Experience riding
with comfort and ease

Since we established our bicycle manufacturing company in 1952, we have concentrated on bicycle research, development, manufacture, and sales.

We have combined our bicycle technology with the latest electrical power technology as part of our dedication to providing a more comfortable life.

This adds an extra dimension to your experience of cycling.
Our electric drive system has reached a new stage. This new technology expands the joy of bicycle riding.

**Multi Speed Assist System**

“Multi Speed Assist Motor” is an electric motor equipped with an internal two-speed gear.

**Technology**

**Assist Motor + Two speed = Premium experience**

Even though this is an electric bicycle motor, its internal two-speed gear serves as a two-speed front gear. In combination with the rear hub gears, it offers sportier riding than ever. The gear feature also enhances the electric consumption efficiency of the motor. It can be used in a belt-driven electric bicycle.

**Electric shifting**

Riders can shift the gear using operation buttons on pedelecs.

**DUAL GEAR**

- Front mount motor unit (Inter 2)
- Voltage: 36V
- Weight: Approx. 4.8kg
- Front gear: 29T or 35T
- Shimano Di2: Correspondence

**Wide Gear Ratio**

The ratio of low gear is 1:1 and that of top gear is 1:1.415. There are two types of front gears that suit normal and speed pedelec functions.

<table>
<thead>
<tr>
<th>Gear teeth</th>
<th>Gear ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>29T</td>
<td>Low 1:1</td>
</tr>
<tr>
<td></td>
<td>Top 1:1.415</td>
</tr>
<tr>
<td>35T</td>
<td>Low 1:1</td>
</tr>
<tr>
<td></td>
<td>Top 1:1.415</td>
</tr>
</tbody>
</table>

**Correspondence with Shimano Di2**

Our new motor is compatible with Shimano Di2 (Alfine, Nexus). The pedelec system supplies power to Di2 and indicates the shifting position on a console display.

**Smooth shifting**

The motor torque is adjusted during shift change, enabling a smoother shifting operation.

**Display indication of gear position (> Page 06)**

Dealers and users are not able to install Di2 on a pedelec that not installed Di2 originally.
**36V Center Motor Unit**

A midship design which takes the motor load balance into account. A simple single gear design which looks smart and is easy to maintain.

**For comfort model**
A rear mount type for standard casual use pedelecs and speed pedelecs.

**For active model**
A slimmed-down, short-bodied front mount type, ideal for trekking or sports.

**Correspondence with Shimano Di2**
Our new motor is compatible with Shimano Di2 (Alfine, Nexus). The pedelec system supplies power to Di2 and indicates the shifting position on a console display.

*Display indication of gear position (→ Page 06)* Delears and users are not able to install Di2 on a pedelec that not installed Di2 originally.

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**36V Center Motor Unit**

A midship design which takes the motor load balance into account. A simple single gear design which looks smart and is easy to maintain.

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**Console Center LCD Type**

The console provides full control

**Center LCD console**

Small body for easy portability, large screen for easy visibility, with LCD display and operation buttons.

**Operation buttons**

New operation button
New operation button with Motor shifter
Operation button (Current)

**Display Indications**

- Battery charge level with 5-segment bar
- Light
- Micro USB connection mark
- Speed (km/h or mph)
- Assist mode
- Assist power indicator
- Indicators
- Indication of the gear position
- Diagnosis at dealers

*The designs are under developing and may change.*
This 20700 type of battery cell, which was developed for a compact design, has been installed in such an integrated design battery for the first time.

### Li-ion Battery

A lithium-ion battery for optimum output on long journeys.

Based on research to develop the optimum battery, Panasonic has been integrating lithium-ion batteries into its pedelecs since 2002. We have just launched our latest cutting-edge battery model.

**Integrated Design Battery**

A sporty design, an electric assist function and stability on the frame.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Capacity</th>
<th>Energy</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 V</td>
<td>8.8Ah</td>
<td>317Wh</td>
<td>Approx. 3.1kg</td>
</tr>
<tr>
<td>36 V</td>
<td>11Ah</td>
<td>396Wh</td>
<td>Approx. 3.9kg</td>
</tr>
<tr>
<td>36 V</td>
<td>13.5Ah</td>
<td>485Wh</td>
<td>Approx. 4.5kg</td>
</tr>
</tbody>
</table>

**Battery Charging on Vehicle**

Above charging while the battery is still attached to the pedelec. Must be used when the case of a seal.

## New Upright Type Battery

The battery technology for high capacity cells, optimum safety design, and our vast knowledge in the field of automotive have resulted in the development of a sophisticated battery for pedelec.

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Capacity</th>
<th>Energy</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 V</td>
<td>12Ah</td>
<td>432Wh</td>
<td>Approx. 3.4kg</td>
</tr>
<tr>
<td>36 V</td>
<td>15Ah</td>
<td>540Wh</td>
<td>Approx. 3.8kg</td>
</tr>
<tr>
<td>36 V</td>
<td>18Ah</td>
<td>648Wh</td>
<td>Approx. 4.4kg</td>
</tr>
</tbody>
</table>

**Battery Charging on Vehicle**

*The design is under developing and may change.

**Upright**

Easily detachable standard type.

**Rear Carrier**

Ideal for both casual use and trekking.

**Triangle**

Sporty type that attaches to the down tube.
Panasonic Premium Cycling Technology

System Strengths

Panasonic looks at the motor, controller, torque sensor, battery, and hand console as one single unit, and call this the Smart Integrated Management System. This consolidated system technology enables us to produce high-quality, high-efficiency pedelecs, giving our customers a premium cycling experience.

Motor Technology

The resin gears of the centre motor have an efficient design that achieves both high precision and high strength for extremely quiet power assistance. Combination with a torque sensor achieves more comfortable and smoother riding. The internal two-speed gear called Multi Speed Assist System is one of our technologies developed and refined through our experience.

Battery Technology

Our high-capacity cells have enabled us to produce a compact high-capacity battery. Optimum safety is achieved through our unique battery management technologies and knowhow in the field of automotive. Based on our experience relating to home appliances we have selected the cells used in each type of battery depending on the voltage and capacity.

Battery Management System

Our microcomputer and two voltage monitoring ICs have been mounted. Unit charging/discharging and temperature of cells are controlled. Also, overcharge/discharge and excessive temperature increase are prevented by communication control between the motor and the charger. Therefore, performance, safety and quality of the battery have been preserved. Moreover, a fuse has been mounted as multiplex protection.

Torque Sensor

The high-precision torque sensor is responsive to changes in pedal power when starting, climbing, and accelerating. A detector coil measures pedaling torque and sends an output power signal to the controller, allowing the level of pedaling torque to be detected without contact or energy loss.

Flame-resistant resin

Our original flame-resistant resin covers each battery cell to ensure integrity and a safe, flame-resistant Li-ion battery. This resin enables our Li-ion batteries to pass rigorous testing and operate safely.

Waterproof

To protect against water, we pack all cells and circuit boards in vinyl. (Available and suitable design for outdoor use)

Maintenance System

A simple diagnosis is available at dealers that possess a special tool.

* Enables a diagnosis by connecting a PC and a key device.
* Provides information about riding distance, battery-charging times, and error logs.
* Enables problem details to be checked.
* Consult with a manufacturer doing business with you regarding the tool.

Quality

All designed products have been tested before mass production. Panasonic has a lot of testers for ensure the product quality. We are able to test not only each devices but also finished e-bike.

Frame fatigue tester

Salt spray testing equipment

Flame-resistant resin

To protect against water, we pack all cells and circuit boards in vinyl.

(*Available and suitable design for outdoor use*)

Panasonic Premium Cycling Technology