

Introducing
Opportunity Rapid Charging (ORC) battery,
a researched offering to power mechanisation,
increased machine availability and providing
enhanced value.

CEIL **EXPRESS**
POWER



Leakage
Proof Design



Controlled
Temperature



Two Shift
Operations



ORC

OPPORTUNITY RAPID CHARGE

TWO IN ONE



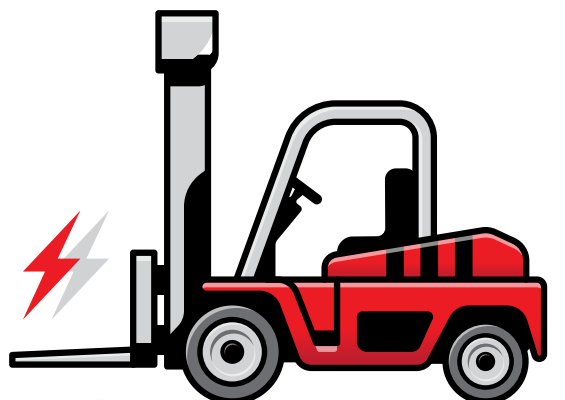
OPPORTUNITY RAPID CHARGE

CEIL Express Power is suitable for two -Shift operations with one battery through fast and opportunity charging.

This battery can be charged at a considerably higher current (Maximum 40% of rated capacity) which allows users to charge the battery in between breaks of the shift to pump more energy in a short time span.

CEIL Express Power battery extends normal operating hours, reduces recharge time and maintenance time which in turn brings down the ownership cost as well.

CEIL Express Power batteries are suited for multishift & extended shift applications through opportunity rapid charging.





Salient Features



Two Shift Operations and/or Extended Shift Operations battery equipped with suitable fast charger & air agitation system is able to take full advantage of the opportunity rapid charging capabilities. It allows a single battery to operate in two shifts with intermittent opportunity rapid charging.



Improved Negative Plate battery is equipped with specially designed robust Negatives which enables the batteries to take full advantage of fast opportunity charging capabilities with no degradation to life expectancy.



Standard BS & DIN Size: Standard PzS design fully compatible to IEC 60254 – 2 useful for heavy duty application.

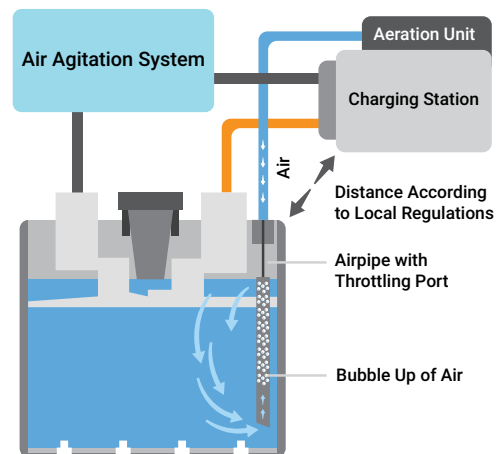


Controlled Temperature: Express Power battery is equipped with air agitation system which maintains the temperature throughout its charging period and helps in improved charging capabilities.



Leakage Proof Design: Special TPE twin molded post seal to avoid leakage and accommodate all connectors equipped with bolted connection with thicker flexible cable connectors.

Cycle life: 1500+



Representation of air agitation system incorporated in the ORC cell



Advantages over Conventional Batteries:



Express Power traction batteries enables up to two work-shift operation with a single battery. In every shift it is allowed to discharge maximum up to 70% DOD provided the users must ensure minimum 90 minutes of charging in every shift with recommended 40% charging amps. through suitable charger.



Opportunity charging refers to the new ORC battery system being able to receive partial 'top-up' charges several times during a work cycle, if required.



Replaces regular lead-acid traction batteries in same tray size, without adding any ballast.



Extended operating time using a single battery with intermittent opportunity rapid charges.



Express Power battery brings down the total ownership cost and provides more value to the customer.



Available Accessories:



Air Agitation System ensure lower charging time, water consumption, battery temperature during recharge & decreases the overall energy costs.



Auto Fill System is an integrated piping system which allows topping up of batteries in an efficient and trouble-free manner with zero manual intervention.



Battery Monitoring System is a highly intelligent data collection device which is mounted on the battery & can assist the user in improving the battery life.



Electrolyte Level Indicator is a very simple but highly productive device which monitors the electrolyte level of battery & ensures optimal battery health.



