

NP SERIES

Valve Regulated Lead Acid Batteries

Yuasa-brand NP Series batteries, the original and only true NP product, are the sought after power source for:

- Security and alarm systems
- CCTV's
- UPS systems
- Emergency energy lighting systems
- OEM electrical equipment
- Electronic applications

Yuasa NP Series batteries are the culmination of over seven decades of battery manufacturing experience, offering:

- High energy density
- Sealed leak proof construction
- Excellent performance in either float or cyclic applications
- Maintenance free
- Rechargeable, lead acid battery
- Long service life

NP SERIES

Valve Regulated Lead-Acid Batteries

Reliability is your security

Yuasa NP, NPC and NPH batteries utilize the latest advance design Oxygen Recombination Technology. Yuasa have applied their 80 years experience in the **lead acid battery** field to produce the optimum design of **Sealed Valve Regulated Lead Acid batteries**. Yuasa NP batteries are the most reliable batteries in the world, which is why industry choose Yuasa over any other battery for *security, fire, emergency lighting and uninterruptible power source (UPS)* applications.

Features

superb recovery from deep discharge.

Electrolyte suspension system.

Gas Recombination.

Multipurpose: Float or Cyclic use.

Usable in any orientation (except continuous inverted).

Superior energy density.

Lead calcium grids for extended life.

Manufactured World wide.

Application specific designs.

Technical Features

Sealed Construction

Yuasa's unique construction and sealing technique ensures no electrolyte leakage from case or terminals

Applications

Yuasa NP valve regulated lead acid batteries having excellent deep discharge recovery characteristics coupled with long life on float standby, are ideal for numerous applications in both cyclic and standby modes. **They are the ideal security battery for alarm systems; the ideal battery for fire systems; the ideal battery for emergency lighting; and the ideal battery for uninterruptible power source.** For further advice on the use of NP batteries in your particular application please contact our Sales Office.

Electrolyte Suspension System

All NP batteries utilize Yuasa's unique electrolyte suspension system incorporating a microfine glass mat to retain the maximum amount of electrolyte in the cells. The electrolyte is retained in the separator material and there is no free electrolyte to escape from the cells. No gels or other contaminants are added.

Control of Gas Generation

The design of Yuasa's NP batteries incorporates the very latest oxygen recombination technology to effectively control the generation of gas during normal use.

Low Maintenance Operation

Due to the perfectly sealed construction and the recombination of gasses within the cell, the battery is almost maintenance free.

Terminals

NP batteries are manufactured using a range of terminals which vary in size and type. Please refer to details as shown.

Operation in any Orientation

The combination of sealed construction and Yuasa's unique electrolyte suspension system allows operation in any orientation, with no loss of performance or fear of electrolyte leakage. (Excluding continuous use inverted)

Valve Regulated Design

The batteries are equipped with a simple, safe low pressure venting system which releases excess gas and automatically reseals should there be a build up of gas within the battery due to severe overcharge. Note. On no account should the battery be charged in a sealed container.

Lead Calcium Grids

The heavy duty lead calcium alloy grids provide an extra margin of performance and life in both cyclic and float applications and give unparalleled recovery from deep discharge.

Long Cycle Service Life

Depending upon the average depth of discharge, over a thousand discharge/charge cycles can be expected.

Float Service Life

The expected service life is five years in float standby applications.

Separators

The use of the special separator material provides a very efficient insulation between plates preventing inter-plate short circuits and prohibiting the shedding of active materials.

Long shelf Life

The extremely low self discharge rate allows the battery to be stored for extended periods up to one year at normal ambient temperatures with no permanent loss of capacity.

Operating Temperature Range

The batteries can be used over a broad temperature range permitting considerable flexibility in system design and location.

Charge	- 15°C to 50°C
Discharge	- 20°C to 60°C

Storage

- 20°C to 50°C (fully charged battery)

Charging For Float Standby Applications

Charged at 2.275 volts per cell continuous. The battery will seek its own current level and float fully charged. However, users should be aware that when charging from fully discharged, the battery can draw an initial charge current of approximately 2cA. Care should therefore be taken to ensure that this initial charge current (if uncontrolled) is within the output capability of the equipment. Final charge current at 2.275 volts per cell is typically between 0.0005cA to 0.004cA.

CAUTION

- Do not Short Circuit
- Do not charge in a sealed container
- Service life and operational characteristics will be affected by temperature
- AC Ripple reduces service life.

WARNING!

The battery type NP65-12I must never be installed permanently suspended by their handles; they are not designed for this purpose.

