

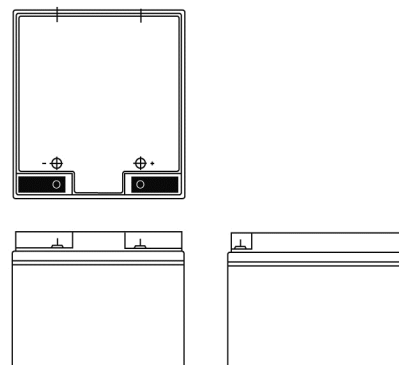
NPL-Series - Valve Regulated Lead Acid Battery

NPL24-12I (FR)

| SPECIFICATIONS | | |
|---|----------------|------------|
| Nominal voltage | 12 | V |
| 20-hr rate Capacity to 10.5V at 20°C | 24 | Ah |
| 10-hr rate Capacity to 10.8V at 20°C | 21.12 | Ah |
| DIMENSIONS | | |
| Length | 166 (±0.5) | mm |
| Width | 175 (±0.5) | mm |
| Height | 125 (±0.5) | mm |
| (height over terminals) | N/A | mm |
| Mass (typical) | 9.0 | kg |
| TERMINAL TYPE | | |
| Female threaded terminal | M5 | mm |
| Torque | 2.5 | Nm |
| OPERATING TEMPERATURE RANGE | | |
| Storage (in fully charged condition) | -20°C to +60°C | |
| Charge | -15°C to +50°C | |
| Discharge | -20°C to +60°C | |
| STORAGE | | |
| Capacity loss per month at 20°C (approx) | 3 | % |
| CASE MATERIAL | | |
| Standard Option | ABS (UL.94:HB) | |
| Flame retardant option (FR) | ABS (UL94:V0) | |
| CHARGE VOLTAGE | | |
| Float charge voltage at 20°C | 13.65 (±1%) | V |
| | 2.275 (±1%) | V/cell |
| Float Charge voltage temperature correction factor (for variations from the standard 20°C) | -3 | mV/cell/°C |
| Cyclic (or Boost) charge at 20°C | 14.5 (±3%) | V |
| | 2.42 (±3%) | V/cell |
| Cyclic Charge voltage temperature correction factor (for variations from the standard 20°C) | -4 | mV/cell/°C |
| CHARGE CURRENT | | |
| Float charge current limit | No limit | A |
| Cyclic (or Boost) charge current limit | 6.00 | A |
| MAXIMUM DISCHARGE CURRENT | | |
| 1 second | 500 | A |
| 1 minute | 150 | A |
| SHORT-CIRCUIT CURRENT & INTERNAL RESISTANCE (according to EN IEC 60896-21) | | |
| Internal resistance | 22.19 | mΩ |
| Short-Circuit current | 656 | A |
| IMPEDANCE | | |
| Measured at 1 kHz | 9.5 | mΩ |
| PERFORMANCE & CHARACTERISTICS | | |
| Refer to the technical manual | NPL | |
| DESIGN LIFE | | |
| EUROBAT Classification: High performance | 10 to 12 | years |
| Yuasa design life @ 20°C | up to 10 | years |
| SAFETY | | |
| Installation | | |
| Can be installed and operated in any orientation except permanently inverted | | |
| Handles | | |
| Batteries must not be suspended by their handles (where fitted) | | |
| Vent valves | | |
| Each cell is fitted with a low pressure release valve to allow gasses to escape and then reseal. | | |
| Gas Release | | |
| VRLA Batteries release hydrogen gas which can form explosive mixtures in air. Do not place inside a sealed container | | |
| Recycling | | |
| YUASA's VRLA batteries must be recycled at the end of life in accordance with local and national laws and regulations | | |



LAYOUT



3RD PARTY CERTIFICATIONS

ISO 9001 - Quality Management Systems
 ISO 14001 - Environmental Management Systems
 EN 18001 - OHSAS Management Systems
 UNDERWRITERS LABORATORIES Inc.



