




Location	Wuhan, China	
Site area	80,596 m ²	
Established	2003 年 00 月	
Employees	728 人	
Main products	water cooled centrifugal chiller, water cooled screw chiller, refrigeration units	
ISO 9001 certified	May 2003	
ISO 14001 certified	May 2004	
OHSAS 18001 certified	July 2006	
Green Heart Factory certified	Month 2014 rank:	

Environment: Efforts to Reduce Environmental Impact

■ Replacement and improvement of roller table equipment

The old 3-meter roller table had a power of 33.5 kW and the old 4-meter roller table had 53.5 kW. Their average daily operating time was 20 hours.

After they were replaced with new roller tables, their operating efficiency improved and their average daily operating time was reduced to 12 hours. In addition, the adoption of motors with higher energy efficiency reduced the power of the new 3-meter roller table to 11 kW and that of the new 4-meter roller table to 18.5 kW. As a result, the annual electricity consumption was reduced by approximately 350,000 kWh.



■ Improvement of the flat panel cleaning system by non-heated cleaning

The existing flat panel cleaning system had to be cleaned using a cleaning agent on its tube plates at a high temperature and the power for heating was 108 kW. After changing the composition and concentration of the cleaning agent, the tube plates of the flat panel cleaning system now can be cleaned at room temperature, reducing annual electricity consumption by approximately 100,000 kWh.



Environment: Activities to Protect Biodiversity



Every year, we appoint persons in charge with the maintenance of planting.



Environment: Environmental Communication Examples



In July 2019, we provided our employees with a training on the ISO14001 Environmental Management System. In this training, an explanation was given on how to identify environmental factors in trainees' departments and the requirements related to environmental system based on our actual environmental situation. This clarified the responsibilities of each department involved in Environmental Management System for environment control.

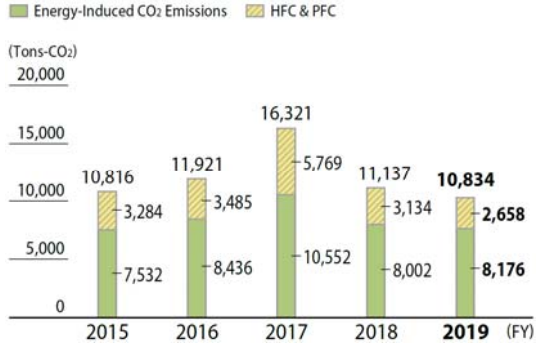


In October 2019, we provided our employees with a training on special equipment. The training explained them of the basic structure, principles and safety precautions for use of lifting equipment and lifting accessories.