General Specifications

Nominal Capacity	NP1-6	NP1.2-6	NP2.8-6	NP4-6	NP7-6	NP10-6	NP12-6	NP0.8-12
20hr to 1.75vpc 30°C	1	1.2	2.8	4	7	10	12	0.8
10hr to 1.75vpc 20°C	0.93	1.1	2.5	3.7	6.5	9.2	11.1	0.74
5hr to 1.70vpc 20°C	0.85	1	2.3	3.4	6	8.5	10	0.68
1hr to 1.60vpc 20°C	0.6	0.7	1.6	2.4	4.2	6	7.2	0.48
Voltage	6	6	6	6	6	6	6	12
Energy Density (Wh.L.20hr)	54	58	61	72	86.2	85	101	65

Specific Energy (Wh.kg.20hr)	24	25	29	28	28.5	30	35	27
Int. Resistance (m.Ohms)	75	60	30	20	22.5	8	8	270
Maximum discharge (A)	5	12	28	40	35	40/75	75	4
Short Circuit current (A)	15	36	84	1.20	105	300	360	12
Length	51	97	134	70	151	151	151	96
Width	42.5	25	34	47	34	50	50	25
Height overall	54.5	54.5	64	105.5	97.5	97.5	97.5	61.5
Weight (Kg)	0.25	0.31	0.57	0.87	1.32	1.93	2.05	0.35
Terminal	A	A	A	A	A	A/D	D	I
Layout	5	1	1	5	1	1	1	6
Terminal Torque Nm	-	-	-	-	-	-	-	-
Nominal Capacity	NP1.2-12	NP2-12	NP2.1-12	NP2.3-12	NP2.8-12	NP3.2-12	NP4-12	NP7-12
20hr to 1.75vpc 30°C	1.2	2	2.1	2.3	2.8	3.2	4	7
10hr to 1.75vpc 20°C	1.1	1.86	1.9	2.1	2.5	2.9	3.7	6.4
5hr to 1.70vpc 20°C	1	1.7	1.75	1.9	2.3	2.7	3.4	5.9
1hr to 1.60vpc 20°C	0.7	1.2	1.2	1.3	1.6	1.9	2.4	4.2
Voltage	12	12	12	12	12	12	12	12
Energy Density (Wh.L.20hr)	61	95	69	76	63	71	75	91
Specific Energy (Wh.kg.20hr)	25	34	31	29	30	32	27	32

Int. Resistance (m.Ohms)	110	180	60	65	60	50	40	25
Maximum discharge (A)	12	10	21	23	28	32	40/75	40/75
Short Circuit current (A)	36	30	63	69	84	96	120	210
Length	97	150	178	178	134	134	90	151
Width	48	20	34	34	67	67	70	65
Height overall	54.5	89	64	64	64	64	106	97.5
Weight (Kg)	0.58	0.7	0.82	0.95	1.12	1.2	1.75	2.65
Terminal	A	B	A	A	A	A	A/D	A/D
Layout	3	7	1	1	3	3	1	4
Terminal Torque Nm	-	-	-	-	-	-	-	-
Nominal Capacity	NP12-12	NP17-12I	NP18-12	NP24-12I	NP38-12I	NP65-12I	NPH2-12FR	NPH3.2-12
20hr to 1.75vpc 30°C	12	17	17.2	24	38	65	-	-
10hr to 1.75vpc 20°C	11.1	15.7	16	22.3	35.3	60.5	2	3.2
5hr to 1.70vpc 20°C	10	14.4	14.5	20.4	32.3	55.3	1.82	2.91
1hr to 1.60vpc 20°C	7.2	10.2	10.3	14.4	22.8	39	1.5	2.4
Voltage	12	12	12	12	12	12	12	12
Energy Density (Wh.L.20hr)	104	89	94	79	83	77	82.7	69.2
Specific Energy (Wh.kg.20hr)	36	33	38	32	32	34	28.5	27.3
Int. Resistance (m.Ohms)	16	15	11	9.5	7.5	5	66	35

Maximum discharge (A)	75	170	112	240	300	500	14	22.4
Short Circuit current (A)	360	500	500	500	500	800	40	64
Length	151	181	180	166	197	350	68	134
Width	98	76	76	175	165	166	51	67
Height overall	97.5	167	167	125	170	174	88	64
Weight (Kg)	4.05	6.1	6.2	9	14.2	23	0.84	1.4
Terminal	D	J	E	J	J	K	A	A
Layout	4	2	2	2	2	2	2	3
Terminal Torque Nm	-	2.45	-	2.45	2.45	4.76	-	-

Nominal Capacity	NPH5-12	NPH12-12	NPW45-12
20hr to 1.75vpc 30°C	-	-	29wpc 15min
10hr to 1.75vpc 20°C	5	12	40wpc 10min
5hr to 1.70vpc 20°C	4.5	10.8	63wpc 5min
1hr to 1.60vpc 20°C	3.8	9	82wpc 3min
Voltage	12	12	12
Energy Density (Wh.L.20hr)	92.9	95	89.7
Specific Energy (Wh.kg.20hr)	29.9	32	30.7
Int. Resistance (m.Ohms)	24	16	-
Maximum discharge (A)	35	84	42
Short Circuit current (A)	100	240	105

