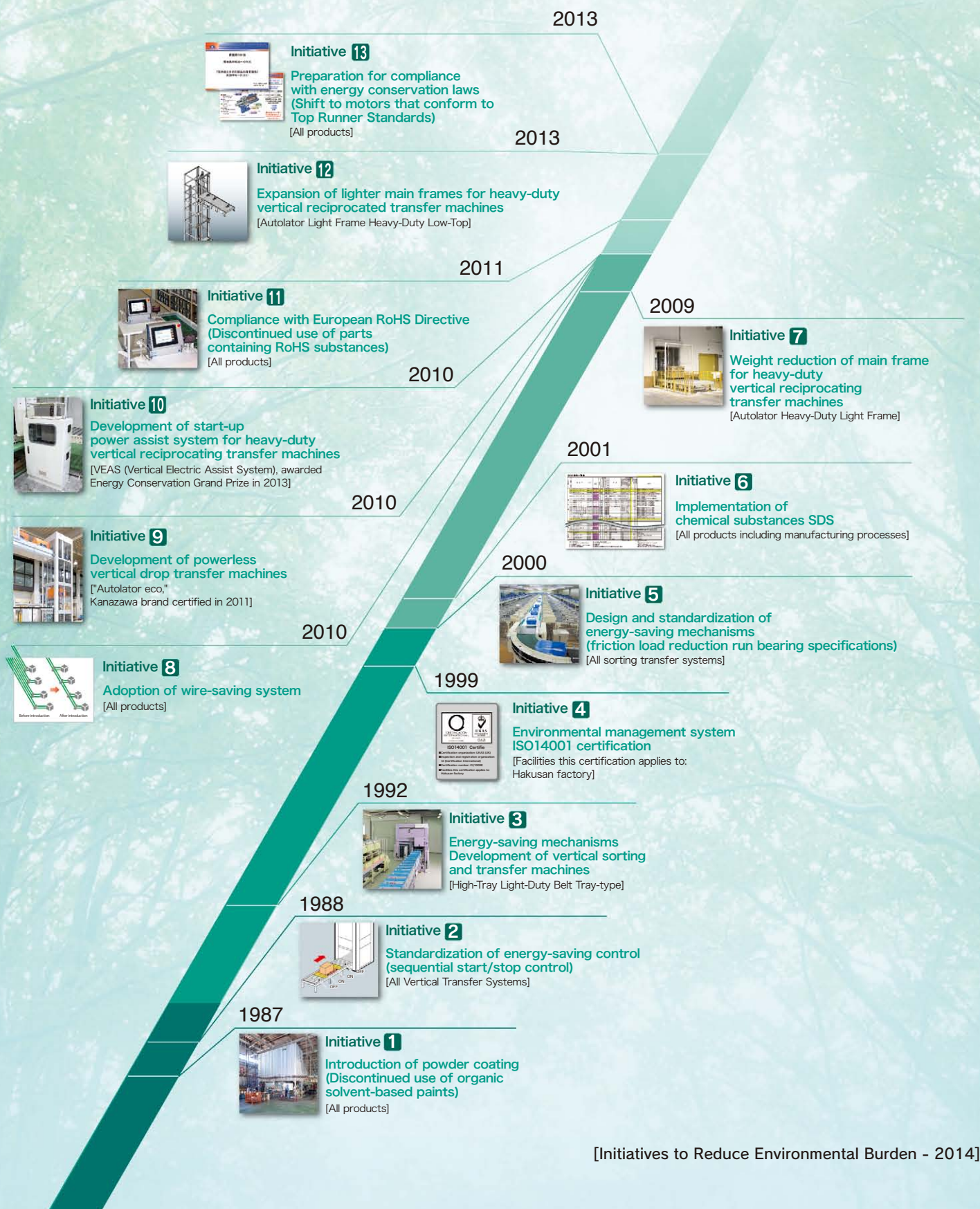


HOKUSHO

"Environmentally Conscious Products" Report

HOKUSHO proactively engages in a range of initiatives to improve environmental performance, which is reflected in our products.




HOKUSHO "Environmentally Conscious Products" Report

Initiative 1
1987 **Introduction of powder coating (Discontinued use of organic solvent-based paints)**

[All products]

In order to improve the paint quality of our products, we have introduced powder coating, which has excellent durability, corrosion resistance, chemical resistance, etc., and discontinued the use of organic solvent-based paints which contain toxic substances.