ORC Battery Charger :



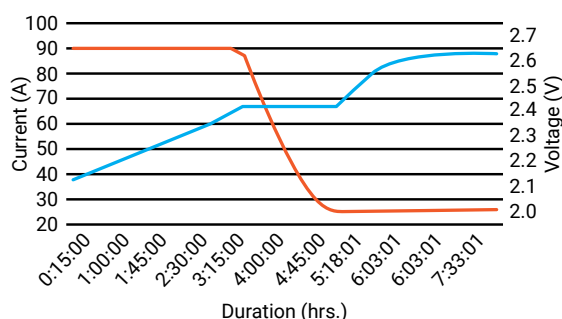
In order to extract the full potential of an Express Power battery, the charger accompanying the battery must have the following features:

The charger should follow IUI regime as follows:

★ **I Phase I:** Constant Current at 40% or 20% of Rated Ah till 2.35 to 2.45 vpc.

★ **U Phase:** Hold at 2.35 to 2.45 vpc till current tapers to 5% of Rated Ah.

★ **I Phase II:** At 5% charge till 2.6 to 2.7 vpc (for newly installed batteries)



The charger must be equipped with an air agitation pump in order to cool the battery during opportunity rapid charging at a considerably higher current. If possible, the air pump must remain on even when the charging is completed in order to cool off the battery.



The charger must have an equalization charge feature as over the time cells develop unequal state of charge. The charging should commence @3% current of rated capacity. The charging is deemed completed when the voltage & SG of all the cells remain constant for 3 consecutive hourly readings.



The charger should have a temperature dependent current derating feature. When the temperature rises beyond 45°C, the charger would derate the current & when the temperature rises above 53°C, the charging current should not be more than 20% of its rated capacity.



The charger should have a warning temperature signal @55°C which would inform the user on the excess rise in temperature & a cut off temperature @60°C which will terminate the charging altogether (optional).



The charger should have a time-controlled charging feature where the charger will automatically adjust the charging current (40% or 20%) depending on the period of the day.

DIN ORC Specification Traction Cells (Width 198mm)

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 60 Ah, Overall Height 361 mm, Height upto Lid Top 331 mm						
2 IPzS 120	EXWAF5	120	47	6.2	1.5	8.1
3 IPzS 180	EXWAF7	180	65	8.7	2.3	11.7
4 IPzS 240	EXWAF9	240	83	11.1	3.0	15.0
5 IPzS 300	EXWAF11	300	101	13.7	3.7	18.5
6 IPzS 360	EXWAF13	360	119	16.1	4.4	21.9
7 IPzS 420	EXWAF15	420	137	18.6	5.2	25.2
8 IPzS 480	EXWAF17	480	155	21.2	5.8	28.7
9 IPzS 540	EXWAF19	540	173	23.8	6.6	32.2
10 IPzS 600	EXWAF21	600	191	26.3	7.3	35.7

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 90 Ah, Overall Height 488mm, Height upto Lid Top 458mm						
2 IPzS 180	EXWCF5	180	47	8.6	2.1	11.4
3 IPzS 270	EXWCF7	270	65	12.4	3.3	16.6
4 IPzS 360	EXWCF9	360	83	15.8	4.3	21.3
5 IPzS 450	EXWCF11	450	101	19.5	5.3	26.3
6 IPzS 540	EXWCF13	540	119	23.2	6.2	31.2
7 IPzS 630	EXWCF15	630	137	26.7	7.2	36.0
8 IPzS 720	EXWCF17	720	155	30.5	8.2	41.0
9 IPzS 810	EXWCF19	810	173	34.1	9.2	45.9
10 IPzS 900	EXWCF21	900	191	37.8	10.2	50.9

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 115 Ah, Overall Height 563mm, Height upto Lid Top 533mm						
2 IPzS 230	ELXWEF5	230	47	10.2	2.5	13.4
3 IPzS 345	ELXWEF7	345	65	14.7	3.8	19.6
4 IPzS 460	ELXWEF9	460	83	18.9	5.0	25.3
5 IPzS 575	ELXWEF11	575	101	23.3	6.1	31.2
6 IPzS 690	ELXWEF13	690	119	27.7	7.3	37.0
7 IPzS 805	ELXWEF15	805	137	32.0	8.4	42.8
8 IPzS 920	ELXWEF17	920	155	36.5	9.6	48.7
9 IPzS 1035	ELXWEF19	1035	173	40.8	10.7	54.6
10 IPzS 1150	ELXWEF21	1150	191	45.3	11.8	60.5