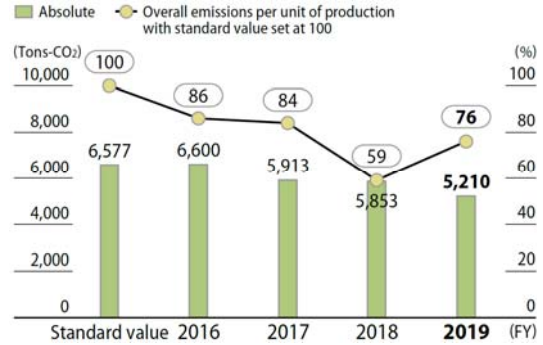


Environment: Environmental Performance Data

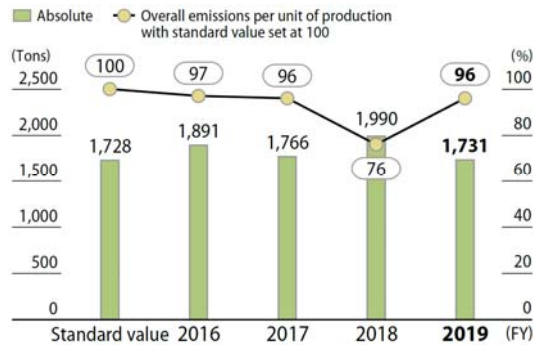
Greenhouse gas emissions



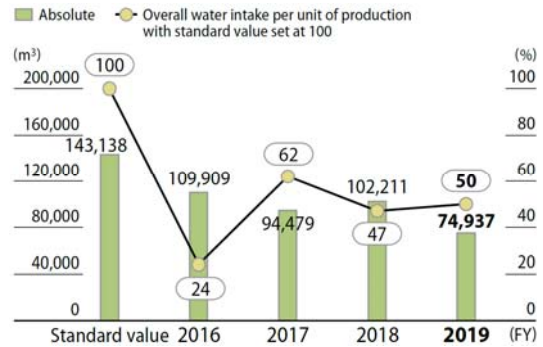
Energy-induced CO₂



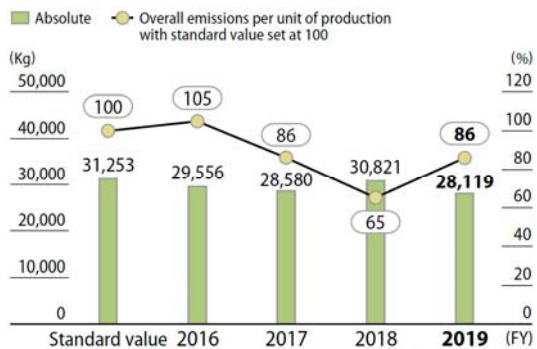
Waste (Including valuable materials)



Water intake



VOC emissions



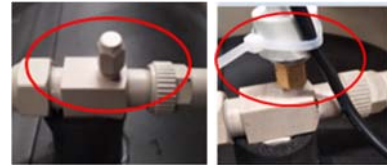
Customers Satisfaction: Efforts to Improve Product Quality

■ QCC improvement for linear seals

In 2019, the plant actively promoted the QCC improvement activity. In this activity, employees from Production Engineering, Production, and Quality Assurance Dept. participated in the Linear Seal QCC Improvement Group, analyzed the cause of the leak from linear seal, and identified the following main causes:

[1] The oil-based paint on the copper cap was too thick to allow the torque wrench to fit.

[2] The supplier's recommended values were not calculated using the factory torque values. The improvement team has developed and implemented an elaborate improvement strategy and has continuously worked on it. As a result, they successfully lowered the failure rate to the target QCC improvement value of 1.94% or less for seven consecutive months from its original rate of 3.87%. Leakage of CFCs from the equipment decreased.



■ Improvement of inspection for leak caused by thermal shrinkage in finished products

To effectively eliminate quality problems caused by leak of CFCs from products occurring at user site, we prevented such leakage at its source. In 2019, we improved leak test of finished products that would be conducted before their shipment. The Final Inspection Team of the Quality Assurance Department performed a post-heat-shrink leak test on products before their shipment and conducted a meta-analysis of the leak problem in finished products to track issues in their manufacturing process. They also asked the responsible department to provide corrective and preventive measures. As a result of continuous improvement made by the department, the outflow of products with CFCs leakage into the market has been effectively reduced. After the heat shrinkage was implemented on each entire finished product, the leakage rate of product in the market has decreased by 61.3% from the same period of the previous year, showing a significant reduction in the leakage of CFCs.



Customers Satisfaction: System to Reflect Customer Needs

■ Design improvement of large electronic expansion valves for machinery

Large electronic expansion valve WG00018902-7 for machinery was poorly designed and its failure rate was at a high level since it was applied in the market in 2014. To overcome this challenge, our engineers studied relevant standards and applied industry-specific know-hows to make drastic optimizations to the valve's critical drive structures.

In addition, they conducted numerous experiments and tests to check the effectiveness of our improvement measures and eliminate the potential quality risks that we had for many years. This design improvement has been recognized by our customers and consequently has highlighted the Wuhan Plant's unique quality analysis and R&D capabilities.

We have also fundamentally solved these problems occurring in the market and improved customer satisfaction.



