



Fullriver DC Series Battery

Valve Regulated Lead Acid (VRLA) Battery

Safety Data Sheet

Physical Details of DC Series battery

MODEL	Length(mm)	Width(mm)	Height(mm)	Weight(Kg)
DC1150-2	295	179	411	58.00
DC200-6A	306	169	226	30.00
DC200-6B	244	190	275	31.30
DC220-6	306	174	226	32.80
DC224-6A	260	180	251	30.8
DC224-6B	260	180	267	30.9
DC245-6	244	190	275	32.60
DC250-6	262	181	272	35.70
DC335-6	295	178	366	46.70
DC400-6	295	179	424	56.00
DC160-8A	260	182	272	32.30
DC160-8B	260	182	288	32.40
DC180-8A	260	182	272	34.20
DC180-8B	260	182	288	34.30
DC200-8	260	182	299	38.00
DC7-12	151	65	101	2.50
DC10-12	151	65	117	3.30
DC12-12	151	99	101	4.00
DC17-12	181	77	167	6.6
DC20-12	181	77	167	6.6
DC24-12	167	175	125	9
DC26-12A	166	126	174	10.3
DC26-12B	165	176	125	9.6
DC35-12A	196	131	167	11.2
DC35-12B	196	131	180	11
DC38-12	198	166	170	13.5
DC40-12	198	166	174	13.6
DC50-12A	241	175	190	18.5
DC50-12B	198	166	171	14.9
DC55-12	229	138	212	17.6
DC60-12A	265	166	188	21.6
DC60-12B	278	175	190	22



MSDS:DC Series Battery

DC65-12A	351	167	176	23.2
DC65-12B	261	171.5	186.5	21.3
DC70-12	260	169	215	24
DC79-12	307	169	215	26.00
DC80-12	353	175	190	26.20
DC85-12	260	169	215	25.10
DC90-12	307	169	215	28.8
DC105-12	307	169	215	30.60
DC115-12A	328	172	220	32.7
DC115-12B	331	175	218	32.9
DC120-12A	407	174	240	37.6
DC120-12B	331	175	218	36.8
DC120-12C	341	172	283	38.70
DC120-12D	260	180	301	37.80
DC140-12	341	172	283	43
DC145-12	341	173	287	43.5
DC150-12	327	182	273	43.6
DC160-12	484	171	241	47
DC175-12	513	223	222	57
DC180-12	530	209	218	56.8
DC210-12	530	209	218	60.3
DC215-12	381	178	371	60
DC220-12	522	242	222	66
DC225-12	517	274	243	73.4
DC240-12	520	269	208	73.8
DC260-12	521	269	224	78
DC280-12	527	287	238	88

SECTION 1: PRODUCT IDENTIFICATION AND COMPANY IDENTIFICATION

Product Name: Valve Regulated Sealed Non-Spillable Lead Acid Battery	Product Use: Electric Storage Battery
Manufacturer's Name: GUANGZHOU FULLRIVER INDUSTRY CO., LTD	Phone: 86-20-84916671
Address: P.O.BOX 511475, Taishi industrial Area, Yuwotou Town, Panyu Zone, Guangzhou, China	Revised Date: Jan 4, 2023



SECTION 2: GHS HAZARDS IDENTIFICATION

Health		Environmental		Physical
Acute toxicity (oral, dermal, inhalation)	Category 4	Aquatic	Chronic 1	Explosive Chemical, Division 1.3
Skin corrosion/irritation	Category 1A	Aquatic	Acute 1	
Eye damage	Category 1			
Reproductive	Category 1A			
Carcinogenicity (lead)	Category 1B			
Carcinogenicity (acid mist)	Category 1B			
Speci_c target organ toxicity (repeated exposure)	Category 2			

