YİĞİTAKÜ

TRACTION BATTERY

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Tractioner batteries are used especially in electric-powered handling and stacking vehicles that are used indoors. These are high-capacity batteries with long lifecycle. The boxes and covers are made of polypropylene material and are resistant to acid and impacts. They are sealed by hot sealing method. The positive plates used have a tubular structure, which is effective in the lifecycle and performance of the battery. The electrolyte density of a fully charged battery must be 1.2830.01 g/cms at 27°C and the electrolyte density at the end of discharge must be 1.12-1.14 g/cm3. This density is the value at the end of 80% discharge. Not falling below 80% discharge depth during use will extend the battery lifecycle.

TECHNICAL DATA

Battery charge:

Standard charge

• The electrolyte level before charging should be on the separators and on the minimum indicator of the battery cap. If not, the charging process should be started after topping up distilled water.
• The maximum current value of the rectifier to be chosen must be 20% of the nominal capacity (C5) of battery. For example; A rectifier of V= 48V 1=120 A is required for a 48V 600 Ah battery.
• Charging is started with a constant current voltage of 2.40 V per cell. The current provided by the rectifier will decrease as the battery is charged. When the current value decreases to 1/4 of the current value of I5, the charging voltage is increased to 2.65 V and this value is fixed and charging process is continued.

For example: A rectifier of 600*0,20=120A must be used for a battery with the rated capacity of (C5)=600 Ah.
It is calculated as IS=120A and 30A.
1.Step: Vconstant 2.40 Volt, Icharge = variable
2.Step: is observed. When Icharge is «30A:
It is set as Vconstant =2.65 V and charging process is continued.
(It must not exceed 2.70 V)

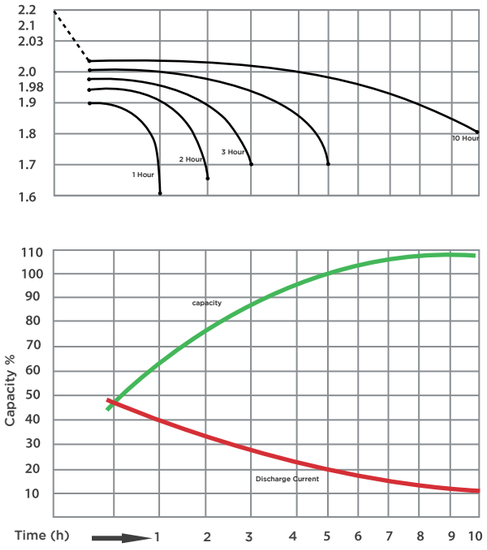
• The electrolyte temperature should be below 35°C at the start of charging process. The electrolyte temperature should not be allowed to rise above 45°C during the charging process. If the temperature has the tendency to rise above the permissible range, the charging process should be interrupted at a temperature of 45 °C and it should be expected to decrease below 35 °C. The charging process can then be resumed.
• The charging process is automatically terminated when the battery charge is completed in the automatically closing rectifiers.
• If it is charged manually, the density and voltage must be checked every hour within 3 hours. If the values remain constant during the check, the battery is fully charged.
If the density is above 1.29 g/cm3, certain amount of electrolyte is discharged, and it is adjusted by topping up distilled water instead.
Density must be in the range of 1.2803 0.010 g/cm3 27 °C. The electrolyte level is adjusted to the maximum level with distilled water and mixing charge is made for 1/2 hours with 5% Cn current.

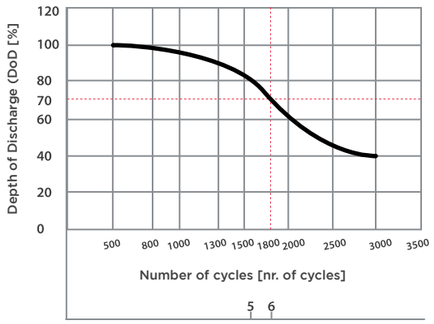
Stabilising Charge

This is the charge applied to bring the density and voltage levels of all cells of a battery to the same value. If the difference of the voltage values between the cells is 0.05 V and above, or if the diffrrence of the density level between the cells is more than 0.02 gr/cm3, stabilising charge should be made.
The stabilising charging process is performed after standard charging process. The charge current value is started constant at 1/20 of the ampere value of the battery. (For example, in a battery of 48V 560 Ah with 560/20 = 28 Amps) When the charging voltage reaches 2.70 V, the charging process is automatically interrupted and the density and voltage measurements are made. If the density and voltage levels of the cells are determined to be constant for 2-3 consecutive hours, the charging process is ended.

