



IBCS

INDUSTRIAL BATTERY AND CHARGER SERVICES LTD

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KEEP BUSINESS MOVING

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INDUSTRIAL BATTERY AND CHARGER SERVICES LTD

The **Intelligent Choice**

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IMHXTM 2019
The UK's largest intralogistics event
24 - 27 September | NEC • Birmingham

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INDUSTRIAL BATTERY AND CHARGER SERVICES LTD

The Complete Service Solution



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APPLICATIONS: FORKLIFTS | CLEANING MACHINES | ACCESS PLATFORMS | ELECTRIC TOW TRACTORS | ELECTRIC VEHICLES

THE COMPLETE SERVICE SOLUTION

IBCS offers **nationwide service** by **fully trained battery and charger engineers**, with same or next day response to ensure our customer's equipment is kept moving, minimising disruption to their business.

There's a **wealth of experience on hand**, which means we can offer assistance, and provide independent advice to our customers. We have recently increased our salesforce to cope with demand, and further **develop our business**.

NATIONWIDE COVERAGE

IBCS is one of the very few companies that offer a rapid **nationwide service** throughout the week, with an option to provide a bespoke 24 hour, 7 day a week plan. This is recognition that customers need **prompt individual attention** at all times.

Nationwide coverage coupled with local expert knowledge and technical after-sales support is an essential element of the IBCS strategy to 'Keep Business Moving'.

The IBCS package provides a bespoke single source for battery, charger and accessory installation, maintenance and repair.

Whatever your industry
IBCS is the
intelligent
nationwide choice



Nominated for Supplier of the Year
3 years running and winners in 2017.

IBCS
NATIONWIDE
CARE & SERVICE

KEEP BUSINESS MOVING

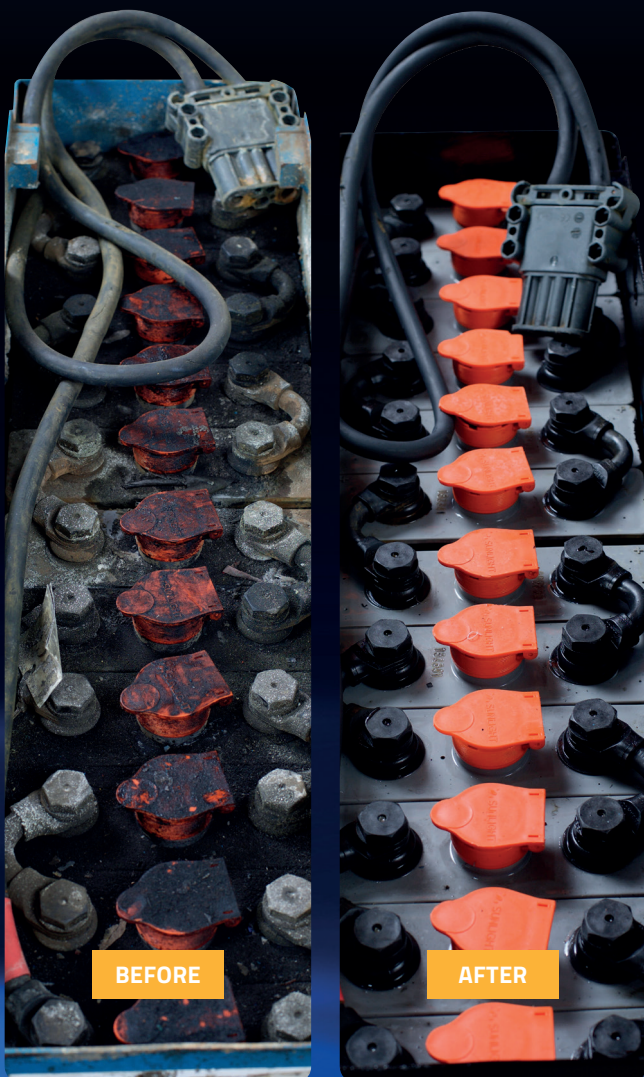
ALL MAKES SERVICE PLAN

IBCS engineers are all highly skilled and trained in the repair, servicing and maintenance of all types of battery and charger products. With over 30 years of industry experience IBCS engineers can service and maintain all types of battery and charger products.

BATTERY STRIP & REFIT

With the cost of batteries increasing, and the need to ensure valuable assets are properly maintained, IBCS offer a strip and refit service to ensure batteries are kept in optimum condition.

Our engineers remove the cells from the tank, clean and paint the battery tank and refit the cells. Acid levels are checked and specific gravity is adjusted to ensure the battery is operating as efficiently as possible.



CHARGER INSTALLATION

Not only do IBCS supply a comprehensive range of quality chargers, a complete installation service is available using our team of qualified engineers.



BATTERY CARE AND TRAINING

The effective training of operators and fork lift drivers in the safe use and maintenance of fork lift batteries is paramount. IBCS offer comprehensive training on battery care and maintenance. This can be completed on the customer's site, or at our facility in Rotherham. This is essential in today's Health and Safety environment.



REAL TIME DATA

Our service engineers are equipped with the latest mobile devices. This allows our service team to gather and communicate information and images in real time.

The ability to provide completed service sheets with photographs promptly on completion of work is a great benefit to our customers.

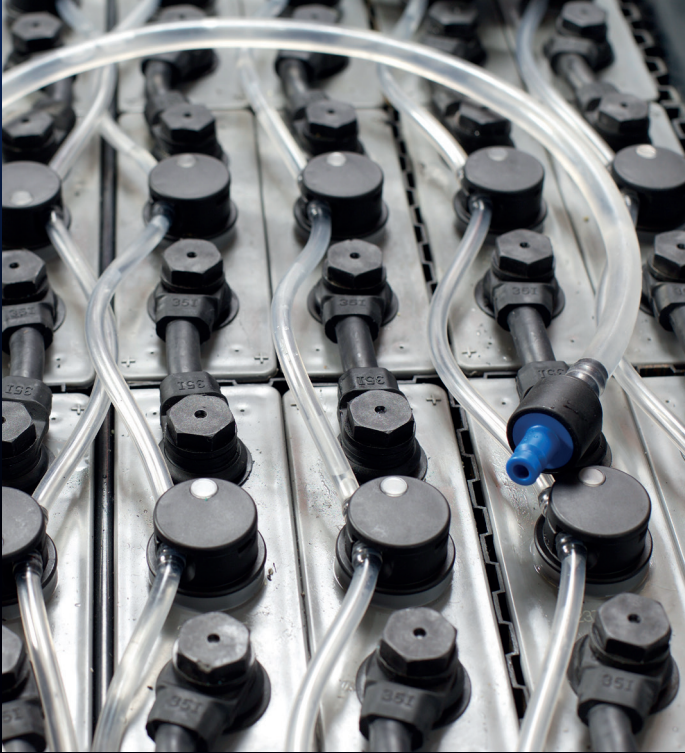
MAINTENANCE AND TOPPING UP CONTRACTS

Contracts can be extended to cover maintenance and topping up of batteries.

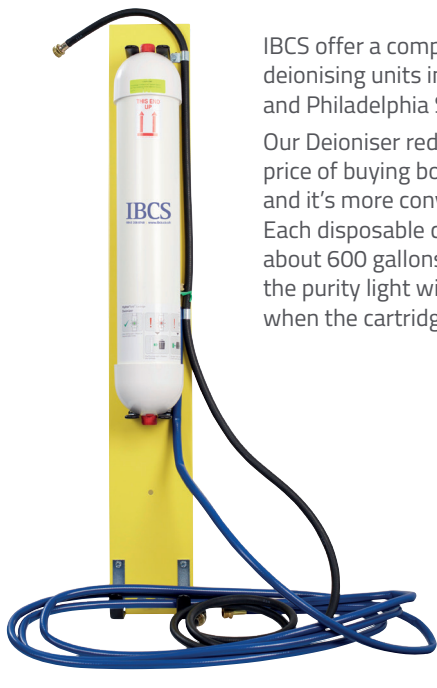
SERVICES AND ACCESSORIES

BATTERY WATERING SYSTEMS

IBCS offer a complete range of battery filling systems including the BFS and Aquajet systems.



DEIONISER UNIT



IBCS offer a complete range of deionising units including Purite and Philadelphia Scientific.

Our Deioniser reduces the high price of buying bottled water and it's more convenient as well. Each disposable cartridge purifies about 600 gallons of water and the purity light will tell you exactly when the cartridge is used up.

TROLLEYS AND GUNS

No battery room should be without this essential battery maintenance tool. Simply connect the watering gun to a standard hose or the Philadelphia Scientific Water Deioniser. Insert the tip of the watering gun in the cell and pull the ergonomic trigger. The watering gun automatically shuts off at exactly the right level. The Philadelphia Scientific Watering Gun dramatically speeds up the process of watering industrial batteries and improves operator safety.



REPLACEMENT CARTRIDGES PS600 CARTRIDGE

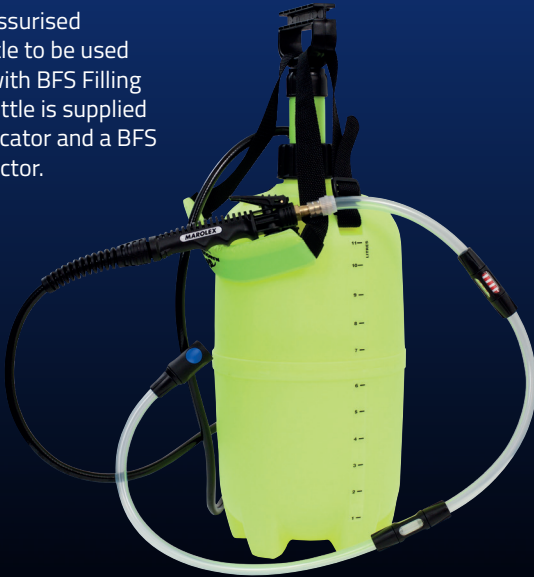
HydroPure Deioniser cartridge, deionises 600 gallons.



SERVICES AND ACCESSORIES

MANUAL TOPPING UP BOTTLE

A manually pressurised topping up bottle to be used in conjunction with BFS Filling System. The bottle is supplied with a flow indicator and a BFS filler and connector.



LEVEL INDICATORS

A low electrolyte level in your battery will cause permanent damage to the cells. By fitting a Blinky or Smart Blinky you can help ensure your electrolyte levels are never low.



BATTERY MANAGEMENT SYSTEMS

The CBG Easy system by Fronius shows the user which battery to use next by indicating the longest charged and therefore coolest battery with a blue LED light on the connected charging device.

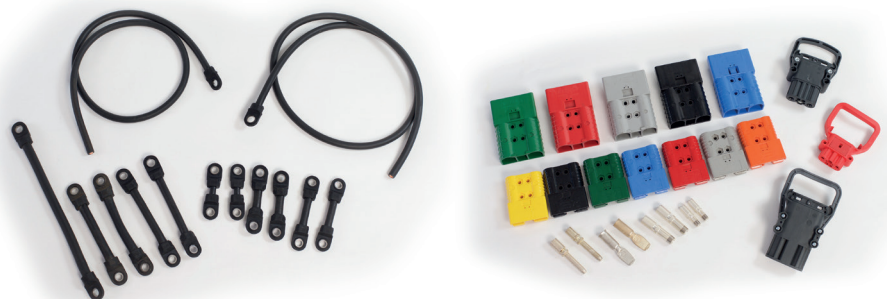


BATTERY ACCESSORIES: CONNECTORS, PLUGS AND CABLES

IBCS uses its worldwide base of industry contacts to source the best quality tried and tested battery connectors and accessories available.

Customers can be sure that 30 years purchasing experience maintains their position as battery industry leaders.

Connectors and accessories for linking batteries together is a core requisite for ensuring everything works together.





IBCS
NATIONWIDE
CARE & SERVICE

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INDUSTRIAL BATTERY
AND CHARGER SERVICES LTD

Traction Batteries and Cells



The **Intelligent Choice**
TO KEEP YOUR BUSINESS MOVING

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INDUSTRIAL BATTERY AND CHARGER SERVICES LTD

Established in 1984 Industrial Battery and Charger Services Ltd (IBCS) is one of the largest independent specialist battery and charger companies in the UK. With over 30 years experience we provide a rapid and dependable sales and service facility for all users of batteries and chargers within the TRACTION and STANDBY POWER industries.

One of the fastest growing companies in our field of work we have become the sensible option to support your business. Our brands include **Energys**, **Sunlight** and **Eternity**. Applications range from simple cleaning machines to submarine.

SUNLIGHT BATTERIES

Available in a wide range of capacity and size options the batteries meet international DIN and BS standards.