STANDARDS

IEC61056
 IEC60896-21/22



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 SN3 4TG
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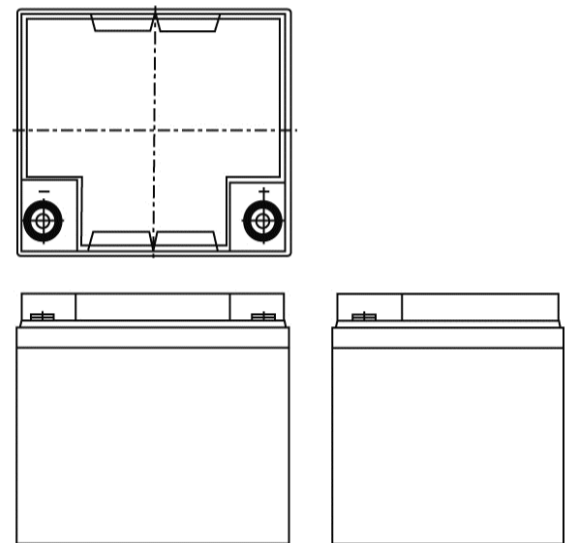
NPL-Series - Valve Regulated Lead Acid Battery

NPL38-12I (FR)

| SPECIFICATIONS | | |
|---|----------------|------------|
| Nominal voltage | 12 | V |
| 20-hr rate Capacity to 10.5V at 20°C | 38 | Ah |
| 10-hr rate Capacity to 10.8V at 20°C | 33.44 | Ah |
| DIMENSIONS | | |
| Length | 197 (±0.5) | mm |
| Width | 165 (±0.5) | mm |
| Height | 170 (±0.5) | mm |
| (height over terminals) | N/A | mm |
| Mass (typical) | 14.0 | kg |
| TERMINAL TYPE | | |
| Female threaded terminal | M5 | mm |
| Torque | 2.5 | Nm |
| OPERATING TEMPERATURE RANGE | | |
| Storage (in fully charged condition) | -20°C to +60°C | |
| Charge | -15°C to +50°C | |
| Discharge | -20°C to +60°C | |
| STORAGE | | |
| Capacity loss per month at 20°C (approx) | 3 | % |
| CASE MATERIAL | | |
| Standard Option | ABS (UL.94:HB) | |
| Flame retardant option (FR) | ABS (UL94:V0) | |
| CHARGE VOLTAGE | | |
| Float charge voltage at 20°C | 13.65 (±1%) | V |
| | 2.275 (±1%) | V/cell |
| Float Charge voltage temperature correction factor (for variations from the standard 20°C) | -3 | mV/cell/°C |
| Cyclic (or Boost) charge at 20°C | 14.5 (±3%) | V |
| | 2.42 (±3%) | V/cell |
| Cyclic Charge voltage temperature correction factor (for variations from the standard 20°C) | -4 | mV/cell/°C |
| CHARGE CURRENT | | |
| Float charge current limit | No limit | A |
| Cyclic (or Boost) charge current limit | 6.00 | A |
| MAXIMUM DISCHARGE CURRENT | | |
| 1 second | 500 | A |
| 1 minute | 200 | A |
| SHORT-CIRCUIT CURRENT & INTERNAL RESISTANCE | | |
| (according to EN IEC 60896-21) | | |
| Internal resistance | 18.22 | mΩ |
| Short-Circuit current | 804 | A |
| IMPEDANCE | | |
| Measured at 1 kHz | 7.5 | mΩ |
| PERFORMANCE & CHARACTERISTICS | | |
| Refer to the technical manual | NPL | |
| DESIGN LIFE | | |
| EUROBAT Classification: High performance | 10 to 12 | years |
| Yuasa design life @ 20°C | up to 10 | years |
| SAFETY | | |
| Installation | | |
| Can be installed and operated in any orientation except permanently inverted | | |
| Handles | | |
| Batteries must not be suspended by their handles (where fitted) | | |
| Vent valves | | |
| Each cell is fitted with a low pressure release valve to allow gasses to escape and then reseal. | | |
| Gas Release | | |
| VRLA Batteries release hydrogen gas which can form explosive mixtures in air. Do not place inside a sealed container | | |
| Recycling | | |
| YUASA's VRLA batteries must be recycled at the end of life in accordance with local and national laws and regulations | | |



