TA4260 |
| SCS225 | 30H | 105 | 130 | 354 | 171 | 253 | | DWNT | Pod | ✓ | WNT | 36 | 166TA4264 |
| T-1275 | GC12 | 120 | 150 | 329 | 181 | 272 | ✓ | ELPT | Master | | Hex nut | 36 | 166TA4266 |

BATTERIES

CYCLIC BATTERIES



AES BATTERIES

THE NEW TROJAN AES BATTERY DELIVERS UP TO 3 X THE CYCLE LIFE OF STANDARD AGM

The Trojan AES battery delivers up to 3 x the cycle life with high sustained performance versus standard AGM. The battery maintains high capacity in extreme deep-cycling (up to 100% DoD), partial charging, and challenging environments. It outperforms the competition in these areas:



LAST LONGER

Up to 3 x more cycle life than standard AGM. Validated at 1200 cycles at 100% DoD vs. 400 cycles for AGM



PERFORMS IN HARSH CONDITIONS

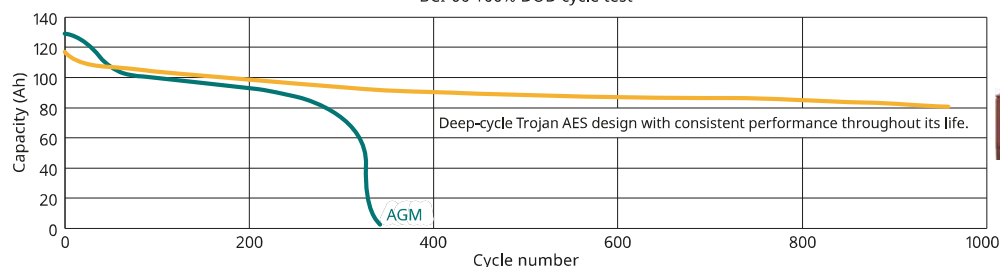
Robust performance in extreme temperatures and conditions. Temperature range from -40 to 71 °C (-40 to 160 °F)



DELIVERS HARMLESS PSOC

Tested to withstand Partial State of Charge, again and again

Trojan AES vs standard AGM
BCI-06 100% DOD cycle test



Trojan AES maintains high capacity in extreme deep-cycling (up to 100% DoD) with consistent performance throughout its life compared to standard AGM.

WITH AES, ENJOY THESE ADDED BENEFITS.

- **Maintenance free:** Virtually no maintenance as watering is not required.
- **Safe and sustainable:** Trojan AES is classified as non-spillable and can be safely mounted horizontally to fit difficult locations. It's made using 80% recycled materials and is 99% recyclable.
- **Rugged design:** Designed and manufactured to absorb vibration and shock.
- **AGM charger:** This VRLA battery is charged with existing AGM profiles.

AES CAN HELP OEMS AND MASTER DISTRIBUTORS PREEMPT COSTLY PROBLEMS.

The Trojan AES Battery is locally available, reliable and proven to meet high performance standards, so you can assure customers are getting the best experience.

AES boosts productivity and cuts downtime for:

- Equipment rental companies
- Hospitals, airports, and educational facilities
- Warehousing/material handling equipment

Trojan AES is ideal for floor-cleaning machines, aerial work platforms, and material-handling equipment.

| Model | BCI group size | C20 | C5 | Length | Width | Height | Terminal type | Weight | Max qty pallet | REF |
|-----------------------|----------------|-----|-----|--------|-------|--------|---------------|--------|----------------|---------------------------|
| | | Ah | Ah | mm | mm | mm | | kg | | |
| 6 V | | | | | | | | | | |
| J305-AES-DT | 902 | 279 | 228 | 296 | 176 | 358 | DT | 45 | 28 | 168TA2867 |
| L16-AES-DT | 903 | 355 | 294 | 296 | 176 | 417 | DT | 55 | 28 | 168TA2868 |
| T105-AES-AP | GC2 | 207 | 170 | 262 | 179 | 273 | AP | 32 | 31 | 168TA2869 |
| 8 V | | | | | | | | | | |
| T875-AES-AP | GC8 | 158 | 131 | 262 | 179 | 273 | AP | 33 | 31 | 168TA2870 |
| 12 V | | | | | | | | | | |
| 24-AES-DT | 24 | 76 | 67 | 274 | 174 | 219 | DT | 25 | 54 | 168TA2871 |
| 27-AES-DT | 27 | 89 | 77 | 306 | 174 | 237 | DT | 30 | 42 | 168TA2872 |
| 31-AES-DT | 29 | 102 | 82 | 235 | 173 | 238 | DT | 31 | 36 | 168TA2873 |
| J185-AES-DT | 921 | 175 | 140 | 380 | 176 | 367 | DT | 57 | 24 | 168TA2874 |
| OVERDRIVE-31-AES-STUD | 31 | 104 | 83 | 325 | 173 | 240 | STUD | 31 | 36 | 168TA2875 |
| T1275-AES-AP | GC12 | 130 | 99 | 329 | 179 | 278 | AP | 39 | 23 | 168TA2876 |

LITHIUM INSERT BATTERY KIT 24 V AND AGM INSERT BATTERY KIT 24 V



- Kit with support and cover to be easily inserted in material handling class 3 applications:
- Maintenance free
- Deepfreezer proof, performs great in temp range of -40 to 71 °C
- 1200 cycles ta 100% DOD (3 times longer then standard AGM)
- Safe and durable (99% recycable)
- Battery can be installed in horizontal position
- Robuust design vibration proof
- Can be charged with standard AGM charge profice

Only for class 3 type pallettrucks, must fit these case dimensions L677 x W200 x H566 mm

REF [168TA7805](#)

OTHER SPECIFICATIONS

- Charging voltage settings (@ 25 °C (77 °F))
- Sytem voltage: 24 V
- Maximum charge current: 50% c20
- Absorption voltage (2.40 V/cell): 28.80
- Float voltage (2.25 V/cell): 27.00
- Do not install or charge batteries in a sealed or non-ventilated compartment. Constant under or overcharging will damage the battery and shorten its life as with any battery.

| Voltage | Capacity A minutes | | Capacity B AMP-hours (Ah) | | | | Energy (kWh) |
|---------|--------------------|-----------|---------------------------|-------|-------|--------|--------------|
| | @ 25 Amps | @ 75 Amps | 5 hr | 10 hr | 20 hr | 100 hr | 100 hr |
| 24 | 420 | 113 | 170 | 185 | 207 | 225 | 1.35 |

BATTERIES

CYCLIC BATTERIES



LITHIUM-ION BATTERIES

8-YEAR WARRANTY - YOUR INVESTMENT IS PROTECTED AND YOU CAN STILL BE AROUND IN 8 YEARS TO HONOR IT

4000 CYCLES @70% DOD (TO 70% OF INITIAL CAPACITY) AT 25 A)



WHY TROJAN BATTERY IS A TRUSTED NAME FOR LITHIUM-ION TECHNOLOGY

Internal temperature sensors are a key component in lithium-ion battery charging and safety. They provide critical temperature data required to keep the lithium-ion battery in the optimum condition during the charging cycle.