Fully integrated state of the art manufacturing processes which start with the production of lead oxide and red lead (100%) at Sunlight's industrial facilities, pass through fully automated production facilities including the use of cast on straps and finish with the activation of the cells through a modern jar formation facility. This ensures a value added product with high energy density, performance and durability.

 **SUNLIGHT**
Reliable Battery Solutions



ETERNITY TECHNOLOGY BATTERIES

Although Eternity Technologies is the newest and most vibrant Motive Power battery company in the world it derives its heritage from over 100 years of developments in lead acid battery technology.

This know how has designed and built the most modern and up to date Motive Power manufacturing facility in the world. Eternity specialise in the manufacture and supply of industry leading high performance Tubular Technology Motive Power cells. Utilising the latest manufacturing techniques in plate making, cell assembly and formation which when combined with the best design, to deliver the high quality and performance demanded by the Materials Handling market as well as other Motive Power applications.

 **ETERNITY**
TECHNOLOGIES



ENERSYS

Energys supports any business that relies on motive power energy. Their strategically located manufacturing plants (France, Germany, Poland) and assembly facilities (Italy, Spain, Czech Republic) deliver maximum efficiency and rapid responsiveness, built on a culture of continuous improvement and added value for their business partners.

Always highly receptive to their customers' requirements they provide energy packs for all applications: from pallet trucks, counterbalanced trucks, aerial working platforms, automated guided vehicles, cleaning and sweeping machines, to locotracors, road vehicles or even utilities.



 **Energys**
Power/Full Solutions

1 POSITIVE PLATE

- Tubular plate design
- Alloy with optimised Sb (antimony) concentration
- Red Lead in-house production by Pure Lead 99,99%
- Dry Filling with Red Lead
- Increased gauntlet diameter

- ✓ Stable cycling performance and longer service life
- ✓ Lower water consumption, lower temperature increase, high and stable final charging voltage, less corrosion
- ✓ 100% of nominal capacity in the first 3-5 cycles
- ✓ Increased capacity

2 NEGATIVE PLATE

- Pasted lead grid & advanced Negative Active Mass (NAM) composition
- Alloy with optimised Sb (antimony) concentration

- ✓ Stable cycling performance
- ✓ Lower water consumption

3 SEPARATOR

- Polyethylene roll separator with high porosity grade material envelops the positive plates

- ✓ Electrical resistance improved by up to 20% over conventional separators
- ✓ High porosity enables superior battery capacity
- ✓ Acid displacement decreased by 15% resulting in higher capacity
- ✓ High oxidation resistance and high porosity ensures longer service life
- ✓ Short circuits avoided

4 GAUNTLET

- Reinforced non-woven polyester material with high fibres bonding and smaller pores size

- ✓ Better utilisation of active material
- ✓ Eliminates active mass shedding
- ✓ Reduces corrosion of spine
- ✓ Longer service life

5 BOTTOM BAR

- Ultrasonic welding
- ✓ More secure fitment with gauntlet
- ✓ Growth of positive spine into bottom bar's cavity is easily accommodated
- ✓ Retains active material on the spines

7 CELL CONTAINER

- Polypropylene (PP) Lid welding, trimming and tightness control
- ✓ Boxes and lids are acid resistant and thermowelded to prevent electrolyte leakage

8 VENT PLUG

- Electrolyte basket level marking, specially designed lid, anti-surge baffle

AUTOMATIC WATER FILLING PLUG

- The plug consists of a float and a shut-off valve, with white level indicator
- ✓ Ensures the optimum electrolyte level in the battery
- ✓ No need of removing plugs and topping up the cells manually
- ✓ Reduces excessive labour cost
- ✓ Eliminates the risk of direct contact with battery acid

9 POLE TERMINAL

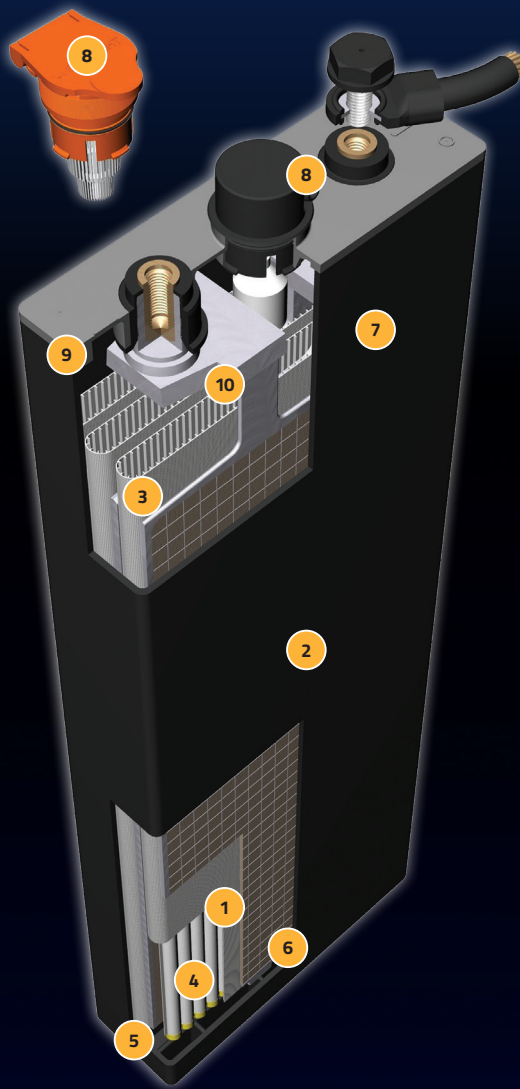
- Advanced design of pole post and its sealing to the lid. Rubber ring with optimised hardness and acid resistance
- ✓ Operational safety
- ✓ Perfect sealing
- ✓ Low maintenance requirements
- ✓ Better current conductivity
- ✓ Positive plates expansion is safely absorbed
- ✓ Prevention of top lid cracks and acid leakages

10 POLE BRIDGE

- Terminal bridge manufactured with Cast On Strap process
- ✓ Consistent and uniform pole bridge composition
- ✓ Increased robustness and durability
- ✓ Perfect connection for poles-bridge-plate block as a whole

6 SEDIMENT SPACE

- Optimised height to prevent short circuits
- ✓ Longer service life



Sunlight Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS120	198	47	343	370	8.3
3PzS180	198	65	343	370	11.7
4PzS240	198	83	343	370	15.2
5PzS300	198	101	343	370	18.8
6PzS360	198	119	343	370	22.4
7PzS420	198	137	343	370	26.0
8PzS480	198	155	343	370	29.6
9PzS540	198	174	343	370	33.2
10PzS600	198	192	343	370	36.8

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS230	198	47	548	575	13.4
3PzS345	198	65	548	575	19.2
4PzS460	198	83	548	575	24.9
5PzS575	198	101	548	575	30.7
6PzS690	198	119	548	575	36.4
7PzS805	198	137	548	575	42.1
8PzS920	198	155	548	575	48.0
9PzS1035	198	174	548	575	53.6
10PzS1150	198	192	548	575	59.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS160	198	47	408	435	9.7
3PzS240	198	65	408	435	13.8
4PzS320	198	83	408	435	18.0
5PzS400	198	101	408	435	22.2
6PzS480	198	119	408	435	26.4
7PzS560	198	137	408	435	30.6
8PzS640	198	155	408	435	34.9
9PzS720	198	174	408	435	39.2
10PzS800	198	192	408	435	43.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS250	198	47	568	595	14.1
3PzS375	198	65	568	595	20.2
4PzS500	198	83	568	595	26.3
5PzS625	198	101	568	595	32.5
6PzS750	198	119	568	595	38.6
7PzS875	198	137	568	595	44.7
8PzS1000	198	155	568	595	50.8
9PzS1125	198	174	568	595	57.0
10PzS1250	198	192	568	595	63.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS180	198	47	478	505	11.9
3PzS270	198	65	478	505	16.7
4PzS360	198	83	478	505	21.3
5PzS450	198	101	478	505	26.0
6PzS540	198	119	478	505	30.7
7PzS630	198	137	478	505	35.4
8PzS720	198	155	478	505	40.1
9PzS810	198	174	478	505	44.8
10PzS900	198	192	478	505	49.6

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS280	198	47	688	715	18.9
3PzS420	198	65	688	715	26.0
4PzS560	198	83	688	715	33.1
5PzS700	198	101	688	715	40.2
6PzS840	198	119	688	715	47.5
7PzS980	198	137	688	715	54.8
8PzS1120	198	155	688	715	62.2
9PzS1260	198	174	688	715	69.8
10PzS1400	198	192	688	715	77.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS210	198	47	514	541	12.9
3PzS315	198	65	514	541	18.4
4PzS420	198	83	514	541	23.9
5PzS525	198	101	514	541	29.4
6PzS630	198	119	514	541	35.0
7PzS735	198	137	514	541	40.5
8PzS840	198	155	514	541	46.0
9PzS945	198	174	514	541	51.5
10PzS1050	198	192	514	541	57.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS310	198	47	713	740	19.1
3PzS465	198	65	713	740	26.5
4PzS620	198	83	713	740	33.9
5PzS775	198	101	713	740	42.0
6PzS930	198	119	713	740	50.0
7PzS1085	198	137	713	740	58.1
8PzS1240	198	155	713	740	66.2
9PzS1395	198	174	713	740	74.4
10PzS1550	198	192	713	740	82.5

Sunlight British Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB84	158	45	331	358	6.9
3PzB126	158	61	331	358	9.4
4PzB168	158	77	331	358	11.9
5PzB210	158	93	331	358	14.5
6PzB252	158	109	331	358	17.1
7PzB294	158	125	331	358	19.7
8PzB336	158	141	331	358	22.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB170	158	45	570	597	12.3
3PzB255	158	61	570	597	17.0
4PzB340	158	77	570	597	21.6
5PzB425	158	93	570	597	26.3
6PzB510	158	109	570	597	30.9
7PzB595	158	125	570	597	35.6
8PzB680	158	141	570	597	40.4
9PzB765	158	157	570	597	44.8
10PzB850	158	173	570	597	49.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB110	158	45	401	428	8.4
3PzB165	158	61	401	428	11.5
4PzB220	158	77	401	428	14.6
5PzB275	158	93	401	428	17.8
6PzB330	158	109	401	428	20.9
7PzB385	158	125	401	428	24.0
8PzB440	158	141	401	428	27.2
9PzB495	158	157	401	428	30.3
10PzB550	158	173	401	428	33.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB200	158	45	606	633	12.9
3PzB300	158	61	606	633	17.7
4PzB400	158	77	606	633	22.6
5PzB500	158	93	606	633	27.5
6PzB600	158	109	606	633	32.4
7PzB700	158	125	606	633	37.3
8PzB800	158	141	606	633	42.2
9PzB900	158	157	606	633	46.8

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB130	158	45	457	484	9.6
3PzB195	158	61	457	484	13.2
4PzB260	158	77	457	484	16.8
5PzB325	158	93	457	484	20.5
6PzB390	158	109	457	484	24.1
7PzB455	158	125	457	484	27.7
8PzB520	158	141	457	484	31.4
9PzB585	158	157	457	484	35.0
10PzB650	158	173	457	484	38.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB150	158	45	514	541	10.9
3PzB225	158	61	514	541	14.9
4PzB300	158	77	514	541	19.0
5PzB375	158	93	514	541	23.1
6PzB450	158	109	514	541	27.3
7PzB525	158	125	514	541	31.4
8PzB600	158	141	514	541	35.6
9PzB675	158	157	514	541	39.5
10PzB750	158	173	514	541	43.7



Eternity Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS120	198	47	334	364	8.4
3PzS180	198	65	334	364	11.8
4PzS240	198	83	334	364	15.3
5PzS300	198	101	334	364	18.7
6PzS360	198	119	334	364	22.3
7PzS420	198	137	334	364	25.8
8PzS480	198	155	334	364	29.3
9PzS540	198	173	334	364	32.7
10PzS600	198	191	334	364	36.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS230	198	47	542	572	14.1
3PzS345	198	65	542	572	18.7
4PzS460	198	83	542	572	25.1
5PzS575	198	101	542	572	30.2
6PzS690	198	119	542	572	35.4
7PzS805	198	137	542	572	41.3
8PzS920	198	155	542	572	47.0
9PzS1035	198	173	542	572	52.3
10PzS1150	198	191	542	572	58.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS160	198	47	397	427	10.0
3PzS240	198	65	397	427	14.3
4PzS320	198	83	397	427	18.6
5PzS400	198	101	397	427	22.9
6PzS480	198	119	397	427	27.3
7PzS560	198	137	397	427	31.6
8PzS640	198	155	397	427	36.0
9PzS720	198	173	397	427	40.2
10PzS800	198	191	397	427	44.6