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 140 Ah, Overall Height 713mm, Height upto Lid Top 683mm						
2 IPzS 280	ELXWFF5	280	47	12.8	3.3	17.0
3 IPzS 420	ELXWFF7	420	65	18.5	4.9	24.8
4 IPzS 560	ELXWFF9	560	83	23.9	6.4	32.0
5 IPzS 700	ELXWFF11	700	101	29.5	7.8	39.5
6 IPzS 840	ELXWFF13	840	119	35.0	9.5	47.2
7 IPzS 980	ELXWFF15	980	137	40.4	11.0	54.5
8 IPzS 1120	ELXWFF17	1120	155	46.2	12.4	62.1
9 IPzS 1260	ELXWFF19	1260	173	51.8	13.9	69.7
10 IPzS 1400	ELXWFF21	1400	191	57.5	15.4	77.2

Cell type	Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%	
Positive Plate Capacity 80 Ah, Overall Height 427 mm, Height upto Lid Top 397 mm						
2 IPzS 160	EXWBF5	160	47	7.6	1.8	9.9
3 IPzS 240	EXWBF7	240	65	10.8	2.8	14.4
4 IPzS 320	EXWBF9	320	83	13.9	3.6	18.5
5 IPzS 400	EXWBF11	400	101	17.1	4.5	22.8
6 IPzS 480	EXWBF13	480	119	20.2	5.3	27.1
7 IPzS 560	EXWBF15	560	137	23.3	6.2	31.3
8 IPzS 640	EXWBF17	640	155	26.6	7.0	35.6
9 IPzS 720	EXWBF19	720	173	29.8	7.8	39.9
10 IPzS 800	EXWBF21	800	191	33.1	8.7	44.2

Cell type	Ah @C5 at 30o C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%	
Positive Plate Capacity 105 Ah, Overall Height 538mm, Height upto Lid Top 508mm						
2 IPzS 210	EHXWCF5	210	47	9.4	2.4	12.5
3 IPzS 315	EHXWCF7	315	65	13.7	3.6	18.3
4 IPzS 420	EHXWCF9	420	83	17.6	4.8	23.7
5 IPzS 525	EHXWCF11	525	101	21.8	5.9	29.3
6 IPzS 630	EHXWCF13	630	119	25.9	7.0	34.8
7 IPzS 735	EHXWCF15	735	137	29.9	8.1	40.3
8 IPzS 840	EHXWCF17	840	155	34.2	9.1	45.9
9 IPzS 945	EHXWCF19	945	173	38.3	10.2	51.5
10 IPzS 1050	EHXWCF21	1050	191	42.5	11.3	57.1

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 125 Ah, Overall Height 599mm, Height upto Lid Top 569mm						
2 IPzS 250	EXWEF5	250	47	11.0	2.7	14.4
3 IPzS 375	EXWEF7	375	65	15.8	4.1	21.1
4 IPzS 500	EXWEF9	500	83	20.3	5.3	27.2
5 IPzS 625	EXWEF11	625	101	25.1	6.5	33.5
6 IPzS 750	EXWEF13	750	119	29.8	7.8	39.8
7 IPzS 875	EXWEF15	875	137	34.4	9.0	45.9
8 IPzS 1000	EXWEF17	1000	155	39.2	10.2	52.3
9 IPzS 1125	EXWEF19	1125	173	44.1	11.4	58.8
10 IPzS 1250	EXWEF21	1250	191	48.8	12.6	65.1

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 155 Ah, Overall Height 740mm, Height upto Lid Top 710mm						
2 IPzS 310	EXWFF5	310	47	13.5	3.4	17.8
3 IPzS 465	EXWFF7	465	65	19.5	5.1	25.9
4 IPzS 620	EXWFF9	620	83	25.1	6.7	33.7
5 IPzS 775	EXWFF11	775	101	30.9	8.2	41.4
6 IPzS 930	EXWFF13	930	119	36.8	9.8	49.4
7 IPzS 1085	EXWFF15	1085	137	42.5	11.4	57.1
8 IPzS 1240	EXWFF17	1240	155	48.5	12.9	65.1
9 IPzS 1395	EXWFF19	1395	173	54.6	14.5	73.2
10 IPzS 1550	EXWFF21	1550	191	60.5	15.9	81.0

BS ORC Specification Traction Cells (Width 158mm)