Paying attention to the following factors in use will prevent performance loss of the battery.
• More than 80% of the battery capacity should not be used.
• The vehicle discharge cut-off voltage should be checked twice a year.
• Regardless of how long the battery is used, the battery should be charged at the end of the period of use. The recommended period of use is once per day.
• Stabilising charging should be avoided unless it is necessary.
• The rectifier and the vehicle used should be checked at least once a year.
• The electrolyte level should be checked regularly, and levels should be topped up.

Voltage-Capacity-Current Curves
[C5]





1600 cycles in use with 80% discharge [5 years] useful life
1800 cycles in use with 70% discharge [6 years] useful life

Reference Depending on 27 °C
Electrolyte Density Depending On Temperature

°C	g/cm³	°C	g/cm³	°C	g/cm³	°C	g/cm³
5	1,295	18	1,286	31	1,277	44	1,268
6	1,295	19	1,286	32	1,277	45	1,267
7	1,294	20	1,285	33	1,276	46	1,267
8	1,293	21	1,284	34	1,275	47	1,266
9	1,293	22	1,284	35	1,274	48	1,265
10	1,292	23	1,283	36	1,274	49	1,265
11	1,291	24	1,282	37	1,273	50	1,264
12	1,291	25	1,281	38	1,272	51	1,263
13	1,290	26	1,281	39	1,272	52	1,263
14	1,289	27	1,280	40	1,271	53	1,262
15	1,288	28	1,279	41	1,270	54	1,261
16	1,288	29	1,279	42	1,270	55	1,260
17	1,287	30	1,278	43	1,269	56	1,260

PLATE TYPE Y50T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	100	5,58	7,05	198 mm	47 mm	286 mm	316 mm
3	PzS	150	7,74	9,96	198 mm	65 mm	286 mm	316 mm
4	PzS	200	9,91	12,89	198 mm	83 mm	286 mm	316 mm
5	PzS	250	12,08	15,81	198 mm	101 mm	286 mm	316 mm
6	PzS	300	14,29	18,82	198 mm	119 mm	286 mm	316 mm
7	PzS	350	16,52	21,81	198 mm	137 mm	286 mm	316 mm
8	PzS	400	18,69	24,74	198 mm	155 mm	286 mm	316 mm
9	PzS	450	21,04	27,86	198 mm	174 mm	286 mm	316 mm
10	PzS	500	23,18	30,75	198 mm	190 mm	286 mm	316 mm

PLATE TYPE Y60T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	120	6,35	8,27	198 mm	47 mm	340 mm	370 mm
3	PzS	180	9,14	11,81	198 mm	65 mm	340 mm	370 mm
4	PzS	240	11,60	15,33	198 mm	83 mm	340 mm	370 mm
5	PzS	300	14,17	18,40	198 mm	101 mm	340 mm	370 mm
6	PzS	360	16,96	22,34	198 mm	119 mm	340 mm	370 mm
7	PzS	420	19,13	25,50	198 mm	137 mm	340 mm	370 mm
8	PzS	480	21,76	28,98	198 mm	155 mm	340 mm	370 mm
9	PzS	540	25,28	33,55	198 mm	174 mm	340 mm	370 mm
10	PzS	600	27,88	37,07	198 mm	190 mm	340 mm	370 mm

PLATE TYPE Y80T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	160	7,75	9,86	198 mm	47 mm	402 mm	432 mm
3	PzS	240	11,19	14,40	198 mm	65 mm	402 mm	432 mm
4	PzS	320	14,23	18,63	198 mm	83 mm	402 mm	432 mm
5	PzS	400	17,15	23,19	198 mm	101 mm	402 mm	432 mm
6	PzS	480	21,59	27,70	198 mm	119 mm	402 mm	432 mm
7	PzS	560	24,09	31,55	198 mm	137 mm	402 mm	432 mm
8	PzS	640	27,24	35,89	198 mm	155 mm	402 mm	432 mm
9	PzS	720	31,25	41,04	198 mm	174 mm	402 mm	432 mm
10	PzS	800	34,53	45,41	198 mm	190 mm	402 mm	432 mm

PLATE TYPE Y90T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	180	8,90	11,61	198 mm	47 mm	472 mm	502 mm
3	PzS	270	12,85	16,67	198 mm	65 mm	472 mm	502 mm
4	PzS	360	16,49	21,60	198 mm	83 mm	472 mm	502 mm
5	PzS	450	20,19	26,59	198 mm	101 mm	472 mm	502 mm
6	PzS	540	23,85	31,62	198 mm	119 mm	472 mm	502 mm
7	PzS	630	26,31	35,95	198 mm	137 mm	472 mm	502 mm
8	PzS	720	31,30	41,68	198 mm	155 mm	472 mm	502 mm
9	PzS	810	35,15	46,84	198 mm	174 mm	472 mm	502 mm
10	PzS	900	37,41	50,94	198 mm	190 mm	472 mm	502 mm