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS250	198	47	569	599	14.8
3PzS375	198	65	569	599	20.4
4PzS500	198	83	569	599	26.4
5PzS625	198	101	569	599	32.7
6PzS750	198	119	569	599	39.1
7PzS875	198	137	569	599	43.6
8PzS1000	198	155	569	599	51.4
9PzS1125	198	173	569	599	57.1
10PzS1250	198	191	569	599	63.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS180	198	47	464	494	11.8
3PzS270	198	65	464	494	16.7
4PzS360	198	83	464	494	21.5
5PzS450	198	101	464	494	26.5
6PzS540	198	119	464	494	31.2
7PzS630	198	137	464	494	36.0
8PzS720	198	155	464	494	41.1
9PzS810	198	173	464	494	45.9
10PzS900	198	191	464	494	50.9

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS280	198	47	683	713	16.0
3PzS420	198	65	683	713	23.0
4PzS560	198	83	683	713	30.1
5PzS700	198	101	683	713	37.0
6PzS840	198	119	683	713	44.7
7PzS980	198	137	683	713	50.7
8PzS1120	198	155	683	713	58.0
9PzS1260	198	173	683	713	64.7
10PzS1400	198	191	683	713	72.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS210	198	47	511	541	13.2
3PzS315	198	65	511	541	18.7
4PzS420	198	83	511	541	24.3
5PzS525	198	101	511	541	29.7
6PzS630	198	119	511	541	35.3
7PzS735	198	137	511	541	40.8
8PzS840	198	155	511	541	46.3
9PzS945	198	173	511	541	51.8
10PzS1050	198	191	511	541	57.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS310	198	47	714	744	17.5
3PzS465	198	65	714	744	25.5
4PzS620	198	83	714	744	33.8
5PzS775	198	101	714	744	39.6
6PzS930	198	119	714	744	48.0
7PzS1085	198	137	714	744	55.6
8PzS1240	198	155	714	744	63.0
9PzS1395	198	173	714	744	70.2
10PzS1550	198	191	714	744	78.3

Eternity British Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB110	158	47	402	432	7.7
3PzB165	158	63	402	432	10.7
4PzB220	158	78	402	432	13.7
5PzB275	158	94	402	432	16.8
6PzB330	158	110	402	432	19.8
7PzB385	158	126	402	432	22.8
8PzB440	158	142	402	432	25.8
9PzB495	158	158	402	432	29.0
10PzB550	158	174	402	432	32.1
11PzB605	158	190	402	432	35.1
12PzB660	158	206	402	432	38.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB172	158	47	568	598	11.2
3PzB258	158	63	568	598	15.6
4PzB344	158	78	568	598	20.1
5PzB430	158	94	568	598	24.5
6PzB516	158	110	568	598	29.0
7PzB602	158	126	568	598	33.3
8PzB688	158	142	568	598	37.8
9PzB774	158	158	568	598	42.4
10PzB860	158	174	568	598	46.9
11PzB946	158	190	568	598	51.3
12PzB1032	158	206	568	598	55.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB130	158	47	454	484	8.9
3PzB195	158	63	454	484	12.4
4PzB260	158	78	454	484	15.8
5PzB325	158	94	454	484	19.3
6PzB390	158	110	454	484	22.7
7PzB455	158	126	454	484	26.1
8PzB520	158	142	454	484	29.7
9PzB585	158	158	454	484	33.2
10PzB650	158	174	454	484	36.8
11PzB715	158	190	454	484	40.3
12PzB780	158	206	454	484	43.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB200	158	47	600	630	11.9
3PzB300	158	63	600	630	16.7
4PzB400	158	78	600	630	21.5
5PzB500	158	94	600	630	26.2
6PzB600	158	110	600	630	30.9
7PzB700	158	126	600	630	35.7
8PzB800	158	142	600	630	40.5
9PzB900	158	158	600	630	45.3
10PzB1000	158	174	600	630	50.1
11PzB1100	158	190	600	630	54.9
12PzB1200	158	206	600	630	59.6

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB150	158	47	515	545	9.6
3PzB225	158	63	515	545	13.3
4PzB300	158	78	515	545	17.1
5PzB375	158	94	515	545	20.8
6PzB450	158	110	515	545	24.5
7PzB525	158	126	515	545	28.2
8PzB600	158	142	515	545	32.0
9PzB675	158	158	515	545	35.8
10PzB750	158	174	515	545	39.6
11PzB825	158	190	515	545	43.4
12PzB900	158	206	515	545	47.1



Energys Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS120	198	47	340	370	8.5
3PzS180	198	65	340	370	12.0
4PzS240	198	83	340	370	15.4
5PzS300	198	101	340	370	19.0
6PzS360	198	119	340	370	22.5
7PzS420	198	137	340	370	26.0
8PzS480	198	155	340	370	29.5
9PzS540	198	174	340	370	33.0
10PzS600	198	192	340	370	36.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS250	198	47	570	600	15.0
3PzS375	198	65	570	600	21.2
4PzS500	198	83	570	600	27.4
5PzS625	198	101	570	600	33.9
6PzS725	198	119	570	600	40.3
7PzS875	198	137	570	600	46.5
8PzS100	198	155	570	600	53.1
9PzS1125	198	174	570	600	59.4
10PzS1250	198	192	570	600	66.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS160	198	47	405	435	10.0
3PzS240	198	65	405	435	14.2
4PzS320	198	83	405	435	18.4
5PzS400	198	101	405	435	22.6
6PzS480	198	119	405	435	26.7
7PzS560	198	137	405	435	31.3
8PzS640	198	155	405	435	35.1
9PzS720	198	174	405	435	39.3
10PzS800	198	192	405	435	43.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2 PzS 230	198	47	545	575	14.2
3 PzS 345	198	65	545	575	20.3
4PzS 460	198	83	545	575	26.4
5 PzS 575	198	101	545	575	32.4
6 PzS 690	198	119	545	575	39.0
7 PzS 800	198	137	545	575	44.7
8 PzS 920	198	155	545	575	50.6
9 PzS 1035	198	174	545	575	56.6
10 PzS 1150	198	192	545	575	62.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS180	198	47	475	505	11.9
3PzS270	198	65	475	505	17.0
4PzS360	198	83	475	505	22.1
5PzS450	198	101	475	505	27.1
6PzS540	198	119	475	505	32.2
7PzS630	198	137	475	505	37.2
8PzS720	198	155	475	505	42.3
9PzS810	198	174	475	505	47.4
10PzS900	198	192	475	505	52.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS280	198	47	685	715	17.5
3PzS420	198	65	685	715	24.7
4PzS560	198	83	685	715	31.8
5PzS700	198	101	685	715	39.3
6PzS840	198	119	685	715	46.7
7PzS980	198	137	685	715	53.9
8PzS1120	198	155	685	715	61.3
9PzS1260	198	174	685	715	68.6
9PzS1260	198	174	685	715	68.6
10PzS1400	198	192	685	715	76.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS210	198	47	511	541	13.5
3PzS315	198	65	511	541	19.1
4PzS320	198	83	511	541	24.6
5PzS525	198	101	511	541	30.5
6PzS630	198	119	511	541	36.1
7PzS735	198	137	511	541	41.8
8PzS840	198	155	511	541	47.4
9PzS945	198	174	511	541	53.1
10PzS1050	198	192	511	541	58.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzS310	198	47	720	750	18.9
3PzS465	198	65	720	750	26.7
4PzS620	198	83	720	750	34.6
5PzS775	198	101	720	750	42.6
6PzS930	198	119	720	750	50.5
7PzS1085	198	137	720	750	58.5
8PzS1240	198	155	720	750	66.4
9PzS1395	198	174	720	750	74.4
9PzS1395	198	174	720	750	74.4
10PzS1550	198	192	720	750	82.4

Energys British Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB64	158	45	262	292	5.2
3PzB96	158	61	262	292	7.0
4PzB128	158	77	262	292	9.0
5PzB160	158	93	262	292	10.9
6PzB192	158	109	262	292	12.9
7PzB224	158	125	262	292	14.8
8PzB256	158	141	262	292	16.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB84	158	45	328	358	6.5
3PzB126	158	61	328	358	8.9
4PzB168	158	77	328	358	11.4
5PzB210	158	93	328	358	13.8
6PzB252	158	109	328	358	16.3
7PzB294	158	125	328	358	18.8
8PzB336	158	141	328	358	21.2

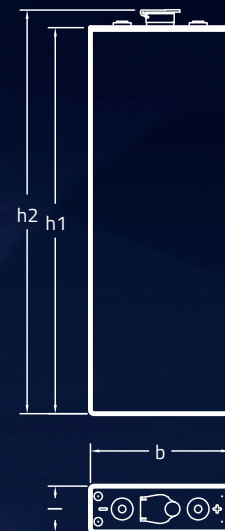
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB110	158	45	398	428	7.7
3PzB165	158	61	398	428	10.8
4PzB220	158	77	398	428	13.7
5PzB275	158	93	398	428	16.8
6PzB330	158	109	398	428	19.7
7PzB385	158	125	398	428	22.7
8PzB440	158	141	398	428	25.7
9PzB495	158	157	398	428	28.6
10PzB550	158	173	398	428	31.7
9PzB495	158	157	398	428	28.6
10PzB550	158	173	398	428	31.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB130	158	45	454	484	8.7
3PzB195	158	61	454	484	12.5
4PzB260	158	77	454	484	16.1
5PzB325	158	93	454	484	19.5
6PzB390	158	109	454	484	23.0
7PzB455	158	125	454	484	26.5
8PzB520	158	141	454	484	30.1
9PzB585	158	157	454	484	33.5
10PzB650	158	173	454	484	37.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB150	158	45	511	541	10.2
3PzB225	158	61	511	541	14.1
4PzB300	158	77	511	541	18.2
5PzB375	158	93	511	541	22.2
6PzB450	158	109	511	541	26.2
7PzB525	158	125	511	541	30.2
8PzB600	158	141	511	541	34.2
9PzB675	158	157	511	541	38.2
10PzB750	158	173	511	541	42.2
11PzB825	158	189	511	541	47.8

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB170	158	45	567	597	10.9
3PzB255	158	61	567	597	15.8
4PzB340	158	77	567	597	20.5
5PzB425	158	93	567	597	25.0
6PzB510	158	109	567	597	29.4
7PzB595	158	125	567	597	33.8
8PzB680	158	141	567	597	38.4
9PzB765	158	157	567	597	42.6
10PzB850	158	173	567	597	47.2
11PzB935	158	189	567	597	51.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzB200	158	45	603	633	12.1
3PzB300	158	61	603	633	17.0
4PzB400	158	77	603	633	21.9
5PzB500	158	93	603	633	26.7
6PzB600	158	109	603	633	31.8
7PzB700	158	125	603	633	36.6
8PzB800	158	141	603	633	41.4
9PzB900	158	157	603	633	46.8



NexSys® Battery Range

NexSys® range of high-performance motive power batteries offers fast charging, opportunity charging, zero battery change (ZBC™) and virtually zero maintenance capabilities that deliver significant operational benefits and lifetime cost savings compared to traditional flooded and gel battery alternatives.

Based on the proven Thin Plate Pure Lead (TPPL) technology, NexSys batteries are available in Standard and Fast charging configurations to support a wider range of applications than previous models. Advanced communication with NexSys Modular chargers, ensures long and high performance and energy cost savings. NexSys batteries are suitable for an extensive range of vehicles including lift trucks, order pickers, pallet trucks, AGV/LGVs and cleaning machines



Energys NexSys® Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS130	198	47	340	370	8.9
3NXS195	198	65	340	370	12.6
4NXS260	198	83	340	370	16.4
5NXS325	198	101	340	370	21.1
6NXS390	198	119	340	370	23.8

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS164	198	47	405	435	10.8
3NXS246	198	65	405	435	15.3
4NXS328	198	83	405	435	19.8
5NXS410	198	101	405	435	29.4
6NXS492	198	119	405	435	29.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS190	198	47	455	485	12.2
3NXS285	198	65	455	485	17.4
4NXS380	198	83	455	485	22.6
5NXS475	198	101	455	485	27.8
6NXS570	198	119	455	485	33.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS220	198	47	511	541	13.8
3NXS330	198	65	511	541	19.8
4NXS440	198	83	511	541	25.7
5NXS550	198	101	511	541	31.6
6NXS660	198	119	511	541	37.6
7NXS770	198	137	511	541	42.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS234	198	47	554	574	14.8
3NXS351	198	65	554	574	21.1
4NXS468	198	83	554	574	27.5
5NXS585	198	101	554	574	33.8
6NX702	198	119	554	574	40.2
7NXS819	198	137	554	574	46.9

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS250	198	47	570	600	15.6
3NXS375	198	65	570	600	22.2
4NXS500	198	83	570	600	28.8
5NXS625	198	101	570	600	35.5
6NXS750	198	119	570	600	42.1
7NXS875	198	137	570	600	49.8

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXS280	198	47	645	675	17.4
3NXS420	198	65	645	675	24.6
4NXS560	198	83	645	675	32.0
5NXS700	198	101	645	675	39.3
6NXS840	198	119	645	675	46.6
7NXS980	198	137	645	675	54.5

Energys NexSys® British Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXSB160	158	45	511	541	10.8
3NXSB240	158	61	511	541	14.8
4NXSB320	158	77	511	541	18.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2NXSB200	158	45	600	630	12.9
3NXSB300	158	61	600	630	17.7
4NXSB400	158	77	600	630	22.2

Hydro Save Battery Range

The HydroSave Battery Series is an innovative 'state of the art' product. It has been developed to address today's needs of the materials handling industry, specifically to minimise maintenance and operating costs.

