

Location	Longgang District, Shenzhen	
Site area	100,000m ²	
Established	August 1992	
Employees	1,565 (as of March 2021)	
Main products	High efficiency air-cooled screw water chiller (heat pump / heat recovery) unit, air-cooled screw water chiller (heat pump / heat recovery) unit, modular variable frequency air-cooled heat pump unit, modular air-cooled water (heat pump) unit, small air-cooled water heat pump unit, water-cooled vortex water chiller, advanced purified air treatment unit, combined air conditioning unit, small clean central air conditioning unit, cabinet air conditioning unit, total heat recovery fresh fan unit, fan coil unit, concealed ceiling split air conditioner, ceiling embedded split air conditioner, roof air conditioning unit, air-cooled air/heat pump type high static pressure pipe air conditioner, open suspended ceiling type split air conditioner, wate0072 cooler, water heat pump unit, split water source heat pump unit, modular water cooler, integrated water source heat pump unit, modular air source heat pump water heater, multi-unit, refrigeration, magnetic suspension, etc.	
Certified	ISO 9001	February 1996
	ISO 14001	March 2004
	ISO 45001 (OHSAS 18001)	March 2021 (April 2010)
	Green Heart Factory	November 2019 Rank: Silver

Environment: Reducing Environmental Impacts

■ Reducing the amount of chemicals used and waste disposal by eliminating copper pipe cleaning

Before:

As there are impurities such as grease and scraps in copper pipes upon delivery and after processing, the copper pipes needed to be cleaned using a washer, which resulted in disposal of detergent waste (hazardous waste materials).



After:

Through measures such as reducing the amount of grease applied, air blowing, and degreasing using a drying furnace, the impurities and grease can now be removed even without the use of a washer or detergent.

Effects:

- a. Reduced amount of detergent used by 30 tons/year
- b. Reduced disposal of detergent by 3.6 tons/year

■ Energy saving using linked control of air compressor

Before:

The air compressor was run on a single machine with the pressure range unable to be adjusted, resulting in either waste of energy when the pressure was too high, or impacts on the production when the pressure was too low. In addition, the compressor could not be restarted once stopped as the need arose. The outlet pressure is set at around 0.61 MPa with some energy waste.



After:

The air compressor linked control system was added with the outlet pressure set at 0.58 MPa. The air compressor can be automatically loaded and unloaded based on the tank pressure (the side using the air). The pressure range of the air compressor was standardized, the start and stop of air compressor as needed is made possible, and the operating consumption of each machine was made uniform depending on the condition of the air compressor, which makes energy saving possible.

Effects:

- Reduced electricity consumption of the air compressor by approximately 220,000 kWh/year

Environment: Protecting Biodiversity

■ Construction of sponge city

In FY2019, McQuay built a new green botanical garden with rainwater storage function within its plant to improve drainage and maintain biodiversity through sponge facilities such as greenspaces and pools.



■ Tree planting

In March 2020, the Environmental Management Committee held a tree planting event under the slogan "McQuay will continue to protect the environment together." A total of 188 fukien tea and golden leaf trees were planted on the premises of the plant.



Environment: Environmental Communication

■ Environment month

In June 2020, we conducted Environment Month activities under the theme of "caring for the environment starting with basic laws." During the month, we held events such as a Q&A contest on environmental knowledge, promoted basic laws, shared videos on environmental energy conservation, and conducted environmental emergency KYT.



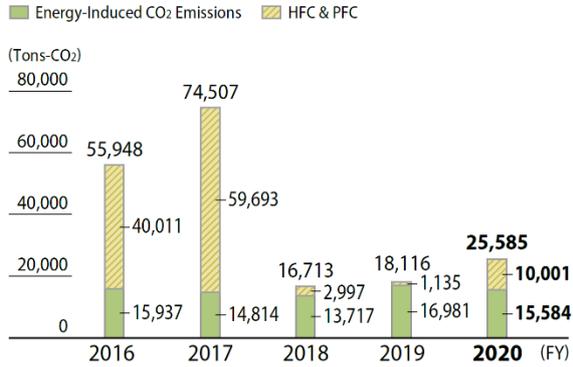
■ Training on Law on Prevention and Control of Environmental Pollution by Solid Waste

In September 2020, we conducted internal training on prevention and control of environmental pollution caused by solid waste over two separate sessions. Fourteen managers took part in session one and 36 staff relevant to the Environmental Committee participated in session two. The sessions covered updates of the Law on Prevention and Control of Environmental Pollution by Solid Waste and the government's requirements based on the law.

