May 2025 Technical Information

Smart Life & Ecofriendly Systems

Connective Industries

#Carbon Neutral #Circular Economy #IoT/Data Utilization #Digital Solutions #Smart Life & Ecofriendly Systems

1. Cordless Stick Vacuum Cleaner

Hitachi Global Life Solutions, Inc. has released the PV-BH900SM cyclone dust collection-type cordless stick vacuum cleaner equipped with a "three-way trash clear light" that illuminates hard-to-see dust over a wide area in front and on both sides of the head. The main features are as follows:

- (1) The newly adopted "Powerful Smart Head Plus" features the "three-way trash clear light," which uses light-emitting diode (LED) lights, including green and white, to illuminate not only the front, but also both sides, making hard-to-see dust visible over a wide area. This makes it easier to spot dust on both sides during regular floor cleaning, even when the front of the head is against a wall.
- (2) Utilizing augmented reality (AR) technology, a dedicated "AR Cleaning" app*1 has been developed for this vacuum cleaner that allows users to visualize*2 cleaned areas and paths on the floor through an attached smartphone, adding entertainment to the vacuuming experience. In addition to providing enjoyment and a sense of accomplishment while cleaning, visualizing the cleaning path helps users track where they have cleaned, thereby supporting more effective vacuuming.
- (3) With a light standard weight*3 of 1.6 kg and powerful suction, it thoroughly cleans deep into carpets.

(Hitachi Global Life Solutions, Inc.)

(Released in September 2024)

- *1 Compatible model: PV-BH900SM
- *2 This is not intended to display an exact trajectory, but is rather to be used as a reference for cleaning.
- *3 The standard mass is the total weight of the main unit, extension pipe, head, and battery, measured according to voluntary standard HD-10 of the Japan Electrical Manufacturers' Association (JEMA).

[01] Image of PV-BH900SM (satin black) (left), "Three-way Trash Clear Light" and "AR Cleaning" (right)



Image (smartphone not included)

2. Fully Automatic Washing Machine

Hitachi Global Life Solutions, Inc. has released the fully automatic washing machine, which represents an evolution of "[Long Lasting Clothes] Niagara Beat Wash" by achieving strong cleaning power with a high concentration of detergent and powerful water flow, all while minimizing fabric damage and washing quickly.

This washing machine offers the following main features:

- (1) The new "Niagara two-level shower"^{*1} feature has been added, which includes a lower shower in addition to the conventional upper shower. High-concentration detergent is sprayed onto the clothes at low water levels in order to promote penetration and further reduce uneven washing.*2
- (2) The exterior design has been completely revamped in models with washing capacities of 10 kg and 8 kg. By lowering the height of the clothing inlet^{*3} and reducing the depth of the drum, the distance from the inlet to the bottom of the drum has been decreased, making it easier to remove clothes and improving usability. This feature has earned the product the Japan Institute of Design Promotion's "2024 Good Design Award."
- (3) The operation time of the "Stylish Garment" course, which gently washes your favorite clothes, has been shortened.*3

(Hitachi Global Life Solutions, Inc.)

(Released in June 2024)

- *1 Shower output varies depending on the amount and type of clothing.
- *2 According to Hitachi Global Life Solutions' comparison with the 2023 models BW-X120J and BW-X120K, which do not feature the Niagara two-level shower. The effectiveness may vary depending on the amount of clothing, dirt, detergent, and type of course.
- *3 Comparison with 2023 models.

3. Promoting the Introduction of Mixed Plastic Sorting Equipment

Hitachi Global Life Solutions' group company Kanto Eco Recycle Co., Ltd., which handles the recycling of used home appliances, is promoting the introduction of mixed plastic*1 sorting equipment as part of its efforts to further advance recycling-based manufacturing.

The equipment consists of a flotation separator, wet pulverizer, filtration device, dehydrator, and other components. The sorting process is broadly divided into two stages. In the first stage, the flotation separator is used to float mixed plastics in water to sort plastics that sink, such as polystyrene, from those that float, such as polypropylene. In the next stage, the wet pulverizer crushes the selected polypropylene, adjusting the particle size to make it finer while also cleaning the surface to remove impurities and improve quality.

In April 2024, the recycling process for washing machines and other appliances was upgraded and by October of the same year, new equipment was also introduced to enable the separation and recovery of urethane, which is used in the insulation material of refrigerators. As a result, the production volume of recycled plastic (polypropylene) at Kanto Eco Recycle is expected to be approximately 2.8 times higher in 2024 compared to the previous year.*2

(Kanto Eco Recycle Co., Ltd.)

- *1 A mixture of various types of plastic materials.
- *2 The amount of polypropylene collected for reuse at Kanto Eco Recycling. The estimated value for fiscal year 2024 is based on the waste plastic amount from fiscal year 2023.

[02] BW-X100K Fully Automatic Washing Machine "Beat Wash" (Washing Capacity 10 kg)



[03] Mixed Plastic Sorting Equipment



4. exiida Remote Monitoring and Demand Control Solution

Hitachi has developed and begun offering the new "exiida Remote Monitoring and Demand Control Solution" as an optional service for its "exiida" air conditioning Internet of Things (IoT) solution.

exiida Remote Monitoring monitors the operating status of air conditioning equipment and promptly notifies the customer in the event of a malfunction. Since the customer can check the most recent operational data, quick repair responses are possible.

The newly developed exiida Remote Monitoring and Demand Control Solution predicts constant power consumption using artificial intelligence (AI) based on air conditioner operating information such as room temperature as well as weather data. By controlling air conditioning equipment to prevent exceeding the target demand value,* it contributes to a reduction in electricity costs for customer equipment.