The series is matched with High Frequency (HF) or Fronius chargers to maximise optimum performance and is available in three versions: Hydrosave 4, HydroSave 8 and HydroSave 13.



TECHNICAL FEATURES & BENEFITS

- **Lower total cost of ownership**
Compared to conventional systems
- **Reduced maintenance costs:**
8 weeks water topping-up interval that can be extended up to 13 weeks
- **Equivalent design life and performance** Compared to conventional DIN design motive power batteries
- **Tested and reliable solution**
- **Peace-of-mind**
Through IBCS Nationwide care and service back-up

WHY USE THE HYDROSAVE SERIES

Water refilling is a time consuming part of battery maintenance. The watering interval depends on two main factors:

ACID RESERVE VOLUME OF THE BATTERY

In the Hydrosave's innovative, state of art design, the electrolyte volume is increased. This means watering intervals are minimised, reducing maintenance cost.

WATER LOSS PER CYCLE PER WEEK

Water loss is the result of water decomposition (electrolysis) which is directly proportional to the charging factor.

WATERING INTERVALS



Conditions: The topping up intervals are based on 80%DoD - 5 cycles per week
The following charging factors are considered:

- 1.10 to 1.12 for the Sunlight HF pulse charger
- 1.07 for the Fronius HF charger
- 1.2 for the conventional (50 Hz) charger

Hydro Save Din product Range

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW180	198	47	464	494	11.8
3PzW270	198	65	464	494	16.7
4PzW360	198	83	464	494	21.5
5PzW450	198	101	464	494	26.5
6PzW540	198	119	464	494	31.2
7PzW630	198	137	464	494	36.0
8PzW720	198	155	464	494	41.1
9PzW810	198	173	464	494	45.9
10PzW900	198	191	464	494	50.9

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW250	198	47	569	599	14.8
3PzW375	198	65	569	599	20.4
4PzW500	198	83	569	599	26.4
5PzW625	198	101	569	599	32.7
6PzW750	198	119	569	599	39.1
7PzW875	198	137	569	599	43.6
8PzW1000	198	155	569	599	51.4
9PzW1125	198	173	569	599	57.1
10PzW1250	198	191	569	599	63.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW210	198	47	511	541	13.2
3PzW315	198	65	511	541	18.7
4PzW420	198	83	511	541	24.3
5PzW525	198	101	511	541	29.7
6PzW630	198	119	511	541	35.3
7PzW735	198	137	511	541	40.8
8PzW840	198	155	511	541	46.3
9PzW945	198	173	511	541	51.8
10PzW1050	198	191	511	541	57.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW280	198	47	683	713	16.0
3PzW420	198	65	683	713	23.0
4PzW560	198	83	683	713	30.1
5PzW700	198	101	683	713	37.0
6PzW840	198	119	683	713	44.7
7PzW980	198	137	683	713	50.7
8PzW1120	198	155	683	713	58.0
9PzW1260	198	173	683	713	64.7
10PzW1400	198	191	683	713	72.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW230	198	47	542	572	14.1
3PzW345	198	65	542	572	18.7
4PzW460	198	83	542	572	25.1
5PzW575	198	101	542	572	30.2
6PzW690	198	119	542	572	35.4
7PzW805	198	137	542	572	41.3
8PzW920	198	155	542	572	47.0
9PzW1035	198	173	542	572	52.3
10PzW1150	198	191	542	572	58.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzW310	198	47	714	744	17.5
3PzW465	198	65	714	744	25.5
4PzW620	198	83	714	744	33.8
5PzW775	198	101	714	744	39.6
6PzW930	198	119	714	744	48.0
7PzW1085	198	137	714	744	55.6
8PzW1240	198	155	714	744	63.0
9PzW1395	198	173	714	744	70.2
10PzW1550	198	191	714	744	78.3

Hydro Save BS product Range

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzWB150	158	47	515	545	9.6
3PzWB225	158	63	515	545	13.3
4PzWB300	158	78	515	545	17.1
5PzWB375	158	94	515	545	20.8
6PzWB450	158	110	515	545	24.5
7PzWB525	158	126	515	545	28.2
8PzWB600	158	142	515	545	32.0
9PzWB675	158	158	515	545	35.8
10PzWB750	158	174	515	545	39.6
11PzWB825	158	190	515	545	43.4
12PzWB900	158	206	515	545	47.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzWB200	158	47	600	630	11.9
3PzWB300	158	63	600	630	16.7
4PzWB400	158	78	600	630	21.5
5PzWB500	158	94	600	630	26.2
6PzWB600	158	110	600	630	30.9
7PzWB700	158	126	600	630	35.7
8PzWB800	158	142	600	630	40.5
9PzWB900	158	158	600	630	45.3
10PzWB1000	158	174	600	630	50.1
11PzWB1100	158	190	600	630	54.9
12PzWB1200	158	206	600	630	59.6

Water Less Battery Range

Hawker Water Less is the efficient traction battery with state of the art technology and appealing features.

Hawker® Water Less® provides more flexibility and more time due to longer topping up intervals of 4, 8 or 13 weeks depending on charging technology. This means reduced labour costs for topping up batteries – up to 60 % (with Hawker® 50 Hz chargers) and up to 75 % (with Hawker Modular chargers).

Hawker Water Less traction batteries provide a high level of power and reliability for all industrial truck applications; even in the most extreme ones thanks to the extended capacity range. Hawker Water Less range is at the leading edge of battery technology and brings added efficiency to your business. A low electrolyte level indicator fitted on the battery informs the user of the battery when water topping up is needed.

CELL CONSTRUCTION

All Hawker Water Less cells use proven PzS technology. The positive electrodes are die cast tubular plates (PzS) and advanced components used in their manufacture provide increased efficiency.

The negative plates are flat pasted plates. The separator is of the microporous type.

Constructional specifications like a larger electrolyte capacity, a reduced prism height and new flip top plugs ensure added value for our customers.

**Hawker Water Less
Less is More
Less Watering
More Benefits.**



OPTIONS

- Hawker® Aquamatic™: The Aquamatic water refill system makes it possible to top up all the cells from one central point through an integrated system.
- Battery Fleet Management: EnerSys® offers a solution that makes managing your battery fleet straight forward and affordable. BSI40™ and Life network iQ™ are the spearheads of battery fleet management, enabling charging room management and communication with state of charge monitoring. Totally customizable to your needs, these solutions will make your energy and facility management easy and efficient.

WI-IQ® AND MODULAR CHARGER CONNECTIVITY

A further option for Water Less® batteries is Wi-iQ® monitoring device range, which precisely manages the state of charge and operating conditions of the battery as well as storing complete data of the battery's service life and meaningfully providing fleet management reports. Wi-iQ direct communicates with Hawker Life iQ™ Modular chargers, enabling battery temperature control and making it possible to work in cold environments.



ADVANTAGES (COMPARED TO STANDARD LEAD ACID BATTERIES)

- More time: longer topping up intervals
- More flexibility: suitable for 50 Hz and HF chargers
- More savings: reduced electricity cost when used with Hawker Modular chargers
- More duties: suitable for all applications

EVEN MORE APPLICATIONS

Hawker Water Less batteries are suitable for use in the following Material Handling applications:

- Counterbalance trucks
- Reach trucks
- Pallet trucks
- Order pickers
- AGV/LVG

ELECTROLYTE CIRCULATION (EC)

Hawker electrolyte circulation system, using the AirLift principle, consists of a pipe system which is fitted in the cells. A diaphragm pump sends a low rate airflow into the cell which creates a circulating air stream inside the cell box. This system prevents electrolyte stratification and the battery charging is optimised. Electrolyte circulation provides optimum performance, reduces recharge time, helps keep the battery cooler and maximizes battery service life in more arduous operations.

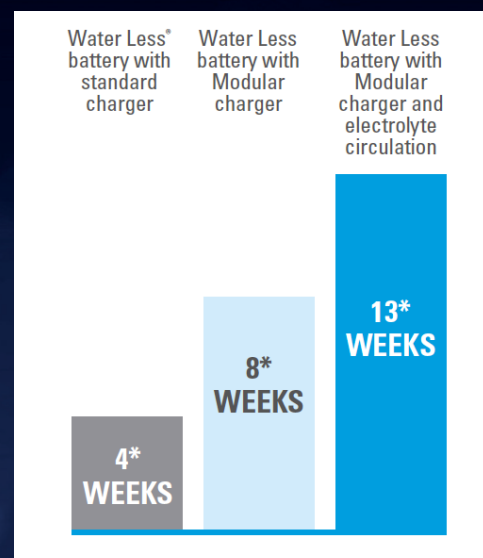
MORE FLEXIBILITY

The charging technology must be tailored for the characteristics of the battery and the application. This is a crucial factor for the economic operation of the batteries. Hawker Water Less traction batteries are suitable for 50 Hz and HF smart chargers.

Hawker Modular chargers adapt automatically to: capacity of the battery, voltage of the battery (Life iQ Modular), depth of discharge of the battery. This means a high level of flexibility for the customer. The topping up intervals (based on 80% DOD C5, 1 cycle per day, and 5 days per week) can be achieved as follows:

- 4 weeks with conventional 50 Hz chargers
- 8 weeks using Hawker Modular chargers
- 13 weeks when the battery is equipped with electrolyte circulation and when using Hawker Modular charger

TOPPING UP INTERVALS



Energys Water Less Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM120	198	47	340	370	8.5
3PzM180	198	65	340	370	12.0
4PzM240	198	83	340	370	15.4
5PzMB300	198	101	340	370	19.0
6PzM360	198	119	340	370	22.5
7PzM420	198	137	340	370	26.0
8PzM640	198	155	340	370	29.5
9PzMB700	198	174	340	370	33.0
10PzM780	198	192	340	370	36.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM230	198	47	545	575	14.2
3PzM345	198	65	545	575	20.3
4PzM460	198	83	545	575	26.4
5PzM575	198	101	545	575	32.4
6PzM690	198	119	545	575	39.0
7PzM85	198	137	545	575	44.7
8PzM920	198	155	545	575	50.6
9PzM 035	198	174	545	575	56.6
10PzM1150	198	192	545	575	62.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM160	198	47	405	435	10.0
3PzM240	198	65	405	435	14.2
4PzM320	198	83	405	435	18.4
5PzM400	198	101	405	435	22.6
6PzM480	198	119	405	435	26.7
7PzM560	198	137	405	435	31.3
8PzM640	198	155	405	435	35.1
9PzMB720	198	174	405	435	39.3
10PzM800	198	192	405	435	43.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM250	198	47	570	600	15.0
3PzM375	198	65	570	600	21.2
4PzM500	198	83	570	600	27.4
5PzM625	198	101	570	600	33.9
6PzM750	198	119	570	600	40.3
7PzM 875	198	137	570	600	46.5
8PzM1000	198	155	570	600	53.1
9PzM1125	198	174	570	600	59.4
10PzM1250	198	192	570	600	66.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM 80	198	47	475	505	11.9
3PzM270	198	65	475	505	17.0
4PzM360	198	83	475	505	22.1
5PzM450	198	101	475	505	27.1
6PzM540	198	119	475	505	32.2
7PzM630	198	137	475	505	37.2
8PzM720	198	155	475	505	42.3
9PzM810	198	174	475	505	47.4
10PzM900	198	192	475	505	52.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM280	198	47	685	715	17.5
3PzM420	198	65	685	715	24.7
4PzM560	198	83	685	715	31.8
5PzM700	198	101	685	715	39.3
6PzM840	198	119	685	715	46.7
7PzM980	198	137	685	715	53.9
8PzM1120	198	155	685	715	61.3
9PzM1260	198	174	685	715	68.6
10PzM1260	198	192	685	715	68.6