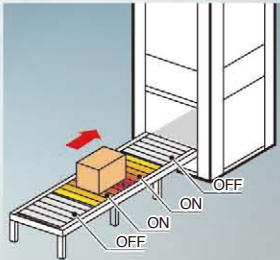
Since powdered paints do not use organic solvents/VOC (volatile organic compounds), problems such as poisoning, foul odors, and air pollution will not occur. In addition, powder coating can be recovered and re-used, so it contributes to saving resources. (Applies to equipment at the Hakusan factory)



Initiative 2
1988 **Standardization of energy-saving control (sequential start/stop control)**

[All Vertical Transfer Systems]

In order to reduce the amount of electricity used by vertical transfer systems, energy-saving control (sequential start/stop control) has been standardized. By standardizing energy-saving control so that conveyors detect transferable objects and sequentially start and stop automatically after confirming passage, more energy is saved and CO2 is also reduced.




Energy-saving control concept

Initiative 3
1992 **Energy-saving mechanisms Development of vertical sorting and transfer machines**

[Vertical sorting and transfer machine "High-Tray Light-Duty Belt Tray-type"]

We have developed the lightweight object-compatible and energy-saving "High-Tray Light-Duty Belt Tray-type" vertical sorting and transfer machine, which sorts and transfers objects by floor while multiple trays (cargo platforms) circulate vertically.

We have also invented an energy-saving mechanism designed so that the power rotating the belt of the belt tray is supplied mechanically, rendering motors for trays unnecessary, which contributes to power-saving and CO2 reduction. (Currently on display in the Head Office "SE Hall")



Initiative 4
1999 **Environmental management system ISO14001 certification**

(Facilities this certification applies to: Hakusan factory)

The Hakusan factory, our main production facility that manufactures and supplies parts for all of our products, has received environmental management system ISO14001 certification.

We engage in a range of initiatives (pollution control, waste reduction, saving resources, energy-saving, etc.) to accurately grasp the demands our products, services, and business activities place on the environment and to care for the environment as much as economically and technologically feasible.




Initiative 5
2000 **Design and standardization of energy-saving mechanisms (friction load reduction run bearing specifications)**

[All sorting transfer systems]

In order to improve the performance of our sorting transfer systems (sorting aspect), an energy-saving mechanism (friction load reduction run bearing specifications) has been designed and standardized.

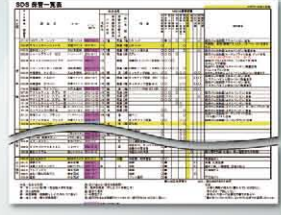
By designing the mechanism so that the sliding parts of the sorter run chain and rail are equipped with run bearings, friction load is greatly reduced to result in an approximate 30% reduction in energy consumption and CO2 output (compared to older HOKUSHO models).



Initiative 6
2001 **Implementation of chemical substances SDS (Safety Data Sheet) submissions**

[All products including manufacturing processes]

In compliance with the Law concerning Pollutant Release and Transfer Register based on the SDS system, SDS are submitted according to the needs of the customer (receiver of products). SDS of chemical substances (paints, oils, etc.) used in manufacturing processes or products are obtained from the manufacturer and stored in a database.




SDS storage list

Initiative 7
2009 **Weight reduction of main frame for heavy-duty vertical reciprocating transfer machines**

[Vertical reciprocating transfer machine "Autolator Heavy-Duty Light Frame"]

Initiatives were enacted to reduce the main frame weight of the Autolator series of heavy cargo/multi-floor compatible vertical reciprocating transfer machines, and the "Autolator Heavy-Duty Light Frame" was developed.

By using compound bends in column frames and Gussett plates on the connecting parts, about a 15% reduction in weight (compared to older HOKUSHO models) was achieved while maintaining strength and assembly accuracy. This reduces the energy used in transport, and contributes to saving resources and energy. (Currently on display in the Head Office "SE Hall")

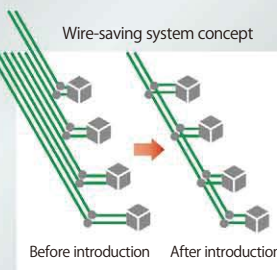


Initiative 8
2010 **Adoption of wire-saving system**

[All products]

A wire-saving system has been adopted in which wiring from power supply units and various detectors and indicators to control devices is reduced.

With only two core cables, work equivalent to multiple parallel wires can still be performed, and about a 30% reduction in wiring is achieved. This reduction in electrical materials contributes to saving resources.




Wire-saving system concept

Initiative 9
2010 **Development of powerless vertical drop transfer machines**

[Powerless vertical drop transfer machine "Autolator eco"]

We have developed the "Autolator eco," a lightweight product in the "Autolator" series of energy-saving vertical reciprocating transfer machines, which transport objects using vertically circulating cargo platforms.