[04] Image of the exiida Remote Monitoring and Demand Control Solution



In addition, the suction temperature of the indoor units is monitored to determine the indoor temperature, and the AI automatically selects which indoor units to control. By individually controlling the indoor units, power consumption of the air conditioning equipment can be reduced without significantly compromising comfort.

(Hitachi Global Life Solutions, Inc.)

(Service launched in April 2024)

* Peak power value after reduction through this service.

5. Multi-split Air Conditioning System for Buildings "FLEXMULTI"

Hitachi has adopted the low global warming potential (GWP)^{*1} refrigerant R32 for use in the high annual performance factor (APF)^{*2} "Cooling and Heating Switchable High Efficiency TG Series" premium model and the "Cooling and Heating Switchable High Efficiency TS Series" space-saving model of the multi-split air conditioning system for buildings "FLEXMULTI." Hitachi has also adopted R32 for use in the "Cooling and Heating Switchable High Efficiency TZ Series" of made-to-order models designed for net zero energy building (ZEB) needs with a high coefficient of performance (COP). This product series not only adopts a low-GWP refrigerant, but it also offers energy efficiency, thereby contributing to the promotion of carbon neutrality.

(1) Adoption of R32 Low-GWP Refrigerant

The GWP of refrigerant R32 is approximately one-third that of conventional refrigerant R410A.*3 Its lower charge amount when compared to R410A also helps to mitigate global warming.

(2) Improved Energy Efficiency

This product has improved both AFP and COP compared to previous models. In addition, the high-COP model (high-efficiency TZ series), which is designed to meet demand for ZEB, is now available in a full lineup ranging from 224 to 1000 models. This extensive product range contributes to energy savings in building air conditioning.

[Hitachi Global Life Solutions, Inc. (Sales), Johnson Controls-Hitachi Air Conditioning (Manufacturing)]

(Released in June 2024)

- *1 A numerical representation of the impact on global warming. A higher value indicates a greater impact on global warming.
- *2 A numerical value representing the cooling and heating capacity per 1 kWh of power consumption when an air conditioner operates under specific conditions. A higher APF value indicates better energy efficiency.
- *3 IPCC Fourth Assessment Report, Global Warming Potential (GWP) 100-year value. A comparison of the Global Warming Potential of 2090 for HFC-410A and 675 for HFC-32.

[05] FLEXMULTI Outdoor Unit (left), Comparison of Refrigerants R32 and R410A (right)



*Comparison based on the refrigerant charge of Hitachi Global Life Solutions' 208 model in the "FLEXMULTI High-Efficiency TG Series."

6. Package Air Conditioner Indoor Unit for Beltless Facilities

Hitachi has developed a package air conditioner indoor unit for facilities that adopts a beltless (direct drive) system, featuring a configuration where the fan and fan motor are directly connected. Since it does not use belts, which require regular replacement, the system offers excellent maintainability. Also, there is no need to adjust pulleys and belts during trial operation, which reduces the amount of work required. In addition, the fan speed can be adjusted from the control panel to match the air volume and static pressure, improving work efficiency on-site. This system meets the needs for the air conditioning of wide spaces through ducts, such as in factories, banks, drugstores, and department stores.

Additionally, the adoption of direct current (DC) fan motors enables the achievement of high energy efficiency. The 8-horsepower and 10-horsepower equivalent models meet the 2015 standards of the Energy Conservation Act*1 and the 2020 criteria of the Act on Promoting Green Procurement.*2 The control panel uses a multifunctional remote that allows for easy operation while enabling various energy-saving settings.

[Hitachi Global Life Solutions, Inc. (Sales), Johnson Controls-Hitachi Air Conditioning (Manufacturing)]

(Released in April 2024)

*1 Act on Rationalization of Energy Use and Shift to Non-fossil Energy.

*2 Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities.

7. Refrigerator with "Refrigerator Camera" Feature "Middle Freezer GXCC Type"

Hitachi Global Life Solutions, Inc. has released the R-GXCC67V "Middle Freezer GXCC Type" large-capacity refrigerator (with a rated capacity of 670 L), featuring a "refrigerator camera"*1 that now allows users to check not only the refrigerator compartment (shelves and side door pockets), but also the food in the lower freezer compartment and vegetable compartment via smartphone.

[06] RP-AP224CD Indoor Unit (left) and RAS-AP280CHV1 Outdoor Unit (right)



The main features are as follows:

- (1) A camera installed at the top of the refrigerator compartment automatically captures the interior when the door is opened, and the images can be checked through the "Hitachi Refrigerator Concierge App." This helps reduce forgotten purchases or double purchases of already bought ingredients, thereby supporting daily food management.
- (2) The freezer features the "Rakuuma Hiro in Freezer" design that allows for easy and tasty storage, offering a spacious and easy-to-organize layout. The refrigerator section uses "Marugoto Chilled" technology, which maintains freshness by cooling the entire shelf area to around 2°C with moist cold air. %2)
- (3) This refrigerator offers a large, rated capacity of 670 L and a slim depth of 65.4 cm. Additionally, the independent cooling system for the refrigerator compartment enhances energy efficiency. This system features two cooling units and fans—one dedicated to the refrigerator compartment and another for the freezer and vegetable compartments. Isolating the refrigerator compartment makes it possible to operate the dedicated cooling unit at a higher temperature, thereby reducing energy consumption.

(Hitachi Global Life Solutions, Inc.)

(Released in February 2024)

- *1 Depending on where food is stored, some areas may not be recorded by the camera.
- *2 The door pockets are not included in the "Marugoto Chilled" feature.

[07] R-GXCC67V "Middle Freezer GXCC Type" Large-capacity Refrigerator Equipped with "Refrigerator Camera"







Using the "refrigerator camera"

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