Unlike other lithium-ion batteries that have only two or three, Trojan GC 24 V, 36 V and 48 V lithium-ion batteries have five internal temperature sensors. Three are positioned to monitor cell temperature gradients. One ensures balance between the two sides of the battery. The fifth is on the BMS board to monitor discharge current path and electronics temperature.

Temperature sensors serve two main purposes:

- Preventing damage to the cells when changed in low temperatures
- Preventing dangerous overheating conditions within a cell or cells during charge

More sensors provide more feedback to the BMS, giving it better control of the charging. The result is longer battery life and safer operation.

Trojan lithium-ion batteries have four levels of safety redundancy at the cell level:

1. Stable cell chemistry (Lithium Iron Phosphate)
2. Independent charge/discharge control unit
3. Secondary charge and discharge control circuit
4. Emergency mechanical fusing

With your safety in mind first, Trojan lithium-ion batteries feature a battery management system (BMS) that protects against short circuits, overheating and other unsafe conditions. They are equipped with a truly "smart" design that utilizes dual processors for full back-up ensuring the system is always running.

| Model | Capacity | Capacity amp - hours | | | Energy kWh | Length mm | Width mm | Height mm | Operating temp | Terminal type | REF |
|--------------|---------------|----------------------|-------|-------|------------|-----------|----------|-----------|----------------|---------------|---------------------------|
| | minutes @25 A | 5 hr | 10 hr | 20 hr | | | | | | | |
| TRL-GC2-24-M | 156 | 65 | 65 | 65 | 1.75 | 264 | 180 | 278 | -20 to 60 °C | M8 | 168TA2877 |
| TRL-GC2-36-M | 108 | 45 | 45 | 45 | 1.75 | 264 | 180 | 278 | -20 to 60 °C | M8 | 168TA2878 |
| TR-GC2-48-G | 72 | 30 | 30 | 30 | 1.53 | 264 | 180 | 278 | -40 to 60 °C | M8 | 168TA2879 |

TROJAN CLASS 3 INSERT LI-ION BATTERY



REF [168TA8010](#) – 25.6 V 130 Ah 3328 Wh 2 in parallel
 REF [168TA8011](#) – 25.6 V 195 Ah 4992 Wh 3 in parallel
 REF [168TA7804](#) – 25.6 V 260 Ah 6656 Wh 4 in parallel

OTHER SPECIFICATIONS

| Performance and system specifications @ 25 °C (77 °F) | |
|---|---|
| Maximum continuous discharge current | 90 A |
| Maximum pulse discharge current (30 sec) | 100 A |
| Maximum instantaneous discharge current (0.4 sec) | 160 A |
| Reserve capacity @ 25 A | 156 min |
| Battery internal protection | Short circuit current Temperature Over voltage Under voltage Over-current |
| Battery functions | Cell balancing State of charge CAN-bus communication |
| Safety system | Fuse, hardware, BMS |
| Discharge voltage cutoff | 20.24 V |
| Environmental protection | IP67 |
| Shipping classification | UN3480, class 9 |
| Case flame rating | IUL94 V-0 |

BATTERIES

CYCLIC BATTERIES

TERMINAL CONFIGURATIONS



1 – ELPT
Embedded
Low profile



2 – EHPT
Embedded
High profile



3 – EAPT
Embedded
Automotive post



4 – EUT/R
Embedded
Universal/reverse



5 – LT
L-terminal



6 – DT
Automotive
Post and stud



7 – UT
Universal



8 – AP
Automotive post



9 – WNT
Wingnut



10 – DWNT
Dual wingnut



11 – ST
Stud



12
Cable and plug



14 – IND
Industrial



15 – M6/M8
6 mm/8 mm
Insert



16 – SLT
Small
L-terminal

VENTS



1 – BAYO



2 – FLIP



3 – MASTER

ABOUT DYNO EUROPE



Dyno Europe offers a complete range of batteries and accessories for the Access Industry

SEMI-TRACTION (EU) DYNO



Kit filler caps

300 CYCLES

FLAT PLATE

A semi-traction battery is almost identical to a traction battery, the big difference between the two is that a traction battery has more cycles, so lasts longer than a semi-traction battery. These batteries must be able to supply a constant current for a long period of time. They have thicker lead plates and glass fiber separation what makes these batteries easier to discharge. The Micro-porous rubber separators are a technical solution and thanks to a precise choice of materials used our batteries give the best performance and ensure proven reliability and long life.

Properties:

- Thicker plates
- Grid plates with radial geometry
- Active material with specific composition to resist the cyclical discharges
- Grids of Pb/Sb/Sn/As/Se alloy which improves corrosion resistance and improves the contact between the active material
- Microporous rubber separators with glass fiber mats to prevent the loss of active materials
- Up to 300 cycles

