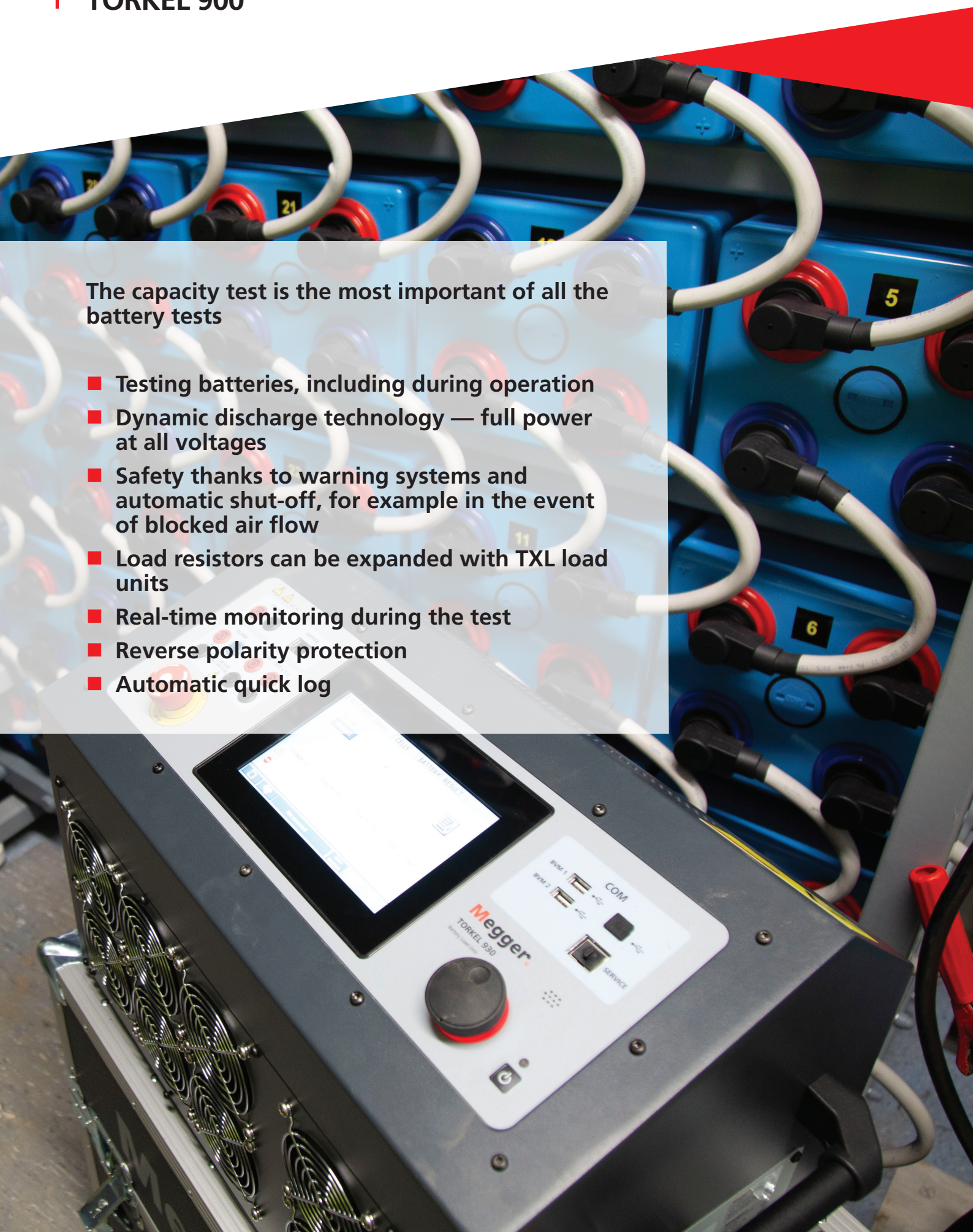
Megger

TORKEL 900



The capacity test is the most important of all the battery tests

- Testing batteries, including during operation
- Dynamic discharge technology — full power at all voltages
- Safety thanks to warning systems and automatic shut-off, for example in the event of blocked air flow
- Load resistors can be expanded with TXL load units
- Real-time monitoring during the test
- Reverse polarity protection
- Automatic quick log

The capacity test

TORKEL 900

Battery systems must be capable of constantly supplying electricity over a specified period of time. This defines their capacity. The capacity is the multiplication of the current by the time specified in hours — the ampere hour (Ah). The manufacturer's specifications are decisive; they specify the nominal value of the battery capacity. Only the capacity test allows an overall assessment of battery systems. Therefore, the capacity test is the most important test of all.