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 32 Ah, Overall Height 298 mm, Height upto Lid Top 268 mm						
2 IPzB 64	EXXVF5	64	45	4.1	0.9	5.3
3 IPzB 96	EXXVF7	96	61	5.5	1.3	7.2
4 IPzB 128	EXXVF9	128	77	7.0	1.7	9.2
5 IPzB 160	EXXVF11	160	93	8.5	2.0	11.1
6 IPzB 192	EXXVF13	192	109	10.0	2.4	13.1
7 IPzB 224	EXXVF15	224	125	11.4	2.8	15.0
8 IPzB 256	EXXVF17	256	141	12.9	3.2	17.0
9 IPzB 288	EXXVF19	288	157	14.4	3.5	18.9
10 IPzB 320	EXXVF21	320	173	15.9	3.9	20.9
11 IPzB 352	EXXVF23	352	189	17.5	4.3	23.0
12 IPzB 384	EXXVF25	384	205	19.8	4.6	25.7
13 IPzB 416	EXXVF27	416	221	21.4	5.0	27.8

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 55 Ah, Overall Height 428 mm, Height upto Lid Top 398 mm						
2 IPzB 110	EXILF5	110	45	6.1	1.4	8.0
3 IPzB 165	EXILF7	165	61	8.4	2.0	11.0
4 IPzB 220	EXILF9	220	77	10.8	2.5	14.0
5 IPzB 275	EXILF11	275	93	13.2	3.1	17.2
6 IPzB 330	EXILF13	330	109	15.5	3.8	20.4
7 IPzB 385	EXILF15	385	125	17.8	4.4	23.5
8 IPzB 440	EXILF17	440	141	20.2	5.0	26.6
9 IPzB 495	EXILF19	495	157	22.5	5.6	29.7
10 IPzB 550	EXILF21	550	173	24.8	6.2	32.8
11 IPzB 605	EXILF23	605	189	27.3	6.8	36.0
12 IPzB 660	EXILF25	660	205	30.4	7.3	39.9
13 IPzB 715	EXILF27	715	221	32.8	7.9	43.0

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 75 Ah, Overall Height 537 mm, Height upto Lid Top 507 mm						
2 IPzB 150	EXTHF5	150	45	7.8	1.8	10.2
3 IPzB 225	EXTHF7	225	61	10.8	2.6	14.1
4 IPzB 300	EXTHF9	300	77	14.0	3.3	18.2
5 IPzB 375	EXTHF11	375	93	17.0	4.0	22.1
6 IPzB 450	EXTHF13	450	109	20.0	4.7	26.1
7 IPzB 525	EXTHF15	525	125	23.1	5.4	30.1
8 IPzB 600	EXTHF17	600	141	26.1	6.4	34.3
9 IPzB 675	EXTHF19	675	157	29.2	7.1	38.3
10 IPzB 750	EXTHF21	750	173	32.2	7.8	42.3
11 IPzB 825	EXTHF23	825	189	35.3	8.6	46.3
12 IPzB 900	EXTHF25	900	205	39.1	9.3	51.0
13 IPzB 975	EXTHF27	975	221	42.1	10.0	55.0

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 100 Ah, Overall Height 632 mm, Height upto Lid Top 602 mm						
2 IPzB 200	ELXTEF5	200	45	9.3	2.2	12.1
3 IPzB 300	ELXTEF7	300	61	13.1	3.1	17.1
4 IPzB 400	ELXTEF9	400	77	17.1	4.1	22.3
5 IPzB 500	ELXTEF11	500	93	21.0	4.7	27.1
6 IPzB 600	ELXTEF13	600	109	24.9	5.8	32.4
7 IPzB 700	ELXTEF15	700	125	28.8	6.6	37.4
8 IPzB 800	ELXTEF17	800	141	32.8	7.6	42.5
9 IPzB 900	ELXTEF19	900	157	36.7	8.4	47.5
10 IPzB 1000	ELXTEF21	1000	173	40.6	9.3	52.5
11 IPzB 1100	ELXTEF23	1100	189	44.5	10.2	57.6
12 IPzB 1200	ELXTEF25	1200	205	49.3	11.0	63.5
13 IPzB 1300	ELXTEF27	1300	221	53.5	11.9	68.8