EUROPEAN TYPES SEMI-TRACTION

| Model | Type | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | REF | Kit filler caps* | Old REF Kit filler caps* |
|-------------|---------|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------------------------|---------------------------|-----------------------------|
| 6 V | | | | | | | | | | | | |
| 9.080.1 | Semi | 100 | 80 | 231 | 176 | 222 | 14.0 | 0 | 1 | 167TA9932 | - | - |
| 9.095.2 | Semi | 120 | 96 | 260 | 175 | 221 | 17.0 | 0 | 1 | 134TA8592 | - | - |
| 9.180.1 | Semi | 240 | 197 | 244 | 190 | 274 | 29.4 | 0 | 1 | 167TA9946 | 167TA9947 | BAT/47553 |
| 12 V | | | | | | | | | | | | |
| 9.540.1 | Semi | 50 | 40 | 207 | 175 | 190 | 12.4 | 0 | 1 | 167TA9954 | - | - |
| 9.550.2 | Semi | 60 | 50 | 242 | 175 | 190 | 16.0 | 0 | 1 | 167TA9955 | - | - |
| 9.560.2 | Semi | 75 | 60 | 278 | 175 | 190 | 18.6 | 0 | 1 | 167TA9933 | - | - |
| 9.555.1 | Semi | 70 | 50 | 270 | 175 | 220 | 17.2 | 1 | 1 | 167TA9934 | - | - |
| 9.575.1 | Semi | 90 | 75 | 353 | 175 | 190 | 24.0 | 0 | 1 | 167TA9935 | - | - |
| 9.575.1 MF | Semi MF | 90 | 75 | 353 | 175 | 190 | 24.0 | 0 | 1 | 167TA9957 | - | - |
| 9.580.3 | Semi | 100 | 80 | 304 | 175 | 220 | 23.7 | 0 | 1 | 167TA9956 | - | - |
| MF31DC | Semi MF | 100 | 80 | 330 | 172 | 242 | 23.2 | 1 | DT 1 + 8 | 167TA9958 | - | - |
| 9.580.4 | Semi | 105 | 90 | 345 | 175 | 230 | 26.0 | 0 | 1 | 167TA9937 | - | - |
| 9.590.3 | Semi | 120 | 90 | 304 | 175 | 220 | 24.0 | 0 | 1 | 167TA9938 | - | - |
| 9.820.0 | Semi | 135 | 100 | 360 | 253 | 240 | 37.5 | 0 | 1 | 167TA9960 | 167TA9948 | BAT/47555 |
| 9.600.2 | Semi | 125 | 100 | 345 | 175 | 285 | 33.3 | 0 | 1 | 129TA8810 | - | - |
| 9.605.1 | Semi | 140 | 120 | 513 | 189 | 223 | 39.0 | 3 | 1 | 167TA9961 | 167TA9949 | BAT/47556 |
| 9.605.1 MF | Semi MF | 140 | 120 | 513 | 189 | 220 | 34.5 | 3 | 1 | 167TA9962 | - | - |
| 9.635.1 | Semi | 180 | 155 | 513 | 223 | 223 | 47.5 | 3 | 1 | 167TA9967 | 167TA9949 | BAT/47556 |
| 9.680.1 | Semi | 230 | 190 | 518 | 274 | 242 | 59.0 | 3 | 1 | 167TA9939 | 167TA9950 | BAT/47557 |

MF: maintenance-free

BATTERIES

CYCLIC BATTERIES



PZS MONOBLOC DYNO



1200 CYCLES

TUBULAR PLATE

Monobloc traction batteries must be able to provide a constant current over a long period of time. The open lead-acid batteries do require some attention to maintenance, such as topping up the cells. This can be time-consuming and should not be forgotten, to help you with this, we also offer an automatic filling system (see below for more information). The positive plates of the monobloc traction batteries are specially made out of tube plates instead of flat plates. Monobloc batteries combine a very high capacity with a maximum lifespan of 1200 cycles. This long life is due to the tubes or plates.

Properties:

- Premium tubular plate construction with free electrolyte ensure a long service life
- Accepts high discharge currents
- Perfect solution for applications that are used in difficult working conditions
- Reliable and sustainable
- Up to 1200 cycles

MONOBLOC TRACTION

| Model | Type | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | REF | Kit filler caps* | Old REF Kit filler caps* |
|-------------|----------|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------------------------|---------------------------|--------------------------------|
| 6 V | | | | | | | | | | | | |
| 6PZS195 | Traction | 240 | 195 | 244 | 190 | 270 | 30.5 | 0 | 1 | 167TA9963 | 167TA9951 | BAT/47558 |
| 6PZS205 | Traction | 250 | 210 | 244 | 190 | 270 | 32.4 | 0 | 1 | 167TA9964 | 167TA9951 | BAT/47558 |
| 6PZS180 | Traction | 225 | 175 | 260 | 180 | 275 | 31.0 | 0 | 1 | 167TA9965 | 167TA9952 | BAT/47572 |
| PZS265 | Traction | 348 | 290 | 311 | 183 | 365 | 45.0 | 0 | 1 | 167TA9940 | - | - |
| PZS320 | Traction | 390 | 320 | 311 | 183 | 365 | 50.0 | 0 | 1 | 167TA9966 | 167TA9947 | BAT/47553 |
| 8 V | | | | | | | | | | | | |
| PZS160 | Traction | 195 | 160 | 264 | 183 | 275 | 32.0 | 0 | 1 | 167TA9968 | - | - |
| 12 V | | | | | | | | | | | | |
| 2PZS38 | Traction | 50 | 36 | 205 | 175 | 190 | 13.5 | 0 | 1 | 167TA9969 | - | - |
| 2PZS36L2 | Traction | 50 | 36 | 240 | 175 | 190 | 14.0 | 0 | 1 | 167TA9970 | - | - |
| 3PZS57 | Traction | 60 | 55 | 278 | 175 | 190 | 18.9 | 0 | 1 | 167TA9971 | - | - |
| 2PZS56 | Traction | 68 | 56 | 265 | 175 | 210 | 20.0 | 0 | 1 | 167TA9972 | - | - |
| PZS72 | Traction | 96 | 72 | 352 | 175 | 190 | 23.0 | 0 | 1 | 167TA9941 | - | - |
| PZS80 | Traction | 105 | 80 | 352 | 174 | 215 | 28.0 | 0 | 1 | 167TA9974 | - | - |
| 3PZS75 | Traction | 110 | 90 | 303 | 175 | 228 | 28.7 | 0 | 1 | 167TA9975 | - | - |
| 4PZS90 | Traction | 115 | 95 | 344 | 172 | 234 | 30.0 | 0 | 1 | 134TA8609 | 167TA9953 | BAT/47571 |
| 4PZS118 | Traction | 140 | 118 | 344 | 172 | 284 | 37.3 | 0 | 1 | 167TA9943 | 167TA9953 | BAT/47571 |
| 4PZS126 | Traction | 146 | 126 | 510 | 175 | 225 | 39.0 | 4 | 1 | 167TA9944 | 167TA9949 | BAT/47556 |
| PZS150 | Traction | 183 | 150 | 510 | 222 | 225 | 47.0 | 4 | 1 | 167TA9976 | 167TA9953 | BAT/47571 |

*This kit is suitable for providing exactly one battery with the necessary filler caps and floats

LEAD CARBON



1000 CYCLES 80% DOD

MAINTENANCE-FREE

Standard lead-acid batteries have a big advantage over lithium batteries, namely a large discharge capacity (up to C3). But to counter sulphation that would greatly reduce the life of the battery, there is a much longer charge time with lead-acid batteries (up to 10 hours = 0.1). The new lead carbon technology offers the solution here.