<p>Hazard statements</p> <p>DANGER!</p> <p><u>Normal Operating Conditions</u></p> <ul style="list-style-type: none"> • May damage fertility of the unborn child if ingested or inhaled. • May cause cancer if ingested or inhaled. • Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure. <p><u>Abnormal Conditions (broken case or extreme overcharging)</u></p> <ul style="list-style-type: none"> • Causes sever skin burns and serious eye damage. • May form explosive air/gas mixture during charging. • Extremely -ammable gas (hydrogen) • Explosive, re, blast, or projection hazard. 	<p>Precautionary statements</p> <ul style="list-style-type: none"> • Wash thoroughly after handling. • Do not eat, drink or smoke when using this product. • Wear protective gloves/clothing and eye/face protection. • Avoid breathing dust, fume, gas, mist, vapor and spray. • Use only outdoors or in well-ventilated areas. • Causes skin irritation and serious eye damage. • Contact with internal components may cause irritation or severe burns • Avoid contact with internal acid. • Irritation to eyes, respiratory system and skin.
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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CAS No.:	Principal Hazardous Components (chemical & common name)	Hazard category	% by Wt:	ACGIH TLV	OSHA PEL
7439-92-1	Inorganic Lead/Lead Compounds	Acute-Chronic	60%~75%	50 µg/m ³	50 µg/m ³
7440-31-5	Tin	Chronic	<1%	2000µg/m ³	2000 µg/m ³
7440-70-2	Calcium	Reactive	<0.05%	N/A	N/A
7664-93-9	Sulfuric Acid/Battery Electrolyte (H ₂ SO ₄ /H ₂ O)	Reactive-Oxidizer Acute -Chronic	16%~24%	1mg/m ³	1mg/m ³

NOTE: Inorganic lead and electrolyte (water and sulfuric acid solution) are the primary components of every battery manufactured by FULLRIVER Technologies or its subsidiaries. Other ingredients may be present dependent upon battery type.

SECTION 4: FIRST AID MEASURES

Emergency & First Aid Procedures	Sulfuric Acid	Lead
Inhalation	Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.	Remove from exposure, gargle, wash nose and lips; consult physician.
Eyes	Flush immediately with large amounts of water for at least 15 minutes while lifting lids; Seek immediate medical attention if eyes have been exposed directly to acid.	Hold eyelids open and immediately flush with large amounts of water. Obtain medical attention.
Skin	Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.	Wash immediately with soap and water.
Ingestion	Give large quantities of water; Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult physician.	Consult physician immediately.

**SECTION 5: FIRE AND EXPLOSION HAZARD DATA****FIRE AND EXPLOSIVE PROPERTIES:**

Hydrogen Flash point: N/A **Hydrogen Auto ignition point:** 580°C
Hydrogen Flammable Limits in Air (% by Volume): LEL: 4.1 UEL: 74.2
Lower Explosion Limit (LEL), Upper Explosion Limit (UEL)

Extinguishing Media: Dry chemical, foam, CO₂

Fire Fighting Procedures:

Lead/acid batteries do not burn or burn with difficulty. Do not use water on fires where molten metal is present. Extinguish fire with agent suitable for surrounding combustible materials. Cool exterior of battery if exposed to fire to prevent rupture. The acid mist and vapors generated by heat or fire are corrosive. Use NIOSH approved self-contained breathing apparatus (SCBA) and full protective equipment operated in -pressure mode.

Unusual Fire and Explosion Hazards:

Sulfuric acid vapors are generated upon overcharge and polypropylene case failure. Use adequate ventilation. Avoid open -flames, sparks and other sources of ignition near batteries. Carefully follow manufacturer's instructions for installation and service.

Do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery, as a short circuit will cause high current -flow, create heat and the possibility of fire.

Hazardous Combustion Products:

During normal operations, small amounts of highly -flammable hydrogen gas may be generated during charging and operation of batteries. Avoid open -flames, sparks and other sources of ignition near batteries.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup. Avoid contact with any spilled material. Contain spill, isolate hazard area, and deny entry. Limit site access to emergency responders. Neutralize with sodium bicarbonate, soda ash, lime or other neutralizing agent. Place battery in suitable container for disposal. Dispose of contaminated material in accordance with applicable local, state and federal regulations. Sodium bicarbonate, soda ash, sand, lime or other neutralizing agent should be kept on-site for spill remediation.

Personal Precautions: Acid resistant aprons, boots and protective clothing. ANSI approved safety glasses with side shields/face shield recommended.

Environmental Precautions: Lead and its compounds and sulfuric acid can pose a severe threat to the environment. Contamination of water, soil and air should be prevented.