Human Resources: Training for Employees

■ Training for control of chemical substances provided for staff members involved in their storage and use

Description of the training:
classification of hazardous chemicals and damages caused by them; purchase, warehousing, and use of chemicals; requirements for EHS used; requirements concerning MSDS of chemicals; first aid measures related to chemicals



Human Resources: Promoting Diversity

■

As of December 31, 2019, McQuay China (Wuhan) Plant has 728 employees. The number of female employees is 118, accounting for 16.21% of the whole. The number of employees without Chinese nationality is 1, accounting for 0.14% of the whole. The number of employees from ethnic minorities is 9, accounting for 1.24% of the whole. No disabled person is working for them.

Human Resources: Efforts to Occupational Safety and Health

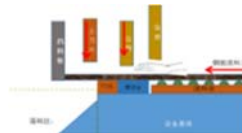
■ Improvement of the safety of shearing machine

Before improvement:

[1] Since a single foot switch was used when working with the shear machine, there was a risk of operator's hand being pinched and injured when he/she shears small pieces of material.

[2] No redundant protective devices were used when performing shear work on the shearing machine.

[3] Operators who would enter the blanking area while the shear machine was running were at risk of injury due to collision with a fallen object.



After improvement:

[1] A photoelectric switch was added to the shearing machine so that the system automatically switches to two-hand operating mode when an operator enters the shearing area for small pieces of material. Since operators have to use both of their hands to push the buttons at the same time, injury to their hands due to mistake will be prevented. We have also added a daily inspection sheet for safety devices.

[2] A light curtain was added to the tip of the metal holder of the shear machine to protect against crushing injuries caused by entanglement of a hand into the machine.

[3] A light curtain was added to prevent someone from entering the blanking area while shearing.



■ Improvement in the installation of butterfly valve

Initially, welding was performed using a real butterfly valve when the exhaust pipe was installed. Since the weight of the butterfly valve was 26 kg, that could cause injury if it would fall. The current light-weight tool of 4.5 kg is easier to operate and the risk of injury caused by its falling has been reduced.



Communities: Environmental Protection Activities



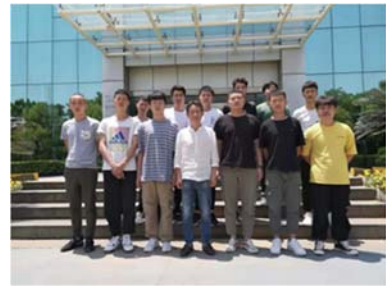
In June 2019, we held a hiking event to raise awareness of the environment.



Communities: Support for Educational Activities



On June 12, 2019, students from Hunan Industrial Technician College majoring in welding visited us for hands-on training on site.



On September 4, 2019, students from Huazhong University of Science and Technology majoring in architecture, environment, and energy application engineering visited us for hands-on training.



Communities: Other Regional Activities



After obtaining approval from the group, we solicited donations from the three plants including McQuay. For the control of the new coronavirus pneumonia (NCP), Wuhan Plant donated 300,000 RMB (100,000 RMB from each plant) at once to Wuhan Charity Federation.

External Evaluation: Awards

■ Certificate of High-tech Company

Host Organization:
Hubei Provincial Science & Technology Department
Recipient:
McQuay air conditioning refrigeration (Wuhan) co.,Ltd.



■ Certificate of AAA-grade Corporate Credit Rating

Host Organization:
Wuhan Corporate Credit Management
Service Center
Recipient:
McQuay air conditioning refrigeration (Wuhan) co.,Ltd.



■ Certificate of Green Building and Recommended Energy-saving Product

Host Organization:
China Association for Engineering Construction
Standardization
Recipient:
McQuay air conditioning refrigeration (Wuhan) co.,Ltd.



■ Certificate of Environment Label Product

Host Organization:
China Environmental United (Beijing)
Certification Center Co., Ltd
Recipient:
McQuay air conditioning refrigeration (Wuhan) co.,Ltd.



■ Certificate of AAA-grade Corporate Credit Rating

Host Organization:
China Refrigeration and Air-conditioning Industry Association
Recipient:
McQuay air conditioning refrigeration (Wuhan) co.,Ltd.