The negative plates of these batteries are made from lead and carbon and thus combine the advantages of normal lead-acid batteries with those of a supercapacitor. The addition of carbon ensures that these batteries have a higher charge acceptance and therefore have to charge for less time than regular lead-acid batteries. Moreover, they provide more power and are more resistant to (extremely) low temperatures. By adding lead (pb) to the negative plate there is also less resistance, resulting in a longer lifespan. In addition, this latest technology suppresses sulphation better than any other technology.

Properties:

- Maintenance-free alternative for AGM and gel
- Better cycle life: > 1300 cycles (70% DoD) and up to 1000 cycles with 80% DoD
- Excellent performance in (extreme) low temperatures
- Price-friendly
- Charging time is shorter than normal AGM
- Lead carbon batteries can be used with good performance without being charged 100%

| Model | Alt | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | REF |
|-------------|-----|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------------------------|
| 6 V | | | | | | | | | | |
| DLC6-200EV | GC2 | 205.0 | 173.5 | 260 | 181 | 266 | 30.3 | 0 | M8 | 167TA9977 |
| DLC6-225EV | | 226.0 | 190.5 | 243 | 188 | 275 | 32.0 | 0 | M8 | 167TA9978 |
| DLC6-330EV | S4 | 330.0 | 257.5 | 295 | 178 | 360 | 46.9 | 0 | M8 | 167TA9979 |
| DLC6-420EV | L16 | 428.0 | 334.0 | 295 | 179 | 424 | 59.0 | 0 | M8 | 167TA9980 |
| 8 V | | | | | | | | | | |
| DLC8-160EV | | 163.0 | 138.0 | 260 | 180 | 280 | 36.0 | 0 | M8 | 167TA9981 |
| 12 V | | | | | | | | | | |
| DLC12-55EV | | 59.5 | 50.5 | 229 | 138 | 208 | 17.5 | 1 | M6 | 167TA9982 |
| DLC12-80EV | | 86.4 | 71.5 | 258 | 168 | 214 | 26.4 | 1 | M8 | 167TA9983 |
| DLC12-100EV | | 108.6 | 92.0 | 330 | 171 | 219 | 32.0 | 1 | M8 | 167TA9984 |
| DLC12-135EV | | 145.0 | 120.5 | 340 | 173 | 286 | 45.0 | 1 | M8 | 167TA9985 |
| DLC12-200EV | | 216.0 | 182.5 | 522 | 240 | 222 | 59.0 | 4 | M8 | 167TA9986 |
| DLC12-250EV | | 270.0 | 228.0 | 520 | 268 | 223 | 70.5 | 4 | M8 | 167TA9987 |

BATTERIES

CYCLIC BATTERIES



ABOUT SONNENSCHN

Sonnenschein is part of the Exide group and is a leading manufacturer in the world of batteries. Sonnenschein is a pioneer in gel batteries and are extremely suitable for cyclic applications in numerous industrial applications as well as in wheelchairs, golf carts,...

GF-V series: very suitable for industrial use such as aerial work platforms, stackers and cleaning machines.

GF-Y series: ideal for lighter applications such as scooters, wheelchairs and lower traction applications.

SONNENSCHN GF-Y RANGE (DRYFIT® A500 CYCLIC)



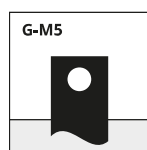
The GF-Y block battery range is particularly suitable for the leisure and mobility market (wheelchairs, scooters, golf carts and electric boats)

Main technical features and benefits:

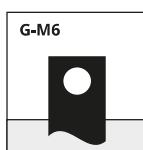
- Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- Very high intrinsic safety
- Robust, safe and reliable
- Low self-discharge rate
- 450 cycles in accordance with IEC 60254-1
- Product range:
 - 12 V block batteries
 - 14 Ah up to 93.5 Ah (C5)
 - 15 Ah up to 110 Ah (C20)

TECHNICAL CHARACTERISTICS AND DATA

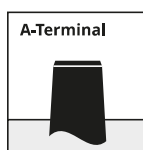
| Model | Nominal capacity C5 (30 °C) Ah | Nominal capacity C20 (30 °C) Ah | Length max mm | width max mm | Height max mm | Weight kg | Terminal | Terminal position | REF |
|-------------|-----------------------------------|------------------------------------|------------------|-----------------|------------------|--------------|------------|-------------------|---------------------------|
| 12 V | | | | | | | | | |
| GF12014YF | 14 | 15 | 181 | 76 | 167 | 6 | G-M5 | 3 | 167TA9998 |
| GF12022YF | 22.2 | 24 | 167 | 176 | 126 | 9.6 | G-M5 | 3 | 167TA9999 |
| GF12025YG | 25 | 28 | 197 | 132 | 180 | 11.1 | G-M5 | 2 | 168TA1000 |
| GF12033Y1 | 32.5 | 38 | 210 | 175 | 175 | 14.6 | A-terminal | 3 | 168TA1001 |
| GF12033YG1 | 32.5 | 38 | 210 | 175 | 175 | 14.6 | G-M6 | 3 | 168TA1002 |
| GF12033YG2 | 32.5 | 38 | 210 | 175 | 175 | 14.6 | G-M6 | 3 | 168TA1003 |
| GF12040Y | 40 | 48 | 242 | 175 | 190 | 17.5 | A-terminal | 3 | 168TA1004 |
| GF12044Y | 44 | 50 | 261 | 135 | 230 | 19 | A-terminal | 3 | 168TA1005 |
| GF12051Y1 | 51 | 56 | 278 | 175 | 190 | 20.8 | A-terminal | 3 | 168TA1006 |
| GF12051Y2 | 51 | 56 | 278 | 175 | 190 | 20.8 | A-terminal | 3 | 168TA1078 |
| GF12051YG1 | 51 | 56 | 278 | 175 | 190 | 20.8 | G-M6 | 3 | 168TA1007 |
| GF12052YO | 52.7 | 60 | 261 | 170 | 178 | 19.8 | F-M6 | 2 | 168TA1008 |
| GF12063YO | 63 | 70 | 261 | 171 | 210 | 23 | F-M6 | 2 | 168TA1009 |
| GF12065Y | 65 | 78 | 363 | 175 | 190 | 26.8 | A-terminal | 3 | 168TA1010 |
| GF12072Y | 72 | 80 | 330 | 171 | 236 | 30 | A-terminal | 2 | 168TA1011 |
| GF12094Y | 93.5 | 110 | 286 | 269 | 230 | 38.5 | A-terminal | 1 | 168TA1012 |



