



- » 1.2 V single cells
- » High energy utilisation at low temperatures
- » Quick charging at high currents possible
- » Usable at high mechanical stresses
- » Fully functional after deep discharges
- » Long service & shelf life.
- » Minimal maintenance.

## BATTERY DATA SHEET

### Unicell Nickel Cadmium Batteries

MAKPOWER Technology is a Canadian Power Solutions Company with an expertise in the field of Power Solutions. Our vision is to organize our global engineering talent to produce quality and reliable power solutions. Our strategy is to continue to strive to engineer intensive industrial products rather than brand driven or commodity products. Our focus is to provide specialized batteries and electronics for Aviation, Defence, Railways, Telecom and Heavy industry.

#### Solutions that are perfected and built to last

The unique constructional features MAKPOWER Technology's Unicell Nickel Cadmium High performance batteries, makes it superior to the rest of its kind

#### Product Range

Three type series - MPH, MPM and MPL with different performance characteristics and covering a wide capacity range, permit selection of an optimum battery for a given application.

- MPH range : Thin plates, Excellent high rate performance
- MPM range : Optimized plate thickness, Ideal for medium discharge period
- MPL range : Thick plates, Provides large capacity power reserves for long durations

#### Governing Standards

MAKPOWER relevant international standards such as IEC, DIN, BS,KS, etc. Batteries are tested by third party, Canadian Standards Association for IEC 60623 standards.

#### System Guarantee

We have a full-fledged power electronics division which designs & manufactures chargers of any rating and configurations, in both thyristorised and SMR technologies. This will give our customers the added advantage of single point solution and system guarantee.

#### Electrical Performance Characteristics

Unicell Nickel Cadmium batteries are the most reliable and rugged batteries available today. They can withstand to a great extent any type of abuse like overcharge, deep discharge, even accidental reverse charge and can be stored in any state of charge

#### Charging

These batteries can be charged by any known method and available charger like taper charger, constant current charger, constant voltage charger, float or trickle charger. A dual mode charger which will recharge a discharged battery at constant current and high voltage boost mode and then bring it to constant potential float mode at low voltage to keep the battery in fully charged condition, is ideal to get the best performance.

Current limit - max. 0.2C A5

Float voltage - 1.40 to 1.42 V/Cell

However, if single mode charger is already available, like in old systems or in locomotives, the battery can be operated with constant voltage charging.

Recommended Charging voltage setting: 1.45 to 1.50V / Cell.

#### Installation

All standard types of installation on racks or in cabinets are permitted. For use in mobile equipment or for special installation the batteries can be build into crates. For use in earthquake zones special approved racks are available.

#### Features

- » 1.2 V single cells
- » High power output due to good voltage level
- » High energy utilisation at low temperatures
- » Charging at high currents possible
- » Usable at high mechanical stresses
- » Fully functional after deep discharges

#### Outstanding Advantages of MAKPOWER batteries are:

Highest reliability among all battery systems

- » Long service life.
- » Minimal maintenance.
- » Quick charging.
- » Operation over a wide temperature range.
- » Unsurpassed resistance to electrical and mechanical abuse.
- » Very good charge retention.
- » Long shelf life.

#### Construction

Positive electrode	Pocket plate
Negative electrode	Pocket plate
Separation	Rod separator
Casing Material	Polystyrene 475 K
Electrolyte	Potassium hydroxide d = 1.19 kg/l
Terminal design	Solid pole posts of nickel plated steel, bolted type
Pole screw	Hexagonal metric steel screw, nickel plated
Connectors	Solid copper connector, nickel plated
Vent plugs	Gas drying vent plugs
Charging	All charging procedures in accordance with DIN 41772 and DIN 41773
Temperature Range	-20° ...+ 45°C (Preferred value 20°C)

## Battery Specifications

Cell Type	Rated Voltage V	Rated Capacity C <sub>5</sub> AH	Cell Dimensions in mm			Screw Thread of Terminal poles	Container Material	Electrolyte Volume L	Max Weight (kgs)
			Height	Width	Length				
MPL 10 P	1.2	10	138	84	38	M6	MBS or PP	0.2	0.80
MPL 20 P	1.2	20	220	113	32	M6	MBS or PP	0.3	1.2
MPL 30 P	1.2	30	245	134	68	M10 X 1	MBS or PP	0.8	2.8
MPL 40 P	1.2	40	245	134	68	M10 X 1	MBS or PP	0.8	3.0
MPL 50 P	1.2	50	245	134	68	M10 X 1	MBS or PP	0.7	3.2
MPL 60 P	1.2	60	285	134	70	M10 X 1	MBS or PP	0.9	4.2
MPL 70 P	1.2	70	365	141	80	M16	MBS or PP	2.0	5.5
MPL 80 P	1.2	80	365	141	80	M10 X 1	MBS or PP	1.7	5.8
MPL 100 P	1.2	100	365	141	80	M10 X 1	MBS or PP	1.6	6.2
MPL 120 P	1.2	120	365	141	80	M20	MBS or PP	1.4	6.4
MPL 150 P	1.2	150	345	164	106	M20	MBS or PP	2.5	9.0
MPL 200 P	1.2	200	345	164	106	M20	MBS or PP	1.8	10
MPL 250 P	1.2	250	345	167	164	M20	MBS or PP	2.8	13.5
MPL 300 P	1.2	300	345	167	164	M20	MBS or PP	2.7	15
MPL 350P	1.2	350	385	170	152	M20	PP	2.8	17.2
MPL 400P	1.2	400	385	170	152	M20	PP	2.7	17.5
MPL 500 P	1.2	500	490	276	138	2 X M16	PP	6.1	27
MPL 600 P	1.2	600	510	291	176	2 X M20	MBS	9.2	38
MPL 700 P	1.2	700	510	291	176	3 X M20	MBS	8.4	39
MPL 800 P	1.2	800	570	398	186	3 X M20	MBS	17.2	59
MPL 900 P	1.2	900	570	398	186	3 X M20	MBS	15.6	60
MPL 1000 P	1.2	1000	570	398	186	3 X M20	MBS	15.0	61

\* All specifications given are typical and subject to change without notice

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