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM210	198	47	511	541	13.5
3PzM315	198	65	511	541	19.1
4PzM420	198	83	511	541	24.6
5PzM525	198	101	511	541	30.5
6PzM630	198	119	511	541	36.1
7PzM630	198	137	511	541	41.8
8PzM840	198	155	511	541	47.4
9PzM 945	198	174	511	541	53.1
10PzM1050	198	192	511	541	58.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzM310	198	47	720	750	18.9
3PzM465	198	65	720	750	26.7
4PzM620	198	83	720	750	34.6
5PzM775	198	101	720	750	42.6
6PzM930	198	119	720	750	50.5
7PzM1085	198	137	720	750	58.5
8PzM1240	198	155	720	750	66.4
9PzM1395	198	174	720	750	74.4
10PzM1395 4P**	198	192	720	750	74.4

** Denotes 4 post cell.

Energys Water Less British Standard

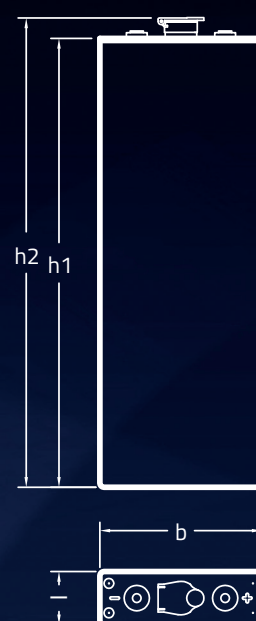
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzMB120	158	45	454	484	8.3
3PzMB180	158	61	454	484	11.7
4PzMB240	158	77	454	484	15.0
5PzMB300	158	93	454	484	18.3
6PzMB360	158	109	454	484	21.5
7PzMB420	158	125	454	484	24.9
8PzMB480	158	141	454	484	28.3
9PzMB540	158	157	454	484	31.5
10PzMB600	158	173	454	484	34.9
11PzMB660	158	189	454	484	38.2

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzMB140	158	45	511	541	9.3
3PzMB240	158	61	511	541	13.0
4PzMB280	158	77	511	541	16.7
5PzMB350	158	93	511	541	20.3
6PzMB420	158	109	511	541	24.1
7PzMB490	158	125	511	541	27.7
8PzMB560	158	141	511	541	31.5
9PzMB630	158	157	511	541	35.1
10PzMB700	158	173	511	541	38.8
11PzMB770	158	189	511	541	42.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzMB160	158	45	567	597	10.6
3PzMB240	158	61	567	597	14.8
4PzMB320	158	77	567	597	19.0
5PzMB400	158	93	567	597	23.2
6PzMB480	158	109	567	597	27.4
7PzMB560	158	125	567	597	31.6
8PzMB640	158	141	567	597	35.9
9PzMB720	158	157	567	597	40.1
10PzMB800	158	173	567	597	44.3
11PzMB880	158	189	567	597	48.3

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzMB180	158	45	612	642	11.1
3PzMB270	158	61	612	642	16.1
4PzMB360	158	77	612	642	20.7
5PzMB450	158	93	612	642	25.3
6PzMB540	158	109	612	642	29.9
7PzMB630	158	125	612	642	34.5
8PzMB720	158	141	612	642	39.3
9PzMB810	158	157	612	642	43.9
10PzMB900	158	173	612	642	48.5
11PzMB990	158	189	612	642	53.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzMB200	158	45	639	669	12.2
3PzMB3000	158	61	639	669	17.1
4PzMB400	158	77	639	669	22.0
5PzMB500	158	93	639	669	26.8
6PzMB600	158	109	639	669	31.7
7PzMB700	158	125	639	669	36.6
8PzMB800	158	141	639	669	41.6
9PzMB900	158	157	639	669	46.4
10PzMB1000	158	173	639	669	51.3
11PzMB1100	158	189	639	669	56.2



Motion Gel Battery Range

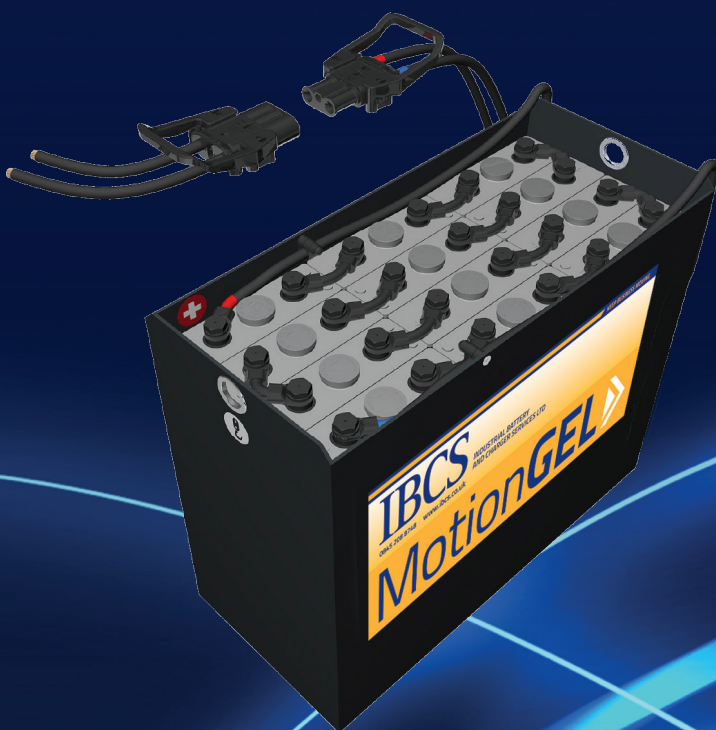
Motion Gel PzV Battery: This is a maintenance-free, valve regulated, gas recombination series of batteries. It has tubular positive plates and gel immobilised electrolyte. The new PZV range further enhances the IBCS product range available to the logistics and materials handling industries.

APPLICATIONS

- PzV batteries can be used for forklift trucks, cleaning machines and other electric vehicles.
- Warehouse areas which are governed by strict emission regulations or where liquid electrolyte leakage would not be acceptable environmentally.
- Storage areas with limited charging space or without specially equipped charging station.
- Low temperature storage facilities such as food, pharmaceutical or chemical products.
- Where maintenance-free operation is a must, either for practical or financial reasons.
- Designed for medium and light applications on a single shift operation.

TECHNICAL FEATURES & BENEFITS

- Minimum maintenance cost: sealed battery and topping up is not required.
- User and Environmental friendly: with the electrolyte in GEL form there is no acid leakage and no danger of corrosion and contamination.
- Operational flexibility: very low gas emissions, low ventilation requirements, large expensive charging stations are not required. Operational temperature ranges from -10C to +40C.
- Flexibility and interchangeability: corresponding dimensions and weight according to DIN and BS standards, safe and easy switch from old PzS to PzV battery.
- High Performance: tubular plate design ideal for deep cycling applications. PbCaSn lead alloy, suitable for VRLA battery.
- High operational safety and long life: recombination valve with regulated internal pressure limits prevents high temperatures. GEL electrolyte prevents acid stratification during daily charge-discharge operation. Both prolong the life of the battery.
- Up to 1200 cycles at 60% DoD, with proper care and maintenance.
- Alloys used are recyclable with lead poles with brass insert and M10 thread. Poles have copper connectors are bolt-on type and fully insulated.
- Complete Product & Services package offering.



PzV - DIN Product Range

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV110	198	47	342	371	8.8
3PzV165	198	65	342	371	12.3
4PzV220	198	83	342	371	15.8
5PzV275	198	101	342	371	19.3
6PzV330	198	119	342	371	22.9
7PzV385	198	137	342	371	26.4

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV200	198	47	554	584	14.7
3PzV300	198	65	554	584	21.0
4PzV400	198	83	554	584	27.2
5PzV500	198	101	554	584	33.5
6PzV600	198	119	554	584	39.8

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV140	198	47	404	434	10.4
3PzV210	198	65	404	434	14.7
4PzV280	198	83	404	434	19.0
5PzV350	198	101	404	434	23.2
6PzV420	198	119	404	434	27.5

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV240	198	47	672	702	17.0
3PzV360	198	65	672	702	24.2
4PzV480	198	83	672	702	31.4
5PzV600	198	101	672	702	38.6
6PzV720	198	119	672	702	45.8

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV160	198	47	459	489	11.8
3PzV240	198	65	459	489	16.7
4PzV320	198	83	459	489	21.6
5PzV400	198	101	459	489	26.5
6PzV480	198	119	459	489	31.4

MOTION GEL DIN					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV260	198	47	713	740	19.2
3PzV390	198	65	713	740	27.3
4PzV520	198	83	713	740	35.5
5PzV650	198	101	713	740	43.5
6PzV780	198	119	713	740	51.7

PzVB - BS PRODUCT RANGE

MOTION GEL BS					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzVB104	158	46	401	428	8.4
3PzVB156	158	62	401	428	11.5
4PzVB208	158	77	401	428	14.6
5PzVB260	158	93	401	428	17.8
6PzVB312	158	109	401	428	20.9

MOTION GEL BS					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzVB142	158	46	515	545	9.8
3PzVB213	158	62	515	545	13.7
4PzVB284	158	78	515	545	17.6
5PzVB350	158	93	515	545	23.1
6PzVB420	158	109	515	545	27.3

MOTION GEL BS					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzVB122	158	46	454	484	8.3
3PzVB183	158	62	454	484	11.9
4PzVB244	158	78	454	484	15.1
5PzVB 300	158	93	454	484	20.5
6PzVB360	158	109	454	484	24.1

MOTION GEL BS					
Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzVB170	158	46	610	640	11.4
3PzVB255	158	62	610	640	15.9
4PzVB340	158	78	610	640	20.7
5PzVB425	158	93	610	640	27.5
6PzVB510	158	109	610	640	32.4

Evolution GEL Battery Range

The Hawker® evolution is a new maintenance free valve regulated gas recombination battery with gelled electrolyte, accepting up to 80% DOD/C5. This PSV range complements the IBCS strong product range further to the logistics and materials handling industries.

APPLICATIONS

- PzV batteries can be used for forklift trucks, cleaning machines and other electric vehicles.
- Warehouse areas which are governed by strict emission regulations or where liquid electrolyte leakage would not be acceptable environmentally.
- Storage areas with limited charging space or without specially equipped charging station.
- Where maintenance-free operation is a must, either for practical or financial reasons.
- Designed for medium and light applications on a single shift operation.
- For new applications a survey must be carried out by the IBCS Technical Team.

TECHNICAL FEATURES & BENEFITS

- The specialist make-up of the Hawker evolution gel battery not only prevents any acid leakage, but also ensures that there is no stratification of the acid during cycling.
- The battery is maintenance free over the whole operational life; water topping up is not required. Through the internal oxygen circulation and the special charging regime, the very low gas emission permits decentralised charging of the truck or equipped machine, or makes the use of a simplified charging room possible. From this significant cost benefits arise, because of low investment and operational costs.
- Minimum maintenance cost: sealed battery and topping up is not required.
- User and Environmental friendly: with the electrolyte in GEL form there is no acid leakage and no danger of corrosion and contamination.
- Operational flexibility: very low gas emissions, low ventilation requirements, large expensive charging stations are not required. Operational temperature ranges from -10C to +40C.
- Flexibility and interchangeability: corresponding dimensions and weight according to DIN and BS standards, safe and easy switch from old PzS to PzV battery.
- High Performance: tubular plate design ideal for deep cycling applications. PbCaSn lead alloy, suitable for VRLA battery.
- High operational safety and long life: recombination valve with regulated internal pressure limits prevents high temperatures. GEL electrolyte prevents acid stratification during daily charge-discharge operation. Both prolong the life of the battery.
- Alloys used are recyclable with lead poles with brass insert and M10 thread. Poles have copper connectors are bolt-on type and fully insulated.