A design was achieved by which the weight (potential energy) of the transferable object is used to vertically drop transfer it without using a motor (electrical energy), resulting in an approximate 80% reduction in energy consumption and CO2 output as compared to using a motor. (Currently on display in the Head Office "SE Hall")




Kanazawa brand certified in 2011

Initiative 10
2010 **Development of start-up power assist system for heavy-duty vertical reciprocating transfer machines**

[Start-up power assist system "VEAS (Vertical Electric Assist System)" with built-in capacitor]

We have developed the "VEAS (Vertical Electric Assist System)," a start-up power assist system (with built-in capacitor) meant as an optional energy-saving control device to be installed in our "Autolator" heavy-duty vertical reciprocating transfer machines, which transport objects using vertically circulating cargo platforms.

By introducing rapid charge-and-discharge technology, the equipment's energy consumption can be reduced by as much as 40%, as well as a reduction in electrical materials. In addition, by reusing regenerative electric power, energy consumption and CO2 output can be reduced by as much as 25%. (Currently on display in Head Office "SE Hall")



Patent acquired

Fiscal Year 2012 Energy Conservation Grand Prize (Product and Business Model Division) Sponsor: The Energy Conservation Center, Japan

Initiative 11
2011 **Compliance with European RoHS Directive (Discontinued use of parts containing RoHS substances)**

[All products]

In compliance with Europe's "restriction of the use of certain hazardous substances in electrical and electronic equipment (European RoHS Directive)," their restricted usage in products is noted and a shift to using parts that do not contain RoHS substances has been made.

By adopting parts that do not contain substances harmful to the environment (cadmium, mercury, lead, hexavalent chromium, etc.), our products meet the European environmental regulations.

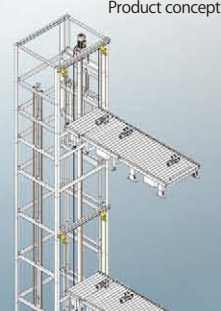


Initiative 12
2013 **Expansion of lighter main frames for heavy-duty vertical reciprocated transfer machines**

[Autolator Heavy-Duty Light Frame Low Design]

The lighter heavy-duty Autolator frame (Light Frame) which was produced in 2009, was also developed into the "Autolator Heavy-Duty Light Frame Low-Top" to handle low ceilings. Our line of lighter models has thus expanded to meet a range of needs.

By using compound bends in column frames and Gussett plates on the connecting parts, about a 15% reduction in weight (compared to older HOKUSHO models) was achieved while maintaining strength and assembly accuracy. This reduces the energy used in transport, and contributes to saving resources and energy.




Product concept

Initiative 13
2013 **Preparation for compliance with energy conservation laws (Shift to motors that conform to Top Runner Standards)**

[All products]

In compliance with the Act on the Rational Use of Energy (Energy Conservation Act), we have conducted a survey into industrial motors due to be designated as Top Runner standard specified equipment, and preparations have begun in order to shift to high-efficiency motors (Top Runner motors).



High-efficiency motor survey report





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International Standards Certifications

We are committed to doing our absolute best to achieve consistent product quality, to protect the environment, and to build a safer, better working environment.



ISO9001 Certification Awarded

As part of our efforts to improve the product quality of our vertical transfer systems, we obtained ISO9001 certification in June of 1997 for the product quality management system we apply to vertical transfer systems (vertical continuous transfer machines, vertical reciprocating transfer machines). The certification encompasses everything from design and manufacture to installation and maintenance services. We are constantly engaged in reform initiatives with the goals of achieving high product quality and improving safety and reliability.

- Certification organization: UKAS (UK)
- Inspection and registration organization: CI (Certification International)
- Certification number: CI/1034
- Facilities this certification applies to:
 - Hakusan factory -Hokuriku branch



ISO14001 Certification Awarded

Obtaining ISO4001 certification for our environmental management systems in July 1999 was one of the measures we take toward global environmental issues. We engage in a range of initiatives to accurately grasp the demands our products, services, and business activities place on the environment and to care for the environment as much as economically and technologically feasible. We not only do our part to prevent pollution and reduce waste material, but are also constantly looking for areas to reform in order to conserve energy and resources.

- Certification organization: UKAS (UK)
- Inspection and registration organization: CI (Certification International)
- Certification number: CI/1003E
- Facilities this certification applies to:
 - Hakusan factory



ISO18001 Certification Awarded

As a means of improving the safety and sanitation of working conditions, our company obtained OHSAS18001 certification in July 2009 for our labor safety and sanitation management systems. We also carry out various initiatives to prevent accidents at the product design, manufacture, installation, and maintenance service stages. We not only attempt to eliminate accidents in the workplace, but are also constantly active in working toward safer, more pleasant work environments.

- Certification organization: UKAS (UK)
- Inspection and registration organization: CI (Certification International)
- Certification number: CI/1034HS
- Facilities this certification applies to:
 - Headquarters (Hokuriku branch)
 - Hakusan factory -Tokyo branch
 - Osaka branch -Nagoya branch



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