PLATE TYPE Y105T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	210	10,16	12,88	198 mm	47 mm	518 mm	548 mm
3	PzS	315	14,36	18,47	198 mm	65 mm	518 mm	548 mm
4	PzS	420	18,49	24,00	198 mm	83 mm	518 mm	548 mm
5	PzS	525	22,64	29,54	198 mm	101 mm	518 mm	548 mm
6	PzS	630	26,79	35,17	198 mm	119 mm	518 mm	548 mm
7	PzS	735	30,95	40,74	198 mm	137 mm	518 mm	548 mm
8	PzS	840	35,15	46,35	198 mm	155 mm	518 mm	548 mm
9	PzS	945	39,47	52,08	198 mm	174 mm	518 mm	548 mm
10	PzS	1050	43,63	57,64	198 mm	190 mm	518 mm	548 mm

PLATE TYPE Y115T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	230	11,41	14,46	198 mm	47 mm	545 mm	575 mm
3	PzS	345	15,55	19,83	198 mm	65 mm	545 mm	575 mm
4	PzS	460	19,47	25,69	198 mm	83 mm	545 mm	575 mm
5	PzS	575	24,37	31,47	198 mm	101 mm	545 mm	575 mm
6	PzS	690	28,89	37,52	198 mm	119 mm	545 mm	575 mm
7	PzS	805	32,70	44,31	198 mm	137 mm	545 mm	575 mm
8	PzS	920	37,14	50,01	198 mm	155 mm	545 mm	575 mm
9	PzS	1035	42,44	55,56	198 mm	174 mm	545 mm	575 mm
10	PzS	1150	46,87	61,46	198 mm	190 mm	545 mm	575 mm

PLATE TYPE Y125T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	250	11,66	14,97	198 mm	47 mm	577 mm	607 mm
3	PzS	375	16,90	20,98	198 mm	65 mm	577 mm	607 mm
4	PzS	500	21,47	28,15	198 mm	83 mm	577 mm	607 mm
5	PzS	625	26,44	33,93	198 mm	101 mm	577 mm	607 mm
6	PzS	750	31,97	41,08	198 mm	119 mm	577 mm	607 mm
7	PzS	875	34,23	46,55	198 mm	137 mm	577 mm	607 mm
8	PzS	1000	39,94	52,51	198 mm	155 mm	577 mm	607 mm
9	PzS	1125	45,81	59,19	198 mm	174 mm	577 mm	607 mm
10	PzS	1250	50,73	65,61	198 mm	190 mm	577 mm	607 mm

PLATE TYPE Y140T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	280	13,11	16,91	198 mm	47 mm	666 mm	696 mm
3	PzS	420	18,60	24,54	198 mm	65 mm	666 mm	696 mm
4	PzS	560	23,57	31,64	198 mm	83 mm	666 mm	696 mm
5	PzS	700	29,36	39,02	198 mm	101 mm	666 mm	696 mm
6	PzS	840	34,90	45,56	198 mm	119 mm	666 mm	696 mm
7	PzS	980	40,20	53,85	198 mm	137 mm	666 mm	696 mm
8	PzS	1120	45,64	61,24	198 mm	155 mm	666 mm	696 mm
9	PzS	1260	51,34	68,90	198 mm	174 mm	666 mm	696 mm
10	PzS	1400	56,75	76,27	198 mm	190 mm	666 mm	696 mm

PLATE TYPE Y155T		CAPACITY (C5) (Ah)	DRY CELL (kg)	WET CELL (kg)	LENGTH	WIDTH	CELL HEIGHT	TOTAL HEIGHT
2	PzS	310	13,87	17,69	198 mm	47 mm	722 mm	752 mm
3	PzS	465	19,86	26,76	198 mm	65 mm	722 mm	752 mm
4	PzS	620	26,03	34,52	198 mm	83 mm	722 mm	752 mm
5	PzS	775	31,79	43,01	198 mm	101 mm	722 mm	752 mm
6	PzS	930	38,13	50,00	198 mm	119 mm	722 mm	752 mm
7	PzS	1085	42,53	57,81	198 mm	137 mm	722 mm	752 mm
8	PzS	1240	49,63	65,14	198 mm	155 mm	722 mm	752 mm
9	PzS	1395	55,61	73,32	198 mm	174 mm	722 mm	752 mm
10	PzS	1550	62,05	81,23	198 mm	190 mm	722 mm	752 mm