Enersys® Hawker™ Evolution Gel™ Din Standard

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2 PzV84	47	198	275	305	6.9
3 PzV126	65	198	275	305	9.7
4 PzV168	83	198	275	305	12.4
5 PzV210	101	198	275	305	15.3
6 PzV252	119	198	275	305	18.1
7 PzV294	137	198	275	305	20.9
8 PzV336	155	198	275	305	23.7

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV190	47	198	511	541	13.6
3PzV2285	65	198	511	541	19.4
4PzV380	83	198	511	541	25.2
5PzV475	101	198	511	541	31.0
6PzV570	119	198	511	541	36.9
7PzV665	137	198	511	541	42.6
8PzV760	155	198	511	541	48.5

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV120	47	198	340	370	8.9
3PzV180	65	198	340	370	12.6
4PzV240	83	198	340	370	16.3
5PzV300	101	198	340	370	20.0
6PzV360	119	198	340	370	23.7
7PzV420	137	198	340	370	27.4
8PzV480	155	198	340	370	31.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV220	47	198	570	600	15.1
3PzV330	65	198	570	600	21.6
4PzV440	83	198	570	600	27.9
5PzV550	101	198	570	600	34.3
6PzV660	119	198	570	600	40.8
7PzV770	137	198	570	600	47.1
8PzV880	155	198	570	600	53.6

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV150	47	198	405	435	10.5
3PzV225	65	198	405	435	14.9
4PzV300	83	198	405	435	19.3
5PzV375	101	198	405	435	23.7
6PzV450	119	198	405	435	28.1
7PzV525	137	198	405	435	32.5
8PzV600	155	198	405	435	36.9

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV250	47	198	685	715	19.8
3PzV375	65	198	685	715	27.6
4PzV500	83	198	685	715	35.6
5PzV625	101	198	685	715	43.8
6PzV750	119	198	685	715	51.9
7PzV875	137	198	685	715	60.0
8PzV1000	155	198	685	715	68.1

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV174	47	198	475	505	12.5
3PzV261	65	198	475	505	18.0
4PzV348	83	198	475	505	23.2
5PzV435	101	198	475	505	28.5
6PzV522	119	198	475	505	33.8
7PzV609	137	198	475	505	39.0
8PzV696	155	198	475	505	44.4

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2PzV800	47	198	720	750	20.3
3PzV420	65	198	720	750	28.6
4PzV560	83	198	720	750	36.9
5PzV700	101	198	720	750	45.2
6PzV840	119	198	720	750	53.7
7PzV980	137	198	720	750	62.1
8PzV1120	155	198	720	750	70.4

PzVB - BS PRODUCT RANGE

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2 PzVB134	45	157.5	511	541	11.1
3 PzVB201	61	157.5	511	541	15.2
4 PzVB268	77	157.5	511	541	19.4
5 PzVB335	93	157.5	511	541	23.6
6 PzVB402	109	157.5	511	541	27.7
7 PzVB469	125	157.5	511	541	32.0

Cell Type	Length (b)	Width (l)	Height 1	Height 2	Weight
2 PzVB162	45	157.5	612	642	12.9
3 PzVB243	61	157.5	612	642	17.9
4 PzVB324	77	157.5	612	642	22.7
5 PzVB405	93	157.5	612	642	27.6
6 PzVB486	109	157.5	612	642	32.6
7 PzVB567	125	157.5	612	642	37.5



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OUR BRANDS



BATTERY CHARGING SYSTEMS FOR INTRALOGISTICS

Fronius Selectiva charging systems are highly intelligent. Charging systems for drive batteries need a special type of intelligence. Since every battery is different, the Selectiva series automatically recognises age and charge level to provide a precise charge. This increases the service life and efficiency of the battery and reduces the amount of maintenance. It is a question of **intelligent technology**. The proven Selectiva series with four power classes and housing versions offers a complete product range for 12, 24, 36, 48, 72 and 80 volt batteries.



SHIFTING THE LIMITS

Selectiva 1Kw



BATTERY VOLTAGE [V]	CAPACITY [Ah] WET BATTERIES (PzS)									DEVICE
	6h	7h	8h	9h	10h	11h	12h	13h	14h	
12V	110	135	165	195	225	250	280	300		Selectiva 1020
	160	190	240	300	345	375	420	450		Selectiva 1030
24V	52	65	80	95	110	125	140	150		Selectiva 2010
	80	100	125	150	170	185	210	225		Selectiva 2015
	110	135	165	195	225	250	280	300		Selectiva 2020
	180	210	260	320	360	400	450	480		Selectiva 2032
	200	230	290	345	395	440	490	525		Selectiva 2040

Type: 1kW
 Dimensions W/H/D: 247 x 162 x 88 mm
 Weight including charging and mains leads: 4 kg
 Protection class: IP40

Mains lead: 2 m
 Charging lead: 2.5 m
 Mains voltage: 1 x 230V AC
 (-15%/+15%)

Due to its **efficiency of up to 96%**, every seventh charge is free. The Selectiva charger with Active Inverter Technology gently charges your batteries and may increase their **service life by up to 25%**.

Selectiva 2Kw

With the Selectiva 2 kW battery charging system, Fronius is offering an efficient and reliable solution for charging traction batteries. The new Ri charging process adapts the charge according to the age, temperature and state of charge of the battery, delivering **maximum energy efficiency and the longest battery life**



BATTERY VOLTAGE [V]	CAPACITY [Ah] WET BATTERIES (PzS)									DEVICE
	6h	7h	8h	9h	10h	11h	12h	13h	14h	
24V	225	290	355	415	480	535	600	660	720	Selectiva 2040 2kW
	280	365	440	520	595	675	750	825	900	Selectiva 2050 2kW
	340	440	530	630	725	800	900	990	1080	Selectiva 2060 2kW
	395	510	630	725	840	940	1060	1155	1260	Selectiva 2070 2kW
36V / 48V	110	135	165	195	225	250	280	300	320	Selectiva 4020 2kW
	185	240	290	345	395	445	500	545	595	Selectiva 4035 2kW

Type: 2kW
 Dimensions W/H/D: 341 x 198 x 110 mm
 Weight including charging and mains leads: 6 kg
 Protection class: IP21

Mains lead: 2,5 m
 Charging lead: 3 m
 Mains voltage: 1 x 230V AC
 (-15%/+15%)

Selectiva Plus 3Kw

The tried and tested range for medium to large forklift batteries with power output of 3 kW. Compact design, simple handling and the especially effective Active Inverter Technology make Selectiva Plus devices attractive to intralogistics professionals.



BATTERY VOLTAGE [V]	CAPACITY [Ah] WET BATTERIES (PzS)									DEVICE
	6h	7h	8h	9h	10h	11h	12h	13h	14h	
24V	450	580	700	830	950	1070	1200	1320	1440	Selectiva 2080 3kW
	560	730	880	1020	1190	1350	1500	1650	1800	Selectiva 2100 3kW
	620	805	970	1145	1310	1485	1650	1815	1980	Selectiva 2120 3kW
36V / 48V	250	325	400	465	535	600	670	740	810	Selectiva 4045 3kW
	310	405	485	575	655	745	825	910	990	Selectiva 4060 3kW

Type: 3kW
 Dimensions W/H/D: 417 x 198 x 110 mm
 Weight including charging and mains leads: 8 kg
 Protection class: IP21

Mains lead: 2,5 m
 Charging lead: 3 m
 Mains voltage: 1 x 230V AC
 (-15%/+15%)

Selectiva 8Kw/16Kw

The successful Active Inverter Technology with the revolutionary Ri-charging process adapts itself to the requirements of the battery and only charges the battery with the current that it actually needs.

The successful Active Inverter Technology with the revolutionary Ri-charging process adapts itself to autoselect battery capacity and battery voltage.



BATTERY VOLTAGE [V]	CAPACITY [Ah] WET BATTERIES (PzS)									DEVICE
	6h	7h	8h	9h	10h	11h	12h	13h	14h	
24V	560	730	880	1040	1190	1350	1500	1650	1800	Selectiva 2100
	670	870	1060	1250	1430	1600	1800	1980	2160	Selectiva 2120
	800	1000	1240	1450	1680	1880	2100	2310	2520	Selectiva 2140
	930	1150	1420	1650	1920	2140	2400	2640	2880	Selectiva 2160
	1010	1305	1595	1875	2150	2407	2700	2970	3240	Selectiva 2180
	1120	1450	1770	2080	2390	2675	3000	3300	3600	Selectiva 2200
36V / 48V	340	440	530	630	725	800	900	990	1080	Selectiva 4060
	420	545	660	780	890	1015	1125	1240	1350	Selectiva 4075
	505	655	795	935	1075	1200	1350	1485	1620	Selectiva 4090
	670	870	1060	1250	1430	1600	1800	1980	2160	Selectiva 4120
	800	1000	1240	1450	1680	1880	2100	2310	2520	Selectiva 4140
	870	1085	1345	1575	1825	2040	2280	2508	2740	Selectiva 4160
80V / 72V	225	290	355	415	480	535	600	660	720	Selectiva 8040
	340	440	530	630	725	800	900	990	1080	Selectiva 8060
	420	545	660	780	890	1015	1125	1240	1350	Selectiva 8075
	495	635	770	910	1040	1170	1300	1430	1570	Selectiva 8090

Type: 8kW
 Dimensions W/H/D: 633 x 344 x 180 mm
 Weight including charging and mains leads: 23 kg
 Protection class: IP20

Mains lead: 3 m
 Charging lead: 3 m
 Mains voltage: 3 x 400V AC
 (-10%/+30%)



BATTERY VOLTAGE [V]	CAPACITY [Ah] WET BATTERIES (PzS)									DEVICE
	6h	7h	8h	9h	10h	11h	12h	13h	14h	
80V / 72V	670	870	1060	1250	1430	1600	1800	1980	2160	Selectiva 8120
	800	1000	1240	1450	1680	1880	2100	2310	2520	Selectiva 8140
	930	1150	1420	1650	1920	2140	2400	2640	2880	Selectiva 8160
	1000	1250	1550	1790	2090	2330	2610	2870	3130	Selectiva 8180

Type: 16kW
 Dimensions W/H/D: 647 x 392 x 247 mm
 Weight including charging and mains leads: 34 kg
 Protection class: IP20

Mains lead: 3 m
 Charging lead: 3 m
 Mains voltage: 3 x 400V AC
 (-10%/+30%)

The proven Selectiva series with four power classes and housing versions offers a complete product range for 12, 24, 36, 48, 72 and 80 volt forklift batteries.



RI CHARGING PROCESS

Maximum energy efficiency – The Ri charging process provides the highest level of total efficiency from the socket to the forklift truck and is therefore especially energy efficient.

The Ri charging process marks a revolution in battery charging technology: unlike conventional processes, the charging process does not follow a fixed characteristic with a predefined current. Instead, the charging current is determined by the battery's effective inner resistance (Ri), which is dependent on the age, temperature and state of charge of the battery.

Each charging process is therefore unique and has an individual, perfectly tailored characteristic. Overcharging can thus be reduced to a minimum. This increases energy efficiency during charging while decreasing energy costs and CO2 emissions.

The service life of the battery is significantly extended.



HOW THE RI CHARGING PROCESS WORKS

- The condition of the battery is determined during each charge.
- The charging characteristic is adapted to suit the age, temperature and state of charge.
- The appropriate level of current is fed to the battery during each phase of the charging process.
- Every charging cycle is unique and has its own characteristic.

TECHNOLOGY	DEVICE EFFICIENCY	CHARGING EFFICIENCY	TOTAL EFFICIENCY
50 Hz	80%	70%	56%
HF	90%	75%	68%
Fronius AIT	92%	80%	74%
Fronius AIT with Ri	93%	90%	84%

The RI charging process adapts to the demands on each battery and only charges the battery with the current that it really needs according to its age and state of charge. Gassing and/or battery warming is therefore minimised resulting in maximum battery service life.

Charging processes that are adapted to the demands of the battery prevent uncontrolled overloads and decrease maintenance requirements (less water required, less work). The service life of the battery increases as a result. It is possible to recover / recharge deeply discharged, and sulphated batteries, using one of the unique charging profiles that are pre-programmed into the Selectiva Plus models.