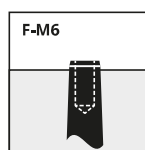
5 Nm



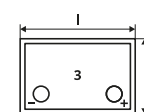
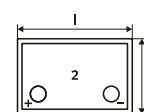
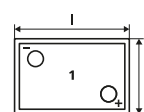
6 Nm



8 Nm



11 Nm



SONNENSCHIN GF-V RANGE (DRYFIT® TRACTION BLOCK)



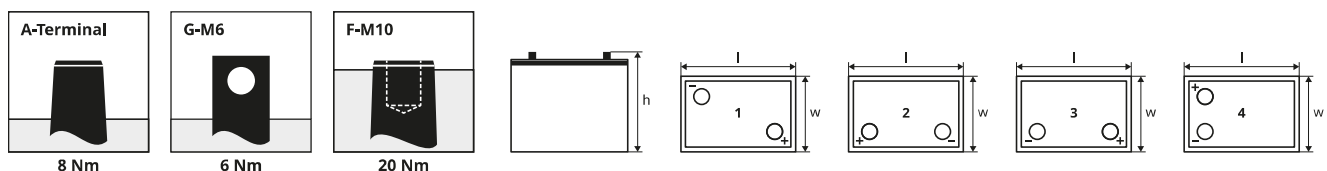
The GF-V block battery range is designed for hard industrial use. This includes applications such as cleaning machines, pallet trucks, automatic guided vehicles, mobile elevating work platforms, electric cars and buses.

Main technical features and benefits:

- Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- Very high intrinsic safety
- Robust, safe and reliable
- Low self-discharge rate
- 700 cycles in accordance with IEC 60254-1
- Product range:
 - 6 V and 12 V block batteries
 - 50 Ah up to 240 Ah (C5)
 - 55 Ah up to 270 Ah (C20)

TECHNICAL CHARACTERISTICS AND DATA

| Model | Nominal capacity C5 (30 °C) Ah | Nominal capacity C20 (30 °C) Ah | Length max mm | width max mm | Height max mm | Weight kg | Terminal | Terminal position | REF |
|-------------|-----------------------------------|------------------------------------|------------------|-----------------|------------------|--------------|------------|-------------------|---------------------------|
| 6 V | | | | | | | | | |
| GF06160V1 | 160 | 196 | 246 | 192 | 275 | 29 | A-terminal | 1 | 152TA5769 |
| GF160180V | 180 | 200 | 246 | 192 | 275 | 31 | A-terminal | 1 | 152TA4411 |
| GF06180VQ | 180 | 200 | 246 | 192 | 284 | 31.5 | F-M10 | 1 | 168TA1013 |
| GF06240V | 240 | 270 | 311 | 183 | 258 | 47 | A-terminal | 1 | 168TA1014 |
| 12 V | | | | | | | | | |
| GF12050V | 50 | 55 | 278 | 175 | 190 | 19 | A-terminal | 3 | 168TA1015 |
| GF12050VG | 50 | 55 | 278 | 175 | 190 | 19 | G-M6 | 3 | 168TA1016 |
| GF12076V | 76 | 86 | 330 | 171 | 236 | 28.8 | A-terminal | 2 | 168TA1017 |
| GF12090V | 90 | 98 | 513 | 189 | 219 | 36.5 | A-terminal | 4 | 168TA1018 |
| GF12105V | 105 | 120 | 345 | 174 | 283 | 37.5 | A-terminal | 3 | 152TA5273 |
| GF12110V | 110 | 120 | 513 | 223 | 219 | 45.5 | A-terminal | 4 | 168TA1019 |
| GF12160V | 160 | 196 | 518 | 274 | 238 | 62.5 | A-terminal | 4 | 168TA1020 |



BATTERIES

CYCLIC BATTERIES



GEL BATTERIES



MAINTENANCE-FREE

Gel batteries are cyclic and just like AGM batteries completely closed and maintenance-free. As the name says, gel is added to the acid. Thus the electrolyte forms a gel-like substance that can not leak.

Due to this method of construction, the battery is leak-proof and no gas can form during normal use. The small amount of gas that can be generated is flown back to the electrolyte, just like with the AGM batteries. This way, the battery never needs to be refilled and should not be ventilated.

Gel batteries are more expensive than AGM batteries but they also have a longer lifespan and they can tolerate more loads.

Properties:

- Longer lifespan: up to 700 cycles
- Recovers completely from deep discharges, even when the battery isn't recharged immediately
- Perfect for cyclic use with daily charges/ discharges
- Perfect performances with long-lasting discharges
- Resists better with higher temperatures
- Sulfation (stratification) is impossible thanks to the gel
- Limited self-discharge
- Accepts the charge better thanks to the lower intern resistance
- Can be discharged, even when it isn't fully charged, without capacity loss
- Maintenance-free



M6 to M8 adaptor (reversible)
REF [168TA1094](#)



Automot. adaptor M6
REF [144TA1868](#)