The capacity of a battery decreases steadily over time, so it cannot continue to supply the same amount of power for as long as was originally planned. Age and temperature play an important role. Insufficient charging, uneven charging levels, corroded clamping bolts, internal connections, or an unfavourable ambient temperature can shorten the life of a battery cell significantly. Under favourable conditions, a battery can have a service life of decades — but this is the exception rather than the rule. Under unfavourable conditions, the capacity of the battery cells decreases much more rapidly than originally anticipated. And, because the individual battery cells are connected in series, just one single battery cell can cause the failure of an entire neighbourhood or the collapse of ongoing industrial production processes. A battery installation is only as strong as its weakest cell.

TORKEL 900 is the most advanced and lightest capacity testing system in its class.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Expand capacity

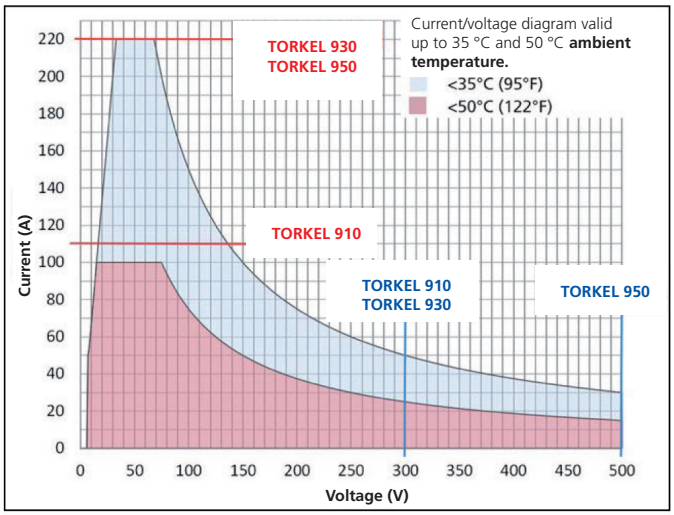
Expanding the load resistor with TXL load units

TORKEL 930 and TORKEL 950 are ideal for battery systems ranging from 7.5 to 300 V or 7.5 to 500 V. These are typically found in switchgear and also in facilities with UPS backup power systems, such as data centres and hospitals, where a reliable power supply is vital. The TORKEL 910 is a low-cost, simpler unit that can be used, for example, if there is no need to export logs.

TORKEL devices can perform capacity tests up to 220 A. If higher currents are required, two or more TORKEL and extra load units (TXL units) can be connected via the practical LDU box.

Extra TXL load units, such as TXL 850, are a very convenient solution for increasing the load resistors

These tests can be performed at a constant current, constant power and constant resistance, or in accordance with a pre-selected load profile. The test can be performed without disconnecting the battery from the equipment it serves. Via a DC clamp-on ammeter, TORKEL measures the total battery current while regulating it at a constant level.



The diagram provides quick reference for clearly determining which TORKEL is suitable for the load profile in question.

Model overview	TORKEL 910	TORKEL 910	TORKEL 910
Current (max.)/voltage (max.)	110 A/300 V	220 A/300 V	220 A/500 V
Exportable logs	No	Yes	Yes
Discharge measurement	No	Yes	Yes
Exportable logs	No	Yes	Yes

Regular capacity testing is complex. We recommend the following maintenance routines to ensure that the facility is fully under control between test phases:

Ideally carried out once a month

- **Visual inspection of the acids (Pb) and bases (NiCd) for ridge formation and levels**
- **Visual inspection to check for corroded connections**
- **Ventilation and room temperature**

Ideally carried out once a year

- **Screw connections**

Ideally carried out twice a year

- **Overall battery voltage**
- **Cells and block voltage**
- **Charge current in a charged state in order to recognise thermal runaways**
- **Superimposed AC current and voltage**
- **Acid density of the cells (not possible for sealed lead batteries)**
- **Acid temperature in the cells (not possible for sealed lead batteries)**
- **Impedance comparison measurement**
- **Load function test (30 to 60 min) with original load—or safer—using TORKEL 900**