Selection Table

BATTERY VOLTAGE	RECHARGE TIME							DEVICE TYPE	Input Current (a)	Type (kW)		
	6h	7h	8h	9h	10h	11h	12h					
	CAPACITY (Ah)											
12V	110	135	165	195	225	250		Selectiva	1020	1	2	1
	160	190	240	300	345	375			1030	1	2	1
24V	52	65	80	95	110	125	140	Selectiva	2010	1	2	1
	80	100	125	150	170	185	210		2015	1	2	1
	110	135	165	195	225	250	280		2020	1	2	1
	180	210	260	320	360	400	450		2032	1	4	1
	200	230	290	345	395	440	490		2040	1	7	1
	225	290	355	415	480	535	600	Selectiva	2040	1	8	2
	280	365	440	520	595	675	750		2050	1	10	2
	340	440	530	630	725	800	900		2060	1	12	2
	395	510	630	725	840	940	1060		2070	1	12	2
	450	580	710	830	950	1075	1200	Selectiva Plus	2080	1	12	3
	560	730	880	1020	1190	1350	1500		2100	1	16	3
	560	730	880	1020	1190	1350	1500	Selectiva Ri	2100	3	7	8
	670	870	1060	1250	1430	1600	1800		2120	3	7	8
	800	1000	1240	1450	1680	1880	2100		2140	3	8	8
	930	1150	1420	1650	1920				2160	3	9	8
	1010	1305	1595	1875	2150				2180	3	11	8
1120	1450	1770	2030				2200		3	12	8	
36V/48V	110	135	165	195	225	250	280	Selectiva	4020	1	8	2
	185	240	290	345	395	445	495		4035	1	12	2
	280	365	440	520	595	675	750	Selectiva Plus	4050	1	15	3
	340	440	530	620	720	800	900	Selectiva Ri	4060	3	8	8
	420	545	660	780	890	1015	1125		4075	3	9	8
	505	655	795	935	1075	1200	1350		4090	3	10	8
	670	870	1060	1250	1430	1600	1800		4120	3	13	8
	800	1000	1240	1450	1680	1880	2100		4140	3	15	8
870	1085	1345	1575	1825	2040	2280	4160		3	15	8	
80V/72V	225	290	355	415	480	535	600	Selectiva Ri	8040	3	8	8
	340	440	530	620	720	800	900		8060	3	11	8
	420	545	660	780	890	1015	1125		8075	3	13	8
	495	635	770	910	1040	1170	1300		8090	3	15	8
	670	870	1060	1250	1430	1600	1800		8120	3	22	16
	800	1000	1240	1450	1680	1880	2100		8140	3	25	16
	930	1150	1420	1650	1920	2140	2400		8160	3	28	16
	1000	1250	1550	1790	2090	2327	2610		8180	3	30	16

HOUSING	SELECTIVA 1kW	SELECTIVA 2kW	SELECTIVA PLUS 3kW	SELECTIVA 8kW	SELECTIVA 16kW
Housing type	Housing 1	Housing 1	Housing 2	Housing 3	Housing 4
Power	1kW	2kW	3kW	8kW	16kW
Dimensions w/h/d	247 x 162 x 88 mm	341 x 110 x 200 mm	315 x 200 x 110 mm	633 x 344 x 180 mm	647 x 392 x 247 mm
Weight incl. mains and charging lead	4 kg	5 kg	8 kg	23 kg	34 kg
Protection class	IP44 / IP40	IP21	IP21	IP20	IP20
Mains lead	2 m	2.5m	2,5 m	3 m	3 m
Charging lead	2.5 m	3 m	3 m	3 m	3 m
Mains voltage	1 x 230V AC (+/- 10%)	1 x 230V AC (+/-15%)	1 x 230V AC (+/- 10%)	3 x 400V AC (+/- 10%)	3 x 400V AC (+/- 10%)

CBHF Series Hi Frequency Charger

S.P.E. ELETTRONICA
INDUSTRIALE

ON-BOARD or STAND ALONE use: Lightweight, Compact, Customisable, universal input.



TECHNICAL FEATURES.

- A high frequency charger with advanced technology.
- The charging process is fully controlled by microprocessor.
- Efficiency of $\geq 90\%$.
- Visual Lit display shows, charging current, battery voltage and charging time, of charge supplied in Ah and of the energy absorbed in KWh.
- Charging curve can be changed using dip switches. There are 16 standard pre-programmed curves for lead-acid, Gel and AGM batteries. Other curves are available on request for other battery types, including Li-Ion and Li-Po.
- Battery voltage and charging current can be changed using dipswitches.
- The charging process starts in soft start mode and is automatically reset when a new battery is connected.
- Charge cycles begin with batteries as low as 2volts.
- Protects against anomalies including reverse polarity, short circuits, or over voltages.
- Thermal insulation protects against overheating.
- Equipped with NC (normally closed) delay for safety interlock connections (only with on-board installation).
- Operating temperature range: $-10^{\circ}\text{C} \div 45^{\circ}\text{C}$ ($14^{\circ}\text{F} \div 113^{\circ}\text{F}$).
- Maximum relative humidity: 90%.
- International Protection rating IP30 with forced ventilation.
- Stop button on the front panel.
- Relevant information giving the last 30 charging cycles (shows duration of the charging cycle, Ah's delivered by the battery, voltage at the end of the charge and the possible error messages).

PRODUCT CODE	VOLTAGE	OUTPUT	MAINS (VAC)	INPUT CURRENT	8HR RECHARGE	12HR RECHARGE	DIMENSIONS	WEIGHT
CBHF2--XP-HK-12-35	12	35	230		220	320	270X255X97	2.5
CBHF2--XP-HK-12-40	12	40	230		260	360	270X255X97	2.5
CBHF2--XP-HK-24-35	24	35	230		220	320	270X255X97	2.5
CBHF2--XP-HK-24-40	24	40	230		260	360	270X255X97	2.5
CBHF2--XP-HK-36-30	36	30	230		180	280	270X255X97	2.5
CBHF2--XP-HK-48-22	48	22	230		140	220	270X255X97	2.5

FORKLIFT AND TRACTION BATTERY HF MODULAR CHARGERS

Founded in 1972 by Sergio Poletti, S.P.E. Elettronica Industriale is a family-owned company. It has a long and proven history in manufacturing on-board and stand alone battery chargers. It's state of the art research and development techniques provides standard and custom built solutions for charging batteries of any type.

S.P.E. ELETTRONICA
INDUSTRIALE

Green Series 2 and 4 Single Phase

Green 2 Main features:

Power up to 2.5 kW
From 24V up to 96V
From 17A up to 70A

Green 4 Main features:

Power up to 4.5 kW
From 24V up to 96V
From 17A up to 70A
Power up to 4.5 kW
Programmable from USB type A/B port or via display Graphical display.



Green Series 6 and 8 Three Phase

Green 6 Main features:

Modular system
(3 configurable models)
Power up to 8 kW, up to 150A@48V
Up to 100A @ 80V, up to 75A@ 96V.
Programmable via USB type A/B port or via display
Graphical display.

Green 8 Main features:

Modular system
(4 configurable models)
Power up to 10.5 kW, up to 200A@48V
Up to 130A @ 80V, up to 100A@ 96V.
Programmable via USB type A/B port or via display
Graphical display. Programmable via USB type A/B port
or via display Graphical display.



Selection Table Single Phase (Green 2 and 4)

PRODUCT CODE	VOLTAGE	OUTPUT	MAINS (VAC)	INPUT CURRENT	8HR RECHARGE	12HR RECHARGE	DIMENSIONS	WEIGHT
24V50-01-SP	24	50	230	7.5	280-340	450-550	300x475x180	11
24V60-01-SP		60	230	9	340-410	540-660	300x475x180	11
24V70-01-SP		70	230	10.5	390-480	630-770	300x475x180	11
24V80-01-SP		80	230	12	450-550	720-880	333x520x180	13
24V90-01-SP		90	230	13.5	510-620	810-990	333x520x180	13
24V100-01-SP		100	230	15	560-690	900-1100	333x520x180	13
24V120-01-SP		120	230	18	680-830	1080-1320	333x520x180	13
36V40-01-SP	36	40	230	9	230-280	360-440	300x475x180	11
36V45-01-SP		45	230	10	250-310	410-550	300x475x180	11
36V50-01-SP		50	230	11	280-340	450-550	333x520x180	13
36V60-01-SP		60	230	13.5	340-410	540-660	333x520x180	13
36V70-01-SP		70	230	15.5	390-480	630-770	333x520x180	13
36V80-01-SP		80	230	18	450-550	720-880	333x520x180	13
36V90-01-SP		90	230	20	510-620	810-990	333x520x180	13
48V30-01-SP	48	30	230	9	170-210	270-330	300x475x180	11
48V40-01-SP		40	230	12	230-280	360-440	300x475x180	11
48V50-01-SP		50	230	15	280-340	450-550	333x520x180	13
48V60-01-SP		60	230	18	340-410	540-660	333x520x180	13
48V75-01-SP		75	230	22.5	420-520	680-830	333x520x180	13
72V25-01-SP	72	25	230	11	140-170	230-280	300x475x180	11
72V30-01-SP		30	230	13.5	170-210	270-330	333x520x180	13
72V40-01-SP		40	230	18	230-280	360-440	333x520x180	13
72V50-01-SP		50	230	22.5	280-340	450-550	333x520x180	13
80V20-01-SP	80	20	230	10	110-140	180-220	300x475x180	11
80V30-01-SP		30	230	15	170-210	270-330	333x520x180	13
80V40-01-SP		40	230	20	230-280	360-440	333x520x180	13

Selection Table Three Phase (Green 6 and 8)

PRODUCT CODE	VOLTAGE	OUTPUT	MAINS (VAC)	INPUT CURRENT	8HR RECHARGE	12HR RECHARGE	DIMENSIONS	WEIGHT
24V50-03-SP	24	50	3x440	3	280-340	450-550	348X665X217	35
24V60-03-SP		60	3x440	4	340-410	240-660	348X665X217	35
24V70-03-SP		70	3x440	4.5	390-480	630-770	348X665X217	35
24V80-03-SP		80	3X440	5	450-550	720-880	348X665X217	35
24V100-03-SP		100	3x440	6	560-690	900-1100	348X665X217	35
24V120-03-SP		120	3x440	8	680-830	1080-1320	348X665X217	35
24V150-03-SP		150	3x440	10	840-1030	1350-1650	348X665X217	35
24V160-03-SP		160	3x440	10	900-1100	1440-1760	448X665X217	44
24V180-03-SP		180	3x440	12	1010-1240	1620-1980	448X665X217	44
24V200-03-SP		200	3x440	13	1130-1380	1800-2200	448X665X217	44
36V50-03-SP	36	50	3x440	5	280-340	450-550	348X665X217	35
36V60-03-SP		60	3x440	6	340-410	540-660	348X665X217	35
36V70-03-SP		70	3x440	7	390-480	530-770	348X665X217	35
36V80-03-SP		80	3x440	8	450-550	720-880	348X665X217	35
36V100-03-SP		100	3x440	10	560-690	900-1100	348X665X217	35
36V120-03-SP		120	3x440	12	680-830	1080-1320	348X665X217	35
36V150-03-SP		150	3x440	14	840-1030	1350-1650	348X665X217	35
36V160-03-SP		160	3x440	15	900-110	1140-1760	448X665X217	44
36V180-03-SP		180	3x440	17	1010-1240	1620-1980	448X665X217	44
36V200-03-SP		200	3x440	19	1130-1380	1800-2200	448X665X217	44
48V50-03-SP	48	50	3x440	6	280-340	450-550	348X665X217	35
48V60-03-SP		60	3x440	8	340-410	540-660	348X665X217	35
48V70-03-SP		70	3x440	9	390-480	630-770	348X665X217	35
48V80-03-SP		80	3x440	10	450-550	720-880	348X665X217	35
48V100-03-SP		100	3x440	13	560-690	900-1100	348X665X217	35
48V120-03-SP		120	3x440	15	680-830	1080-1320	348X665X217	35
48V130-03-SP		130	3x440	17	730-890	1170-1430	348X665X217	35
48V150-03-SP		150	3x440	19	840-1030	1350-1650	348X665X217	35
48V160-03-SP		160	3x440	21	900-1100	1440-1760	448X665X217	44
48V180-03-SP		180	3x440	23	1010-1240	1620-1980	448X665X217	44
48V200-03-SP	200	3x440	26	1130-1380	1800-2200	448X665X217	44	
72V30-03-SP	72	30	3x440	6	170-210	270-330	348X665X217	35
72V40-03-SP		40	3x440	7.5	230-280	360-440	348X665X217	35
72V50-03-SP		50	3x440	10	280-340	450-550	348X665X217	35
72V60-03-SP		60	3x440	12	340-410	540-660	348X665X217	35
72V80-03-SP		80	3x440	15	450-550	720-880	348X665X217	35
72V100-03-SP		100	3x440	19	560-690	900-1100	348X665X217	35
72V110-03-SP		110	3x440	21	320-760	990-1210	448X665X217	44
72V120-03-SP		120	3x440	23	680-830	1080-1320	448X665X217	44
72V130-03-SP		130	3x440	25	730-890	1170-1430	448X665X217	44

Selection Table Three Phase (Green 6 and 8)

PRODUCT CODE	VOLTAGE	OUTPUT	MAINS (VAC)	INPUT CURRENT	8HR RECHARGE	12HR RECHARGE	DIMENSIONS	WEIGHT
80V30-03-SP	80	30	3x440	6.5	170-210	270-330	348X665X217	35
80V40-03-SP		40	3x440	8.5	230-280	360-440	348X665X217	35
80V50-03-SP		50	3x440	11	280-340	450-550	348X665X217	35
80V60-03-SP		60	3x440	13	340-410	540-660	348X665X217	35
80V80-03-SP		80	3x440	17	450-550	720-880	348X665X217	35
80V100-03-SP		100	3x440	21	560-690	900-110	348X665X217	35
80V110-03-SP		110	3x440	23	620-760	990-1210	448X665X217	44
80V120-03-SP		120	3x440	26	680-830	1080-1320	448X665X217	44
80V130-03-SP		130	3x440	28	730-890	1170-1430	448X665X217	44

Charger Accessories

Smart-App

S.P.E. ELETTRONICA INDUSTRIALE

BATTERY MONITORING DEVICES

Data logging is useful to understand if the batteries have been correctly charged and discharged to the optimum level

Sending battery data to a PC

Through a USB stick all data can be sent to the SMART.VIEW Software, which makes it possible to display them in form of working cycles and diagrams.