Automot. adaptor M8
REF [144TA1869](#)

| Model | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | REF |
|------------------|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------------------------|
| 6 V | | | | | | | | | |
| DGY6-110EV | 100.0 | 86.0 | 194 | 170 | 212 | 16.5 | 1 | M8 | 134TA8621 |
| DGY6-160EV | 189.0 | 157.0 | 298 | 171 | 229 | 26.9 | 1 | M8 | 168TA1021 |
| DGY6-180EV* | 210.0 | 187.0 | 260 | 180 | 276 | 29.5 | 0 | M8 + 1 | 168TA1022 |
| DGY6-200EV | 248.0 | 220.0 | 322 | 178 | 231 | 34.0 | 1 | M8 | 168TA1023 |
| DGY6-225EV | 242.0 | 205.5 | 243 | 188 | 275 | 32.0 | 0 | 1 | 152TA4642 |
| 8 V | | | | | | | | | |
| DGY8-180EV | 157.0 | 128.0 | 260 | 182 | 298 | 36.4 | 1 | DT 1 + 8 | 134TA8625 |
| 12 V | | | | | | | | | |
| DGY12-7.5EV | 8.5 | 7.9 | 151 | 65 | 103 | 2.3 | 3 | T1 | 168TA1024 |
| DGY12-13EV | 12.0 | 10.4 | 151 | 98 | 100 | 3.8 | 3 | T2 | 168TA1025 |
| DGY12-18EV | 18.0 | 15.6 | 181 | 77 | 167 | 5.5 | 0 | M5 | 168TA1026 |
| DGY12-26EV | 26.0 | 22.1 | 166 | 176 | 125 | 8.0 | 0 | M5 | 168TA1027 |
| DGY12-33EV | 36.4 | 28.3 | 195 | 130 | 160 | 10.2 | 1 | M6 | 168TA1028 |
| DGY12-44EV | 45.4 | 36.8 | 198 | 167 | 158 | 13.5 | 0 | M6 | 168TA1029 |
| DGY12-55EV | 59.0 | 49.1 | 229 | 138 | 208 | 16.5 | 1 | M6 | 134TA8630 |
| DGY12-60EV | 71.6 | 57.7 | 260 | 168 | 180 | 22.1 | 1 | M6 | 168TA1030 |
| DGY12-65EV | 75.0 | 61.1 | 279 | 175 | 190 | 22.7 | 0 | M6 | 168TA1031 |
| DGY12-65EV-A pol | 75.0 | 61.1 | 279 | 175 | 195 | 22.7 | 0 | 1 | 168TA1032 |
| DGY12-69EV | 86.6 | 69.3 | 250 | 150 | 401 | 30.4 | 1 | M8 | 168TA1033 |
| DGY12-70JEV | 69.6 | 58.5 | 350 | 166 | 175 | 21.0 | 0 | M6 | 134TA8632 |
| DGY12-80EV-M6 | 86.8 | 77.0 | 260 | 168 | 210 | 24.0 | 1 | M6 | 168TA1034 |
| DGY12-100EV | 105.0 | 99.0 | 307 | 168 | 214 | 30.7 | 1 | M8 | 168TA1035 |
| DGY12-110EV | 123.0 | 110.0 | 330 | 172 | 214 | 32.0 | 1 | M8 | 134TA8635 |
| DGY12-135EV-M6 | 166.8 | 148.5 | 340 | 173 | 286 | 45.0 | 1 | M6 | 168TA1036 |
| DGY12-150EV | 161.4 | 136.5 | 483 | 170 | 241 | 45.0 | 1 | M8 | 134TA8639 |
| DGY12-160EV | 180.0 | 155.0 | 532 | 207 | 219 | 53.0 | 4 | M8 | 134TA8640 |
| DGY12-200EV | 214.0 | 178.5 | 522 | 240 | 222 | 62.5 | 4 | M8 | 134TA8641 |
| DGY12-225EV | 263.0 | 216.0 | 521 | 269 | 208 | 74.5 | 4 | M8 | 134TA8642 |
| 6 V | | | | | | | | | |
| DGY6-225DEV | 205.0 | 175.0 | 242 | 190 | 275 | 34.0 | 0 | 1 | 168TA1037 |
| 12 V | | | | | | | | | |
| DGY12-30DEV | 30.0 | 24.0 | 197 | 132 | 186 | 11.7 | 1 | F | 134TA8627 |
| DGY12-40DEV | 40.0 | 29.0 | 210 | 175 | 175 | 15.0 | 0 | F | 168TA1038 |
| DGY12-60DEV | 60.0 | 50.0 | 278 | 175 | 190 | 21.3 | 0 | 1 | 168TA1039 |
| DGY12-80DEV | 80.0 | 70.0 | 353 | 175 | 190 | 25.8 | 0 | 1 | 168TA1040 |
| DGY12-85DEV | 85.0 | 75.0 | 352 | 175 | 232 | 28.4 | 0 | 1 | 168TA1041 |
| DGY12-110DEV | 110.0 | 90.0 | 286 | 269 | 230 | 38.7 | 2 | 1 | 168TA1042 |
| DGY12-120DEV | 120.0 | 95.0 | 513 | 189 | 223 | 40.0 | 3 | 1 | 168TA1043 |
| DGY12-125DEV | 120.0 | 105.0 | 345 | 171 | 285 | 41.0 | 0 | 1 | 168TA1044 |
| DGY12-140DEV | 150.0 | 130.0 | 514 | 223 | 222 | 53.8 | 3 | 1 | 134TA8638 |
| DGY12-210DEV | 200.0 | 165.0 | 517 | 270 | 240 | 71.0 | 3 | 1 | 168TA1045 |

DISCOVER AGM/GEL



HIGH BATTERY CAPACITY

LONG RUN-TIMES

ABOUT DISCOVER

Discover battery makes batteries that thrive in real-world applications.

What began as a regional battery distribution business in 1949 has grown into an international manufacturing and engineering company that provides leading-edge battery technology for transportation, motive power, and energy storage industries.

Discover battery's high value lead-acid and lithium power solutions are engineered and purpose-built with award-winning patented technology and industry-leading power electronics.

Discover battery makes our products available through the best knowledge-based distribution and service organizations for the people and businesses who rely on batteries to work, live, or get away.

Dry cell AGM traction/industrial

Trusted by OEMs around the world, dry cell

AGM traction/industrial deep-cycle batteries outperform traditional flooded, AGM, and gel batteries in demanding traction and industrial applications. Dry cell batteries are designed to deliver long high operating current runtime and to be regularly cycled to >50% DOD when proper charging sources are available.