Length	90	151	151
Width	70	98	65
Height overall	106	97.5	97.5
Weight (Kg)	2	4.2	2.7
Terminal	D	D	D
Layout	1	4	4
Terminal Torque Nm	-	-	-

NPL SERIES

Valve Regulated Lead Acid Batteries

Sealed valve regulated lead acid batteries from Yuasa with an extended life. The NPL range is an enhanced NP design resulting in a longer service life (7 - 10yrs). All other attributes and operational characteristics are the same, thereby maintaining the benefit of a common mechanical and electrical design for users of both products. Yuasa NP batteries are the most reliable batteries in the world, **making the NPL the most reliable but with a much longer life**, which is why industry *choose Yuasa over any other battery for security and fire systems; they are the ideal battery for emergency lighting; the ideal battery for telecoms and uninterruptible power source (UPS) applications.*

Features

Yuasa VRLA batteries can be used in any orientation excluding continuous use inverted.

Standard case material is flame retardant to (UL94) HBØ.

FR option case material is flame retardant to UL94:VØ (oxygen index 30).

NPL batteries are manufactured in factories that comply with ISO 9001:2000.

FR option NPLs comply with BS6290 Part 4 (1997).

NPL batteries comply with IEC 60896-21+22.

Operational Temperature Range

Charge	- 15 ~ 50°C
Discharge	- 20 ~ 60°C
Storage	- 20 ~ 50°C (fully charged condition)

Applications

Security and Fire
 UPS
 Telecoms
 Emergency Lighting

Charging Methods (at 20°C)

Standby use: Float charging voltage 2.275vpc

CAUTION

Avoid short circuit.
 Do not charge in a sealed container.
 Service life and operational characteristics will be affected by temperature.
 AC Ripple reduces service life.

SPECIFICATIONS	NPL130-6IFR	NPL24-12I	NPL38-12I	NPL65-12I	NPL78-12IFR	NPL100-12	NPL200-6
Nominal voltage	6	12	12	12	12	12	6
20-hr rate Capacity to 10.5V at 20°C	130	24	38	65	78	100	200
10-hr rate Capacity to 10.8V at 20°C	114.4	21.12	33.44	57.2	68.64	88	176
Measured at 1 kHz	2.5	9.5	7.5	5	<5	4	1.3
Short-Circuit current	n/a	656	804	1375	n/a	n/a	n/a
Length	350 (±0.7)	166 (±0.5)	197 (±0.5)	350 (±0.7)	380 (±0.7)	407 (±0.7)	398 (±0.7)

Width	166 (±0.5)	175 (±0.5)	165 (±0.5)	166 (±0.5)	166 (±0.5)	172 (±0.5)	176 (±0.5)
Height	174 (±0.5)	125 (±0.5)	170 (±0.5)	174 (±0.5)	174 (±0.5)	240 (±0.7)	250 (±0.7)
Mass (typical) (Kg)	23	9	14	23	27.5	39	39
Female threaded terminal	M6	M5	M5	M6	M8	n/a	n/a
Post type terminal	n/a	n/a	n/a	n/a	n/a	10	10
Torque	6	2.5	2.5	4.8	6	16.5	16.5

SWL SERIES

Valve Regulated Lead-Acid Batteries

SWL series valve regulated lead acid batteries are an enhanced NPL design resulting in an improved energy to density ratio, giving up to 40% extra discharge capacity. All other attributes and operational characteristics are the same, thereby maintaining the benefit of a common mechanical and electrical design for users of both products. SWL Series are *the ideal choice of battery for uninterruptible power supply (UPS) and high rate discharge applications.*

Features

Yuasa VRLA batteries can be used in any orientation excluding continuous use inverted.

Standard case material is flame retardant to (UL94) HBØ.

FR option case material is flame retardant to UL94:VØ (oxygen index 30).

SWL batteries are manufactured in factories that comply with ISO9001:2000.

FR option SWL's comply with BS6290 Part 4 (1997).

SWL batteries comply with IEC 60896-21+22.

Applications for SWL Series valve regulated lead acid batteries

Uninterruptible power supply (UPS)

High rate discharge applications.

Charging Methods (At 20°C)

Standby use: Float charging voltage 2.275vpc

CAUTION

Avoid short circuit.

Do not charge in a sealed container.

Service life and operational characteristics will be affected by temperature.

AC Ripple reduces service life.

WARNING!

SWL (Standard) and (FR) battery types SWL1850; SWL1850-6; SWL2500, must never be installed permanently suspended by their handles; they are not designed for this purpose.

