

FRM, FRX

for Rolling Stock Application

(Fibre Positive and Pasted Negative (PBE) technology)



Construction

Nickel cadmium FRM, FRX series are constructed using Fibre positive and Pasted negative electrodes. The pasted negative electrode are designed with high power density and has less water consumption, thus reduces the periodicity of topping –up the cells with DI water. The sintered micro-porous separators and membrane separators provide insulation between the plates and permits free flow of electrolyte.

Cell Construction

Flame arresting flip-open vent cap

Prevents explosion and electrolyte contamination

Terminal arrangement

Nickel-plated copper terminal posts provide good electrical conductivity

Polypropylene container

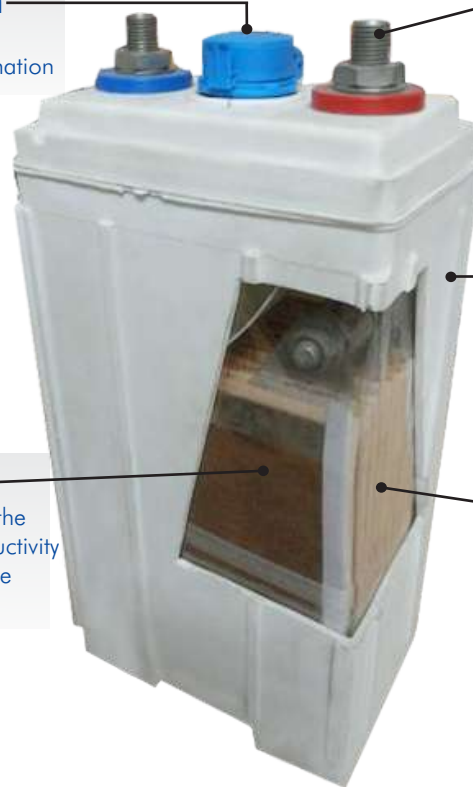
Fusion welded to lids, make the cell mechanically sturdy. Flame retardant Case (Optional)

Electrodes

Made of Nickel plated fibre matrix to hold the active material, which provides good conductivity and ensures excellent electrical performance

Separator

Micro-porous separator ensures insulation between the plates without hampering electrolyte flow



These batteries are built in polypropylene containers to which lids are thermally welded to withstand impact resistance. This type of cells are translucent in nature, so electrolyte levels can be visualized. Flame retardant containers in the other hand are Opaque in nature, so the levels of electrolyte is not visible. If requested by the customer, flame retardant cells can be offered.

Steel or Copper terminals and fasteners give these batteries the ruggedness required to meet the demanding application needs. Single cells are provided with reliable flame-arresting vents and are assembled in stainless steel crates for easy handling.

Features:

- ❖ Lighter than conventional lead acid batteries.
- ❖ No topping-up with water required for long periods.
- ❖ Low life cycle cost when compared to conventional lead acid battery.
- ❖ Low initial cost when compared to Nickel cadmium sintered plate technology.
- ❖ Can withstand extreme temperatures without damage.
- ❖ Performs even at extremely low temperatures (less than -20 deg C)
- ❖ Service life will be longer.
- ❖ Number of cycles will be greater (around 3000 cycles)
- ❖ Quick charge capability (accepts more than 90% of charge within 5 hours).
- ❖ No change of electrolyte during its lifetime.

Standards:

The batteries conform to the following international standards:

1. IEC 60623
2. UIC 854R
3. IEC 60077
4. NFF 64018

Applications:

- ❖ FRM batteries are made to suit medium rate applications, with duration varying between 1 hour and 3 hours.
Typical applications are emergency back-up for lighting, Air-conditioning, Door control etc.
- ❖ FRX batteries are made to suit high rate applications, with duration less than 30 minutes.
Typical applications include Diesel Engine start, Emergency braking etc.



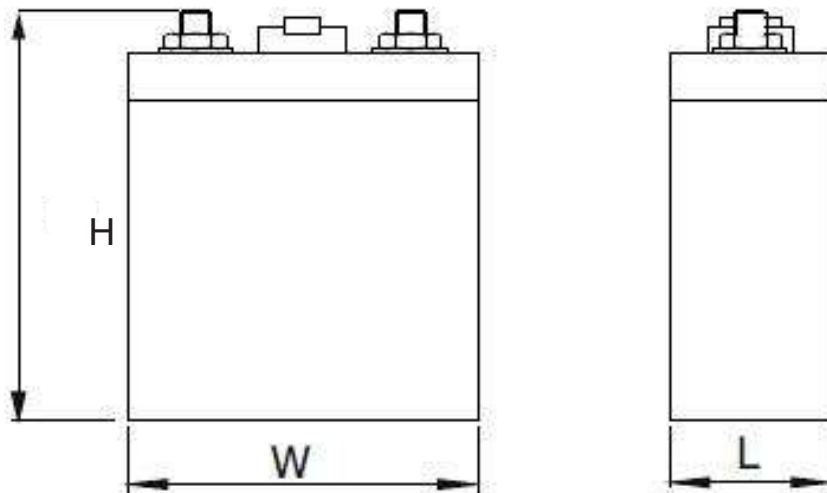
Dimensional details of FRX cells (Extra High rate cells)

Type	Rated Capacity (C5Ah)	Length (L) in mm	Width (W) in mm	Height (H) in mm	Weight in Kg	Electrolyte reserve (cm ³)
FRX 22P	22	46	86	273	1.6	160
FRX 25P	25	46	86	273	1.7	160
FRX 31P	31	61	86	273	2.1	215
FRX 37P	37	86	86	273	2.7	325
FRX 46P	46	86	86	273	2.9	315
FRX 52P	52	86	86	273	2.9	315
FRX 60P	60	86	86	303	3.3	315
FRX 70P	70	105	86	303	4.2	380
FRX 80P	80	78	166	339	5.6	690
FRX 90P	90	78	166	339	5.8	690
FRX 103P	103	78	166	339	6.0	670
FRX 115P	115	87	166	339	6.9	740
FRX 130P	130	95	166	339	7.4	800
FRX 155P	155	103	166	339	8.1	910
FRX 170P	170	117	166	339	9.7	1050
FRX 190P	190	117	166	339	9.9	1030
FRX 220P	220	138	166	339	11.6	1235



Dimensional details of FRM cells

Type	Rated Capacity (C5Ah)	Length (L) in mm	Width (W) in mm	Height (H) in mm	Weight in Kg	Electrolyte reserve (cm ³)
FRM 25P	25	46	86	273	1.6	175
FRM 37P	37	86	86	273	2.6	355
FRM 43P	43	86	86	273	2.7	355
FRM 56P	56	86	86	273	2.8	350
FRM 66P	66	86	86	273	3.0	345
FRM 80P	80	86	86	303	3.4	315
FRM 105P	105	105	87	303	4.4	345
FRM 125P	125	78	166	339	5.5	575
FRM 140P	140	78	166	339	5.7	575
FRM 155P	155	87	166	339	6.1	655
FRM 185P	185	103	166	339	7.3	785
FRM 220P	220	117	166	339	8.9	905
FRM 250P	250	138	166	339	10.4	1100
FRM 270P	270	138	166	339	10.9	1085
FRM 300P	300	138	166	339	11.6	1060
FRM 320P	320	202	166	339	13.5	1660
FRM 340P	340	202	166	339	14.0	1640



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