SECTION 7: PRECAUTIONS FOR SAFE HANDING AND USE

Handling:

Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries. Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components. Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:

Store batteries under roof in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

Spill or Leak Procedures:

Stop flow of material; contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of un-neutralized acid to sewer.

Waste Disposal Method:

Spent batteries: Send to secondary lead smelter for recycling.

SECTION 8: CONTROL MEASURES

Engineering Controls:

Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously, do not tip to avoid spills. Make certain vent caps are on securely. If battery case is damaged, avoid bodily contact with internal components. Wear protective clothing, eye and face protection, when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge batteries in areas with adequate ventilation. General dilution ventilation is acceptable.



MSDS:DC Series Battery

Page 7 of 11

Respiratory Protection:

None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Protective Gloves:

Rubber or plastic acid-resistant gloves with elbow-length gauntlet.

Eye Protection:

Chemical goggles or face shield.

Other Protection:

Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots.

Emergency Flushing:

In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Electrolyte:

Boiling Point:	203-240°F	Specific Gravity(H₂O=1):	1.250-1.330
Melting Point:	N/A	Vapor Pressure(mm Hg):	10
Solubility in Water:	100%	Vapor Density (AIR = 1):	3.4
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	% Volatile by Weight:	N/A
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

SECTION 10: REACTIVITY DATA

Stability: Stable

Conditions To Avoid: High temperature, Sparks and other sources of ignition.

Incompatibility (materials to avoid):

Electrolyte (Water and Sulfuric Acid Solution): Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers, and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead compounds: Avoid contact with strong acids, bases, halides, halogenated, potassium nitrate, permanganate, peroxides, nascent hydrogen, and reducing agents.



Hazardous Byproducts:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Lead Compounds	Sulfuric Acid
<p>Lead is listed as a 2B carcinogen, likely carcinogenic to animals, other than humans at extreme dose levels. Lead compounds (not pure lead) are classied as possibly toxic to reproduction, possibly causing harm to the unborn child.</p> <p>The primary routes of exposure to lead are ingestion and inhalation of dust and fumes.</p> <p>ACUTE INHALATION/INGESTION: Exposure to lead and its compounds may cause: headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, pain in the legs, arms and joints and kidney damage.</p> <p>CHRONIC INHALATION/INGESTION: Prolonged exposure to lead and its compounds may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia and wrist drop. Symptoms of central nervous system damage may include: fatigue, headaches, tremors, hypertension, hallucinations, convulsions and elirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity. Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and unborn may suffer neurological damage or developmental problems.</p>	<p>The Internal Agency for Research on Cancer (IARC) has classied “strong inorganic mist containing sulfuric acid” as a Category 1 carcinogen: a substance that is carcinogenic to humans. Inorganic sulfuric acid mist is not generated during normal use.</p> <p>Harmful exposure to sulfuric acid can occur by all routes of entry.</p> <p>ACUTE: Severe irritation, burns and ulceration. Can also cause blindness.</p>



SECTION 12: ECOLOGICAL INFORMATION

Environmental Fate:

Lead is persistent in soil and sediment. In most surface water and groundwater, lead forms compounds with anions such as hydroxides, carbonates, sulfates and phosphates and then precipitates out of the water. Mobility of metallic lead between ecological compartments is slow. Most lead is strongly retained in soil, resulting in little mobility. Lead may be immobilized by ion exchange with hydrous oxides, clays or by chelation with humic or fulvic acids in the soil. Lead (dissolved phase) is bioaccumulated by plants and animals, both aquatic and terrestrial.

Aquatic Toxicity:

Sulfuric Acid: 24-hour LC50, freshwater fish (Brachydanio rerio): 82 mg/L, 96-hour LOEC, freshwater fish (Cyprinus carpio): 22 mg/L

Lead: 48-hour LC50 (modeled for aquatic invertebrates): < 1 mg/L, based on lead bullion

Additional Information: Volatile Organic Compounds (VOC): 0% (by volume)

SECTION 13: DISPOSAL CONSIDERATIONS

Lead-acid batteries are completely recyclable. Return whole scrap batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