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 42 Ah, Overall Height 354 mm, Height upto Lid Top 324 mm						
2 IPzB 84	EXIMF5	84	45	5.1	1.1	6.5
3 IPzB 126	EXIMF7	126	61	6.9	1.6	9.0
4 IPzB 168	EXIMF9	168	77	8.8	2.0	11.4
5 IPzB 210	EXIMF11	210	93	10.7	2.5	13.9
6 IPzB 252	EXIMF13	252	109	12.6	3.1	16.6
7 IPzB 294	EXIMF15	294	125	14.5	3.6	19.1
8 IPzB 336	EXIMF17	336	141	16.4	4.1	21.6
9 IPzB 378	EXIMF19	378	157	18.3	4.5	24.1
10 IPzB 420	EXIMF21	420	173	20.2	5.0	26.6
11 IPzB 462	EXIMF23	462	189	22.2	5.5	29.2
12 IPzB 504	EXIMF25	504	205	24.9	5.9	32.6
13 IPzB 546	EXIMF27	546	221	26.9	6.4	32.6

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 65 Ah, Overall Height 478 mm, Height upto Lid Top 448 mm						
2 IPzB 130	EXTLF5	130	45	6.9	1.6	9.0
3 IPzB 195	EXTLF7	195	61	9.5	2.3	12.4
4 IPzB 260	EXTLF9	260	77	12.2	2.9	16.0
5 IPzB 325	EXTLF11	325	93	15.0	3.5	19.5
6 IPzB 390	EXTLF13	390	109	17.6	4.3	23.2
7 IPzB 455	EXTLF15	455	125	20.3	5.0	26.7
8 IPzB 520	EXTLF17	520	141	23.0	5.6	30.3
9 IPzB 585	EXTLF19	585	157	25.7	6.3	33.8
10 IPzB 650	EXTLF21	650	173	28.4	6.9	37.3
11 IPzB 715	EXTLF23	715	189	31.2	7.6	41.0
12 IPzB 780	EXTLF25	780	205	34.7	8.2	45.2
13 IPzB 845	EXTLF27	845	221	37.4	8.9	48.8

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 86 Ah, Overall Height 595 mm, Height upto Lid Top 565 mm						
2 IPzB 172	EXTOF5	172	45	8.5	2.1	11.2
3 IPzB 258	EXTOF7	258	61	11.9	2.9	15.7
4 IPzB 344	EXTOF9	344	77	15.5	3.7	20.3
5 IPzB 430	EXTOF11	430	93	19.1	4.5	24.9
6 IPzB 516	EXTOF13	516	109	22.6	5.3	29.4
7 IPzB 602	EXTOF15	602	125	26.1	6.2	34.2
8 IPzB 688	EXTOF17	688	141	29.7	7.1	38.8
9 IPzB 774	EXTOF19	774	157	33.2	7.9	43.4
10 IPzB 860	EXTOF21	860	173	36.7	8.7	48.0
11 IPzB 946	EXTOF23	946	189	40.3	9.6	52.6
12 IPzB 1032	EXTOF25	1032	205	44.5	10.4	57.8
13 IPzB 1118	EXTOF27	1118	221	48.1	11.1	62.4

Cell type		Ah @C5 at 30° C	Length (mm)	Dry weight (Kg.) ±5%	Acid Volume (Ltr.)	Filled Weight (Kg.) ±5%
Positive Plate Capacity 108 Ah, Overall Height 706 mm, Height upto Lid Top 676 mm						
2 IPzB 216	EXTEF5	216	45	10.4	2.5	13.6
3 IPzB 324	EXTEF7	324	61	14.7	3.5	19.2
4 IPzB 432	EXTEF9	432	77	19.2	4.4	24.9
5 IPzB 540	EXTEF11	540	93	23.6	5.4	30.5
6 IPzB 648	EXTEF13	648	109	28.0	6.5	36.3
7 IPzB 756	EXTEF15	756	125	32.3	7.4	41.9
8 IPzB 864	EXTEF17	864	141	36.8	8.5	47.7
9 IPzB 972	EXTEF19	972	157	41.2	9.4	53.3
10 IPzB 1080	EXTEF21	1080	173	45.6	10.4	59.0
11 IPzB 1188	EXTEF23	1188	189	50.3	11.4	65.0
12 IPzB 1296	EXTEF25	1296	205	55.5	12.3	71.3
13 IPzB 1404	EXTEF27	1404	221	59.9	13.3	76.9

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DIN EN ISO 9001 : 2008
ISO/TS 16949 : 2009
ISO 14001 : 2004
OHSAS 18001 : 2007



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