Sending battery data to the web

Data stored on a Flash USB driver can be uploaded to the SmartService WEB application for:

- automatic analysis and reports
- integrated "SmartIC-like" management fleet

Main features:

- Measured instantaneous data: Voltage, Current, Charging/Discharging Time and Ah
- Storage and analysis of historical data
- Statistic analysis
- Data download on USB to the PC
- Data Memory: 400 working cycles
- For 24/36/48/72/80/96V batteries (12V available on request)
- Hall effect sensor
- Discharge time and capacity
- Battery faults and failures occurring during the charging process
- Temperature indication (when sensor is fitted)
- Low electrolyte level (when electrolyte level probe is fitted)
- Possibility of Serial Connection RS 485 and CAN BUS
- Protection IP54
- Working temperature from -20° to +50°



Model	AH Battery
T200	100+340
T400	350+740
T800	750+1500

GOT was formed by a group of engineers with decades of experience in the design and construction of charge and discharge systems. The company focuses its resources on the development and construction of new chargers and discharge machines.

Based in San Marino the company serves the world market as a leader of innovation and quality.

Easy Single Phase

Main features:
 Power up to 2.5 kW, from 24V up to 96V,
 from 17A up to 70A
 Programmable via USB type A/B port or via display
 Graphical display



Revolution Single Phase

Main features:
 Modular system (3 configurable modules)
 Power up to 8 kW, up to 150A @ 48V,
 up to 100A @ 80V, up to 75A @ 96V Programmable via USB type A/B port or via display
 Graphical display



Easy Three Phase

Main features:
 Power up to 4.5 kW, from 24V up to 96V,
 from 25A up to 120A
 Programmable via USB type A/B port or via display
 Graphical display



Revolution Three Phase

Main features:
 Modular system (5-6 configurable modules) Power up to 16 kW, 300A @ 48 V,
 up to 200A @ 80 V, up to 150A @ 96V Programmable via USB type A/B port or via display
 Graphical display.



Selection Table Easy & Revolution Single Phase

Type	Output Voltage (V)	Output Current	Mains (VAC)	Input current (A)	Dimensions L x W x H	Charging time/ battery capacity (Ah max.)	
						10hrs	12hrs
24V20A-01-REV	24V	20	240	3	280X330X200	100	120
24V25A-01-REV		25	240	4	280X330X200	125	150
24V30A-01-REV		30	240	5	280X330X300	155	185
24V40A-01-REV		40	240	6	280X330X300	195	250
24V50A-01-REV		50	240	8	280X330X300	260	310
24V60A-01-REV		60	240	9	280X330X300	320	370
24V80A-01-REV		80	240	13	470X465X700	390	500
24V100A-01-REV		100	240	16	470X465X700	510	620
24V120A-01-REV		120	240	19	470X465X870	625	720
24V140A-01-REV		140	240	22	470X465X870	750	875
24V160A-01-REV		160	240	25	470X465X870	850	960
36V20A-01-REV	36V	20	240	5	280X430X300	100	120
36V30A-01-REV		30	240	7	280X430X300	155	185
36V40A-01-REV		40	240	9	280X430X300	195	250
36V60A-01-REV		60	240	16	470X465X700	320	380
36V80A-01-REV		80	240	19	470X465X700	390	500
36V100A-01-REV		100	240	25	470X465X700	510	620
36V120A-01-REV		120	240	29	470X465X870	625	720
36V140A-01-REV		140	240	35	470X465X870	750	875
36V160A-01-REV		160	240	39	470X465X870	850	960
48V20A-01-REV	48V	20	240	8	280X430X300	100	120
48V30A-01-REV		30	240	10	280X430X300	155	185
48V40A-01-REV		40	240	13	280X430X300	195	250
48V60A-01-REV*		60	240	19	470X465X700	320	380
48V80A-01-REV*		80	240	25	470X465X700	390	500
48V100A-01-REV*		100	240	31	470X465X700	510	620
48V120A-01-REV*		120	240	38	470X465X870	625	720
48V140A-01-REV		140	240	45	470X465X870	750	875
48V160A-01-REV		160	240	51	470X465X870	850	960
72V60A-01-REV	72V	60	240	28	470X465X700	320	380
72V80A-01-REV		80	240	38	470X465X700	390	500
72V100A-01-REV		100	240	48	470X465X870	510	620
72V120A-01-REV		120	240	56	470X465X870	625	720
72V140A-01-REV		140	240	67	470X465X870	750	875
80V60A-01-REV	80V	60	240	31	470X465X700	320	380
80V80A-01-REV		80	240	42	470X465X700	390	500
80V100A-01-REV*		100	240	52	470X465X870	510	620
80V120A-01-REV*		120	240	63	470X465X870	625	720
80V140A-01-REV		140	240	73	470X465X870	750	875

*Designates Easy Charger range options.

Selection Table Easy & Revolution Three Phase

Type	Output Voltage (V)	Output Current	Mains (VAC)	Input current (A)	Dimensions L x W x H	Charging time/ battery capacity (Ah max.)	
						10hrs	12hrs
24V60A-03-REV	24V	60	440	4	470X465X700	320	380
24V80A-03-REV		80	440	5	470X465X700	390	500
24V100A-03-REV		100	440	6	470X465X700	510	620
24V120A-03-REV		120	440	7	470X465X870	625	720
24V140A-03-REV		140	440	9	470X465X870	750	875
24V160A-03-REV		160	440	10	470X465X870	850	960
36V60A-03-REV	36V	60	440	5	470X465X700	320	380
36V80A-03-REV		80	440	7	470X465X700	390	500
36V100A-03-REV		100	440	9	470X465X700	510	620
36V120A-03-REV		120	440	11	470X465X700	625	720
36V140A-03-REV		140	440	13	470X465X700	750	875
36V160A-03-REV		160	440	14	470X465X870	850	960
48V40A-03-REV	48V	40	440	5	500X360X450		240
48V60A-03-REV		60	440	7	470X465X700	320	380
48V80A-03-REV*		80	440	10	470X465X700	390	500
48V100A-03-REV*		100	440	12	470X465X700	510	620
48V120A-03-REV*		120	440	14	470X465X870	625	720
48V140A-03-REV		140	440	16	470X465X870	750	875
48V160A-03-REV	160	440	18	470X465X870	850	960	
72V40A-03-REV	72V	40	440	6	500X360X450		240
72V60A-03-REV		60	440	11	470X465X700	320	380
72V80A-03-REV		80	440	14	470X465X700	390	500
72V100A-03-REV		100	440	16	470X465X870	510	620
72V120A-03-REV		120	440	18	470X465X870	625	720
72V140A-03-REV		140	440	21	470X465X870	750	875
72V160A-03-REV	160	440	23	565X500X960	850	960	
80V40A-03-REV	80V	40	440	8	500X360X450		240
80V60A-03-REV		60	440	12	470X465X700	320	380
80V80A-03-REV		80	440	16	470X465X870	390	500
80V100A-03-REV*		100	440	18	470X465X870	510	620
80V120A-03-REV*		120	440	21	470X465X870	625	720
80V140A-03-REV		140	440	24	565X500X960	750	875

*Designates Easy Charger range options.

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We can provide both forklift truck batteries and chargers on short or long term hire.

- Fully flexible hire terms (No minimum required)
- Covers all products Including; Cells, Batteries, Chargers, Battery Handling, and Watering Systems
- A wide range of stock always available
- Nationwide service coverage
- Maintained or non-maintained service contracts
- Rent to buy option means ownership of goods once rental period finishes
- Normal or HF chargers including installation
- Free quotation with no obligation



BATTERY HIRE

We can provide both forklift truck batteries and chargers on short or long term hire. We have a large fleet of batteries and chargers for immediate delivery.

As an independent supplier of traction batteries from the world's leading manufacturers IBCS is able to provide a complete solution for all forklift and traction battery requirements.



CHARGER HIRE

At IBCS we have a complete range of chargers for hire to suit all motive power applications. We are able to offer help and advice, on all aspects of battery charging.

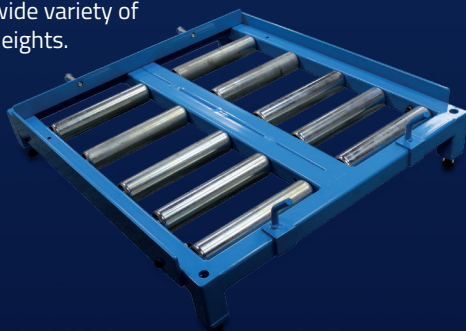
Our service engineers are able to repair and maintain all types of battery chargers in use today.



ROLLER BEDS

Forklift battery roller bed hire offers an efficient and cost effective solution to handling batteries. They are the ideal solution for those in need of fast battery changing to help keep uptime to its maximum level.

Designed to handle a wide variety of batteries and roll-off heights. These versatile roller beds can even be flipped upside down allowing lower roll-off heights making them even more universal.



LIFTING BEAM



BATTERY TUGGERS

IBCS offer some of the best handling equipment on the market today. Options ranging from a single roller stand right through to a fully automated bespoke system, we have you covered.

Call us to discuss your requirements.



Used for applications that require a non-conductive beam such as lifting industrial fork lift truck batteries.

Lightweight units are available for hire and models are available for handling batteries of equal length or of different lengths.

The Intelligent Choice

Industry Leading Warranty - IBCS provide an industry leading **5 year warranty on their products** that is clear and precise with no ambiguity. It provides a full 5 year guarantee for their Motive Power Batteries against faulty workmanship and materials outlined in their customer contracts. **How can they offer this superb warranty? This is linked to a powerful set of business ethics based on:**

ISO 9001 and Right First Time

IBCS's Right First Time Quality management system works on the following principle. Defect prevention is more advantageous and cost effective than defect detection and associated re-work.

Certified to ISO 9001 IBCS has a top quality management team to maintain and develop the system so that the standards are at a continually high level. It is brought about by strict and consistent commitment to achieve uniformity of a product in order to satisfy specific customer or user requirements.

As quality managers, IBCS instil the ISO 9001 quality philosophy into the wider organisation, with simple techniques that everyone can use. 'Right first time', also provides a methodology that is easy to apply and can empower people to systematically improve performance.



Staff Training Including Apprenticeship Scheme

Training is a continuous process for the company and its employees. In house technical training coupled with external supplier product support ensures that the IBCS team is fine tuned to pass on all the latest market developments to its customers.

Apprenticeships

Many of the team have been employed by the company for many years and clearly understand the technical requirements to build and maintain product to the highest possible level.

There is an apprenticeship scheme that combines practical training whilst studying towards a related qualification. It is supported by working alongside experienced staff to gain job-specific skills and also supports local youth employment.

IBCS also offer bespoke training packages for customers by request.

Health & Safety Policies

IBCS has a clear health and safety policy that commits them to rigorous internal and external standards. An Internal policy document sets out our approach and identifies individual responsibilities to control main hazards from risk assessment.

The policy is reviewed regularly if work process, staff, plant or equipment is changed or modified.

For customers the effective training of operators and forklift truck drivers on the safe and proper use and maintenance is essential in today's Health & Safety conscious environment. Our external training also covers: general health and safety, battery maintenance and care, battery handling and handling scrap.

ECO Commitment

IBCS are fully aware of environmental responsibilities of their business. Working with chemicals and toxic materials needs a good understanding of the industrial battery market. The movement and disposal of waste or scrap batteries, is strictly governed by special waste legislation, and must only be carried out by licensed carriers and disposers. Industrial Battery and Charger Services are continuing to work very closely with the Environment Agency to ensure we are able to provide safe and environmentally sound methods of waste movement and disposal.