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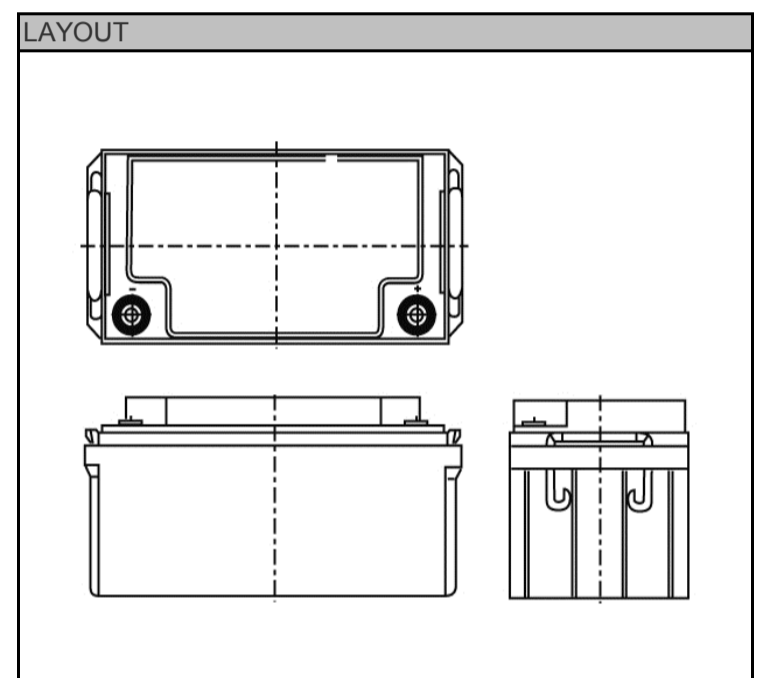


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NPL-Series - Valve Regulated Lead Acid Battery

NPL65-12I (FR)

| SPECIFICATIONS | | |
|---|---|------------|
| Nominal voltage | 12 | V |
| 20-hr rate Capacity to 10.5V at 20°C | 65 | Ah |
| 10-hr rate Capacity to 10.8V at 20°C | 57.2 | Ah |
| DIMENSIONS | | |
| Length | 350 (±0.7) | mm |
| Width | 166 (±0.5) | mm |
| Height | 174 (±0.5) | mm |
| (height over terminals) | N/A | mm |
| Mass (typical) | 23.0 | kg |
| TERMINAL TYPE | | |
| Female threaded terminal | M6 | mm |
| Torque | 4.8 | Nm |
| OPERATING TEMPERATURE RANGE | | |
| Storage (in fully charged condition) | -20°C to +50°C | |
| Charge | -15°C to +50°C | |
| Discharge | -20°C to +60°C | |
| STORAGE | | |
| Capacity loss per month at 20°C (approx) | -3 | % |
| CASE MATERIAL | | |
| Standard Option | ABS (UL.94:HB) | |
| Flame retardant option (FR) | ABS (UL94:V0) | |
| CHARGE VOLTAGE | | |
| Float charge voltage at 20°C | 13.65 (±1%) | V |
| | 2.275 (±1%) | V/cell |
| Float Charge voltage temperature correction factor (for variations from the standard 20°C) | -3 | mV/cell/°C |
| Cyclic (or Boost) charge at 20°C | 14.5 (±3%) | V |
| | 2.42 (±3%) | V/cell |
| Cyclic Charge voltage temperature correction factor (for variations from the standard 20°C) | -4 | mV/cell/°C |
| CHARGE CURRENT | | |
| Float charge current limit | No limit | A |
| Cyclic (or Boost) charge current limit | 16.25 | A |
| MAXIMUM DISCHARGE CURRENT | | |
| 1 second | 800 | A |
| 1 minute | 500 | A |
| SHORT-CIRCUIT CURRENT & INTERNAL RESISTANCE (according to EN IEC 60896-21) | | |
| Internal resistance | 10.51 | mΩ |
| Short-Circuit current | 1375 | A |
| IMPEDANCE | | |
| Measured at 1 kHz | 5 | mΩ |
| PERFORMANCE & CHARACTERISTICS | | |
| Refer to the technical manual | NPL | |
| DESIGN LIFE | | |
| EUROBAT Classification: High performance | 10 to 12 | years |
| Yuasa design life @ 20°C | up to 10 | years |
| SAFETY | | |
| Installation | Can be installed and operated in any orientation except permanently inverted | |
| Handles | Batteries must not be suspended by their handles (where fitted) | |
| Vent valves | Each cell is fitted with a low pressure release valve to allow gasses to escape and then reseal. | |
| Gas Release | VRLA Batteries release hydrogen gas which can form explosive mixtures in air. Do not place inside a sealed container | |
| Recycling | YUASA's VRLA batteries must be recycled at the end of life in accordance with local and national laws and regulations | |



This battery type must never be installed permanently suspended by their handles

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