Dry cell AGM key benefits:

- Ideal for deep-cycle applications with an emphasis on long high discharge run-times
- Sealed valve regulated. Non spill-able
- Compressed AGM cells for extreme vibration resistance
- Repeated high rate deep-cycles up to 80% DOD
- Maintenance-free. Unrestricted transport
- Enhanced safety with built-in flame arrestor
- Built-in handles

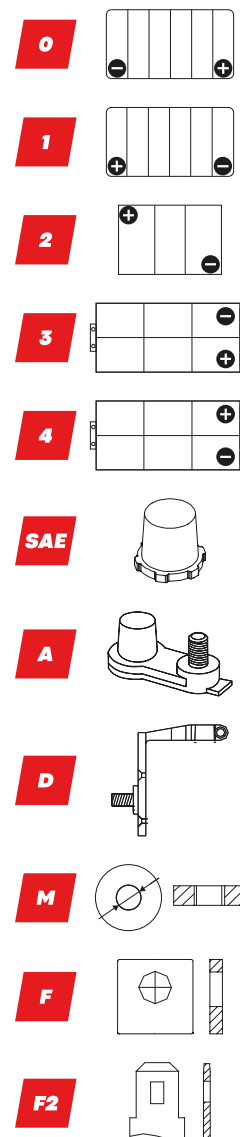
DRY CELL TRACTION/INDUSTRIAL

| Model | C20 1.80 VPC 25 °C | C5 1.75 VPC 25 °C | C3 1.70 VPC 25 °C | Length (L) | Width (W) | Height (H)* | Weight | Layout/ polarity | Terminals | REF |
|------------|--------------------------|-------------------------|-------------------------|---------------|--------------|----------------|--------|---------------------|-----------|---------------------------|
| | Ah | Ah | Ah | mm | mm | mm | kg | | | |
| 6 V | | | | | | | | | | |
| EVGC6A-A | 220 | 190 | 170 | 260 | 180 | 254 | 30 | 2 | AM | 167TA8663 |
| EVGT6A-A | 260 | 222 | 200 | 260 | 180 | 276 | 35 | 2 | M8 | 167TA8665 |
| EV506A-230 | 230 | 200 | 170 | 244 | 189 | 254 | 32 | 2 | M8 | 167TA8666 |
| EV305A-A | 330 | 290 | 260 | 295 | 180 | 345 | 46 | 2 | AM | 167TA8667 |
| EVL16A-A | 390 | 340 | 295 | 295 | 180 | 383 | 53 | 2 | AM | 167TA8668 |

| | | | | | | | | | | |
|-------------|-----|-----|-----|-----|-----|-----|----|---|-----|---------------------------|
| 12 V | | | | | | | | | | |
| EVU1A-A | 33 | 30 | 27 | 195 | 130 | 169 | 11 | 1 | M6 | 167TA8676 |
| EV22A-A | 58 | 50 | 44 | 229 | 138 | 210 | 18 | 1 | M6 | 167TA8678 |
| EV34A-A | 65 | 55 | 48 | 258 | 167 | 178 | 20 | 1 | SAE | 167TA8679 |
| EV512A-70 | 68 | 60 | 51 | 278 | 175 | 190 | 22 | 0 | SAE | 167TA8681 |
| EV512A-90 | 87 | 80 | 68 | 350 | 175 | 190 | 27 | 0 | SAE | 167TA8682 |
| EV24A-A | 85 | 72 | 66 | 258 | 172 | 214 | 24 | 1 | AM | 167TA8683 |
| EV24LA-A | 85 | 72 | 66 | 261 | 172 | 206 | 24 | 1 | M6 | 167TA8684 |
| EV27A-A | 100 | 90 | 80 | 308 | 172 | 212 | 29 | 1 | AM | 167TA8685 |
| EV31A-A | 120 | 98 | 92 | 330 | 172 | 216 | 33 | 1 | AM | 167TA8686 |
| EV12A-A | 145 | 125 | 110 | 327 | 180 | 254 | 40 | 1 | AM | 167TA8688 |
| EV512A-150 | 150 | 130 | 117 | 341 | 173 | 284 | 42 | 1 | M8 | 167TA8690 |
| EV185A-A | 230 | 200 | 175 | 386 | 178 | 352 | 62 | 1 | AM | 167TA8692 |
| EV4DA-A | 235 | 200 | 175 | 524 | 225 | 222 | 63 | 4 | AT | 167TA8693 |
| EV8DA-A | 280 | 240 | 215 | 522 | 275 | 222 | 78 | 4 | AT | 167TA8695 |

| Model | C20 1.80 VPC 25 °C | C5 1.75 VPC 25 °C | C3 1.70 VPC 25 °C | Length (L) | Width (W) | Height (H)* | Weight | Layout/ polarity | Terminals | REF |
|-------------|--------------------------|-------------------------|-------------------------|---------------|--------------|----------------|--------|---------------------|-----------|---------------------------|
| | Ah | Ah | Ah | mm | mm | mm | kg | | | |
| 6 V | | | | | | | | | | |
| EV506G-180 | 210 | 180 | 162 | 244 | 189 | 271 | 32 | 2 | SAE | 168TA7918 |
| EV506G-250 | 290 | 250 | 235 | 293 | 180 | 343 | 46 | 2 | AM | 168TA7919 |
| 12 V | | | | | | | | | | |
| EV512G-028 | 33 | 28 | 24 | 195 | 130 | 169 | 11 | 1 | M6 | 168TA8012 |
| EV512RG-044 | 55 | 45 | 42 | 229 | 138 | 208 | 18 | 0 | M6 | 168TA7921 |
| EV512RG-050 | 61 | 50 | 46 | 258 | 167 | 178 | 19 | 0 | SAE | 168TA7922 |
| EV512LG-063 | 73 | 63 | 53 | 261 | 172 | 206 | 23 | 1 | M6 | 168TA7923 |
| EV512G-076 | 88 | 76 | 63 | 330 | 172 | 216 | 28 | 1 | AM | 168TA7924 |
| EV512RG-103 | 120 | 103 | 90 | 327 | 180 | 254 | 36 | 0 | AM | 168TA7925 |

* Height refers to the distance from the bottom to the top of the case, and does not include the terminals.