SECTION 14: TRANSPORT INFORMATION

<p>Land Transport</p>	<p>Land Transport (ADR/RID) UN N°: UN2800 Classification ADR/RID: Class 8 Proper Shipping Name: BATTERIES, (ACCUMULATORS), WET, NON-SPILLABLE, electric storage Packing Group ADR: not assigned Label required: not assigned ADR/RID: AGM batteries are non-spillable batteries (special provision 238) and are exempt from all ADR/RID provisions, if they are protected from short circuit.</p>
<p>Sea Transport</p>	<p>Sea Transport (IMDG Code) UN N°: UN2800 Classification: Class 8 Proper Shipping Name: BATTERIES, (ACCUMULATORS), WET, NON SPILLABLE, electric storage Packing Group: not assigned EmS: not assigned Label required: not assigned</p>



	<p>AGM batteries are non-spillable batteries (special provision 238) and are exempt from all IMDG codes, if they are protected from short circuit.</p>
<p>Air Transport</p>	<p>Air Transport (IATA-DGR)</p> <p>UN N°: UN2800</p> <p>Classification: Class 8</p> <p>Proper Shipping Name: BATTERIES, (ACCUMULATORS), WET, NON SPILLABLE, electric storage</p> <p>Group: not assigned</p> <p>Label required: not assigned</p> <p>AGM batteries are non-spillable batteries (special provision A67) and are exempt from all IATA DGR codes, if they are protected from short circuit.</p>

Notice

Special provision 238 ADR/RID/IMDG Code:

a.) Batteries can be considered as non-spillable provided that they are capable of withstanding the vibration and pressure differential test given below, without leakage of battery fluid

Vibration test:

The battery is rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) is applied. The frequency is varied at the rate of 1 Hz/min between the limits of 10 Hz and 55 Hz. The entire range of frequencies and return is traversed in 95 5 minutes for each mounting position (direction of vibration) of the battery. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

Pressure differential test:

Following the vibrations test, the battery is stored for six hours at 24 °C 4°C while subjected to a pressure differential of at least 88 kPa. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

b.)

Non-spillable batteries are not subject to the requirements of ADR if, at a temperature of 55°C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, as packaged for carriage, the terminals are protected from short circuit.

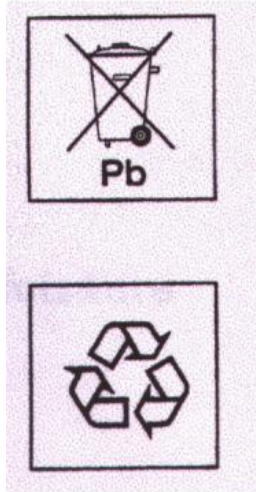
A67 IATA DGR:

Non-spillable batteries are considered to be non-dangerous if, at a temperature of 55° C, the electrolyte will not flow out of a ruptured or cracked case and there is no free liquid to flow. When packaged for transport, the terminals must have protection against short circuits.



SECTION 15 -- Marketing

In accordance with EC and national laws lead-acid batteries have to be marked by a crossed out refuse bin with the chemical symbol for lead Pb shown below, together with the ISO return/ recycling symbol.



In addition, the ISO-return / recycling symbol is rendered.

The manufacturer, respectively the importer of the batteries shall be responsible for the attachment of the symbols. In addition, a consumer / user information on the significance of the symbols has to be attached, which is required by the EC Directives quoted above.

The manufacturers and sellers of the batteries subject to identification requirements (packaging, technical instructions, leaflets) shall be responsible for this information.

SECTION 16 -- OTHER INFORMATION

THE INFORMATION ABOVE IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. HOWEVER, FULLRIVER BATTERY COMPANY MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, AND WE ASSUME NO LIABILITY RESULTING FROM ITS USE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION FOR THEIR PARTICULAR PURPOSES. ALTHOUGH REASONABLE PRECAUTIONS HAVE BEEN TAKEN IN THE PREPARATION OF THE DATA CONTAINED HEREIN, IT IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION. THIS MATERIAL SAFETY DATA SHEET PROVIDES GUIDELINES FOR THE SAFE HANDLING AND USE OF THIS PRODUCT; IT DOES NOT AND CANNOT ADVISE ON ALL POSSIBLE SITUATIONS, THEREFORE, YOUR SPECIFIC USE OF THIS PRODUCT SHOULD BE EVALUATED TO DETERMINE IF ADDITIONAL PRECAUTIONS ARE REQUIRED.