SWL data sheets

Nominal Capacity	SW 200-12	SW 280-12	SWL 750	SW 780V	SWL 1100	SWL 1800*
Nominal Voltage	12	12	12	12	12	12
Nominal Wattage/Cell						
10 min to 1.6V/Cell	33	47	128	130	200	300
5 min to 1.6V/Cell	-	-	196	-	285	443
3 min to 1.6V/Cell	-	-	239	-	346	511
Weight (Approx)/Kg	2.5	2.6	9.3	10.1	14.5	22
Energy Density (Wh/L)	-	-	88	-	96	81.5
Specific Energy (Wh.kg) 10HR	-	-	36	-	37	28.7

Internal Resistance (Approx)/mohm	-	-	8.5	-	6	6
Maximum (1 min) Discharge Current/A	40	50	150	150	200	165
Maximum Short Duration (1 sec) Discharge Current in Amperes	100	150	500	500	500	450
Operating Temperatures/°C	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50
Charge	-20 to 60	-20 to 60	-15 to 50	-20 to 60	-20 to 60	-20 to 60
Discharge	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Percentage Charge Retention at 20°C						
1 month	97	97	97	97	97	97
3 months	-	-	91	-	91	91
6 months	-	-	85	-	85	85
Standard Terminal Type	FASTON	FASTON	II Type Zn alloy casting B	M5	Lead post with brass insert B	Lead post with brass insert C
Torque Nm	-	-	2.45	2.5	2.45	4.76
Case Material	ABS	ABS	ABS	ABS	ABS	ABS
Length +/-1	151	151	166	166	197	216
Width +/-1	51	65	175	125	165	168
Height +/-2	97.5	97.5	125	175	170	223
Nominal Capacity	SWL 1850	SWL 1850-6*	SWL 2250*	SWL 2300E	SWL2300FR	SWL 2500E
Nominal Voltage	6	12	12	12	12	12
Nominal Wattage/Cell	319	-	375	383	383	417

10 min to 1.6V/Cell	453	-	524	-	-	-
5 min to 1.6V/Cell	536	-	582	-	-	-
3 min to 1.6V/Cell						
Weight (Approx)/Kg	23.8	23.5	28.4	27	27	32
Energy Density (Wh/L)	88	90	100	-	-	-
Specific Energy (Wh.kg) 10HR	39	40	40	-	-	-
Internal Resistance (Approx)/mohm	4.4	1.6	3.6	7.71	7.71	6.5
Maximum (1 min) Discharge Current/A	500	500	500	400	240	500
Maximum Short Duration (1 sec) Discharge Current in Amperes	800	800	800	800	520	1000
Operating Temperatures/°C	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50
Charge	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-15 to 50	-20 to 60
Discharge						
Percentage Charge Retention at 20°C						
1 month	97	97	97	97	97	97
3 months	91	91	91	-	-	-
6 months	85	85	85	-	-	-
Standard Terminal Type	Lead post with brass insert C	Lead post with brass insert C	Lead post with brass insert D	M6	M6	M6
Torque Nm	4.76	4.76	6.1	4.8	4.8	4.8
Case Material	ABS	ABS	ABS	ABS	ABS	ABS

Length +/-1	350	350	380	261	259	305
Width +/-1	166	166	166	168	168	168
Height +/-2	174	174	177.5	225	209.5	225
Nominal Capacity	SWL 2500FR*	SWL 2500TFR	SWL 2500-6	SWL 3300	SWL 3800	SWL 4250
Nominal Voltage	12	12	6	12	12	12
Nominal Wattage/Cell						
10 min to 1.6V/Cell	490	416.67	867	550	633	708
5 min to 1.6V/Cell	650	-	-	-	-	-
3 min to 1.6V/Cell	750	-	-	-	-	-
Weight (Approx)/Kg	36	31	32.5	38	48	49
Energy Density (Wh/L)	95	-	-	-	-	-
Specific Energy (Wh.kg) 10HR	31	-	-	-	-	-
Internal Resistance (Approx)/mohm	6	5.64	-	5.64	4.8	-
Maximum (1 min) Discharge Current/A	500	276	800	550	600	420
Maximum Short Duration (1 sec) Discharge Current in Amperes	800	598	1500	1100	1200	840
Operating Temperatures/°C	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50	-15 to 50
Charge	-20 to 60	-15 to 50	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Discharge		-15 to 50				
Percentage Charge Retention at 20°C	97	97	97	97	97	97

1 month	91	-	-	-	-	-
3 months	85	-	-	-	-	-
6 months						
Standard Terminal Type	Lead post with brass insert C	M6	M8	M8	M8	M8
Torque Nm	6	4.8	6	6	6	6
Case Material	ABS	ABS	ABS	ABS	ABS	ABS
Length +/-1	305	305	297	350	350	341
Width +/-1	173	173	168	168	173	173
Height +/-2	223	220	231.5	225	272	281