BATTERIES

CYCLIC BATTERIES



AGM BATTERIES



MAINTENANCE-FREE

AGM batteries are built differently than open lead-acid batteries. In AGM batteries there is a fiberglass mat between the plates that is saturated with acid/electrolyte. This mat is packed between the plates and compressed. This ensures a super-fast reaction between the acid and the plates. Because the sheets and mats are tightly packed, they are almost immune to vibrations.

This type of battery is maintenance-free and in normal use there is no gas formation. The little gas that would still occur is returned to the electrolyte, so the batteries should never be refilled. Also no ventilation is needed and for safety there is an overpressure valve on the battery. The batteries can be installed in any position, except upside down.

Due to the high production cost these batteries are a lot more expensive than open lead-acid batteries, but still cheaper than gel batteries.

Properties:

- Sealed lead-acid batteries
- Can be used in any position
- Cheaper than a gel battery
- Better performance with a shorter duration/higher current discharge
- A smaller battery size can be used for higher discharge
- Absorbed Glass Mat Technology (= AGM)
- Up to 500 cycles

| Model | C20 Ah | C5 Ah | Length mm | Width mm | Height mm | Weight kg | Layout | Terminals | REF |
|-----------------|-----------|----------|--------------|-------------|--------------|--------------|--------|-----------|---------------------------|
| 6 V | | | | | | | | | |
| DAB6-110EV | 100.0 | 86.0 | 194 | 170 | 212 | 16.5 | 1 | M8 | 134TA8663 |
| DAB6-160EV | 178.0 | 145.0 | 298 | 171 | 229 | 26.4 | 1 | M8 | 134TA8664 |
| DAB6-180EV* | 210.0 | 187.0 | 260 | 180 | 250 | 29.5 | 0 | M8 | 134TA8665 |
| DAB6-200EV | 248.0 | 220.0 | 322 | 178 | 231 | 34.0 | 1 | M8 | 134TA8666 |
| DAB6-225EV | 242.0 | 205.0 | 243 | 188 | 275 | 32.0 | 0 | M8 | 134TA8667 |
| DAB6-270EV | 272.0 | 242.0 | 260 | 180 | 273 | 35.0 | 0 | M8 | 168TA1079 |
| 8 V | | | | | | | | | |
| DAB8-160EV | 161.0 | 131.0 | 260 | 182 | 298 | 36.8 | 1 | M8 | 134TA8668 |
| 12 V | | | | | | | | | |
| DAB12-7.5EV | 9.6 | 8.5 | 151 | 65 | 103 | 2.6 | 3 | T1 | 168TA1080 |
| DAB12-14EV | 16.4 | 14.5 | 151 | 99 | 100 | 4.4 | 3 | T2 | 134TA8669 |
| DAB12-18EV-HD | 27.2 | 24.2 | 181 | 77 | 170 | 6.9 | 0 | M5 | 168TA1081 |
| DAB12-26EV | 26.0 | 22.6 | 166 | 175 | 125 | 7.7 | 0 | M5 | 134TA8672 |
| DAB12-26EV-HD** | 33.6 | 28.0 | 168 | 178 | 124 | 8.9 | 0 | M5 | 168TA1082 |
| DAB12-28EV | 28.0 | 24.3 | 165 | 125 | 175 | 8.0 | 0 | M5 | 134TA8673 |
| DAB12-32EV | 39.6 | 35.2 | 267 | 77 | 170 | 9.2 | 0 | M5 | 168TA1083 |
| DAB12-33EV | 34.0 | 28.0 | 196 | 131 | 160 | 10.0 | 1 | M6 | 134TA8674 |
| DAB12-33EV-HD | 41.1 | 35.7 | 195 | 130 | 163 | 11.6 | 1 | M6 | 168TA1084 |
| DAB12-44EV | 46.2 | 37.7 | 198 | 167 | 158 | 13.0 | 0 | M6 | 134TA8675 |
| DAB12-44EV-HD | 52.0 | 46.0 | 197 | 165 | 175 | 14.5 | 0 | M6 | 168TA1085 |
| DAB12-60DEV | 60.0 | 45.0 | 242 | 175 | 190 | 17.9 | 0 | 1 | 168TA1086 |
| DAB12-55EV | 56.2 | 44.5 | 229 | 138 | 212 | 16.0 | 1 | M6 | 142TA3204 |
| DAB12-70DEV | 70.0 | 55.0 | 278 | 175 | 190 | 20.5 | 0 | 1 | 168TA1087 |
| DAB12-70JEV | 70.0 | 59.0 | 350 | 166 | 175 | 21.0 | 0 | M6 | 168TA1088 |
| DAB12-80DEV | 80.0 | 60.0 | 315 | 175 | 190 | 23.2 | 0 | 1 | 168TA1089 |
| DAB12-80EV-M6 | 99.0 | 88.0 | 260 | 168 | 210 | 26.0 | 1 | M6 | 168TA1090 |
| DAB12-95DEV | 95.0 | 70.0 | 353 | 175 | 190 | 26.0 | 0 | 1 | 168TA1091 |
| DAB12-100EV | 103.2 | 82.0 | 307 | 168 | 211 | 30.7 | 1 | M8 | 168TA1092 |
| DAB12-110EV | 129.8 | 115.5 | 330 | 172 | 214 | 33.5 | 1 | M8 | 134TA8681 |
| DAB12-120EV | 128.0 | 109.0 | 409 | 177 | 227 | 37.0 | 1 | M8 | 134TA8682 |
| DAB12-135EV | 166.8 | 148.5 | 336 | 172 | 279 | 45.0 | 1 | M8 | 134TA8683 |
| DAB12-150EV | 185.6 | 165.0 | 481 | 170 | 239 | 50.0 | 1 | M8 | 134TA8684 |
| DAB12-160EV | 180.0 | 155.0 | 532 | 207 | 219 | 51.0 | 4 | M8 | 134TA8685 |
| DAB12-200EV | 225.0 | 190.5 | 522 | 240 | 222 | 61.5 | 4 | M8 | 134TA8686 |
| DAB12-230EV | 254.0 | 208.0 | 521 | 270 | 208 | 74.0 | 4 | M8 | 134TA8687 |



J-type adaptor M6
REF [168TA1093](#)



Automot. adaptor M6
REF [144TA1868](#)

Automot. adaptor M8
REF [144TA1869](#)



M6 to M8 adaptor
(reversible)
REF [168TA1094](#)