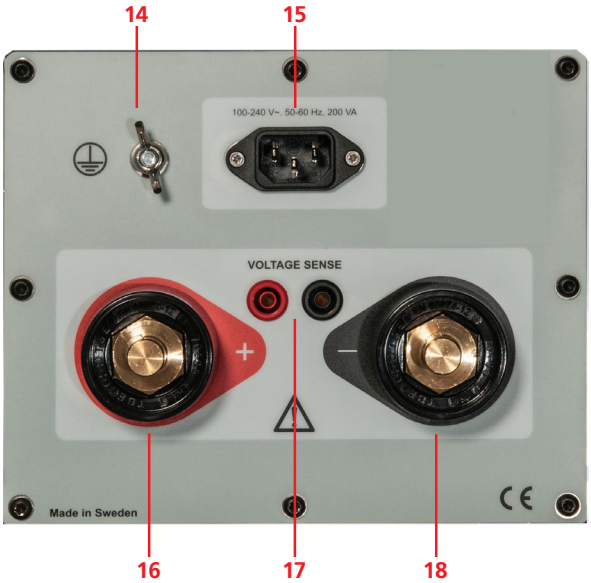
Every two to four years, depending on the age of the battery

- **Constant current discharge to assess the total capacity**
- **Before the battery system warranty expires**

Features and benefits

Device overview

1. TXL STOP
   Output used for stop discharging from an external device (TXL); galvanically isolated
2. SERVICE
   Connector for service purposes only
3. ALARM
   Output equipped with relay contact for triggering an external alarm device
4. DC OUT
   9 V output for external current clamp
5. I EXT≦1 V
   Input used to measure current in an external path using a clamp-on ammeter or a current shunt
6. Display
   Touch screen 7"
7. BVM1, BVM2
   USB connections for BVM devices
8. USB connection
   For USB memory stick
9. Ethernet connection
   For servicing devices
10. **EMERGENCY STOP**
    Push to stop;
    Reset by turning clockwise
11. Control knob
    For entering settings etc. — press to confirm a setting
12. Buzzer
    For alarms
13. ON/OFF switch



14. ⏚
    Protective conductor connection (earth)
15. MAINS
    Connector for mains supply
16. +
    Terminal (+) for the battery (or other DC source)
17. VOLTAGE SENSE
    Input for sensing voltage at battery terminals; impedance for battery current connections is >1 MΩ
18. –
    Terminal (-) for the battery (or other DC source)

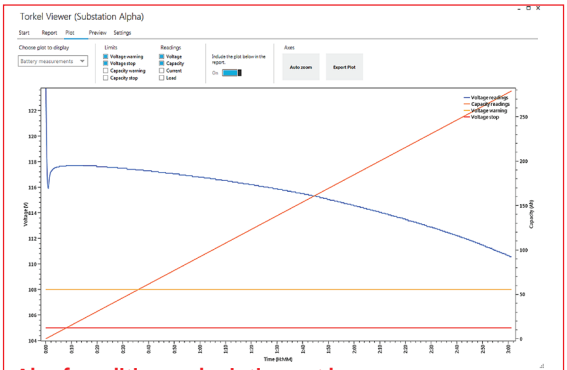
Optional accessories

Extra load units

Four extra load units available:

TXL 830
TXL 850
TXL 870
TXL 890

Software for evaluating TORKEL and BVM



Also for editing and printing out logs

BVM — single cell testing

Battery cell voltage can be automatically measured during capacity tests.

Battery voltage monitoring for up to 2 x 120battery cells (ladder network; detailed information about this topic can be found in the BVM data sheet)

LDU 300 — cable connector

Load distribution unit for distributing DC load. Cable connection with quick release, plus test cable set and current clamp.

For quickly and securely connecting peripheral cables

Battery tester — TMC 2001 RTS

Measures AC and DC voltages, battery impedance, database software and database connection, communicates with Bluetooth, IrDA and RFID.

Compact and practical design

DMA35 — density and temperature meter

Precise electronic density measuring device with temperature measurement.

Easy to transfer measured values to the TMC 2001 RTS database

Ideal for battery maintenance

ORDERING INFORMATION

TORKEL 910 (110 A/300 V/no viewer)	CS-19191
TORKEL 930 (220 A/300 V)	CS-19390
TORKEL 950 (220 A/500 V)	CS-19391
TXL 830 (max. 28 V)	BS-59093
TXL 850 (max. 56 V)	BS-59095
TXL 870 (max. 300 V)	BS-59097

TXL 890 (max. 480 V)	BS-59099
DC clamp-on ammeter, 1000 A	XA-12990
DC clamp-on ammeter, 200 A	XA-12992
BVM	On request
TMC 2001 RTS	GJ-200400
DMA35	On request

Find out more about our TORKEL training programme

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