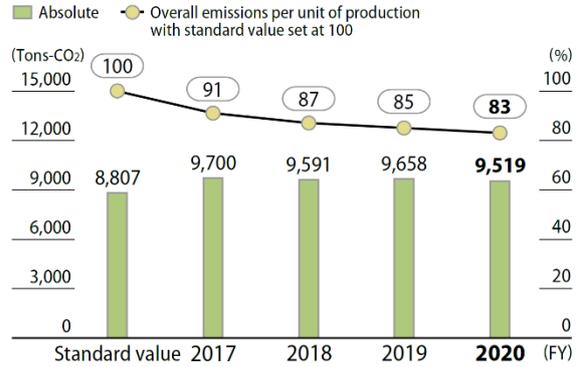


Environment: Environmental Performance Data

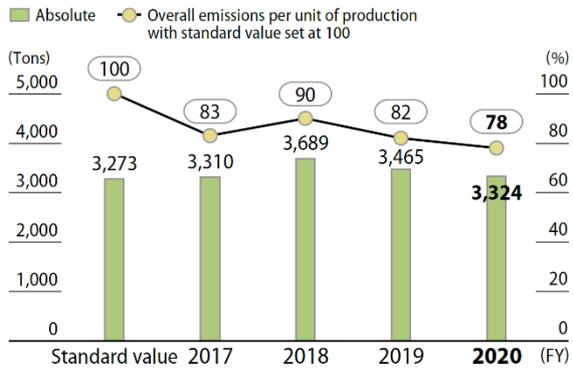
Greenhouse gas emissions



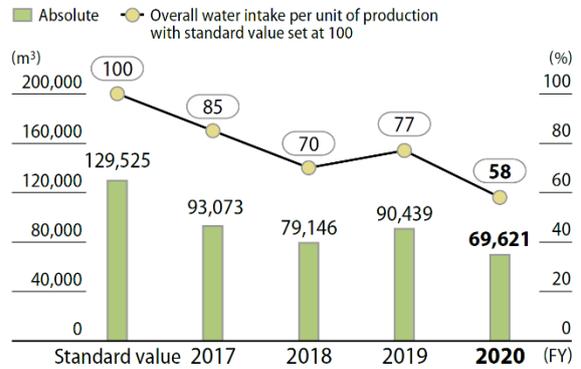
Energy-induced CO₂



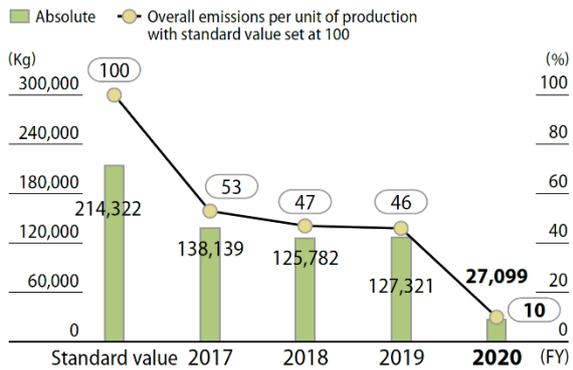
Waste (Including valuable materials)



Water intake



VOC emissions



Customer Satisfaction: Improving Product Quality

■ Production quality activity: QCC improvement

In FY2020, we announced 94 QCC improvement tasks within the company involving 23 production lines. We compiled 170 copies of standardization documents, added 75 incidents of mistake-dodging, and saved 411,716 minutes in work time loss a year, as well achieved reduction in waste and costs by approximately 852,101 renminbi.



■ Production site quality activity: zero deficiency challenge

In FY2020, we conducted a zero-deficiency challenge on the production line involving 41 items, with 94 copies of standardization documents compiled. All told, we saved 26,572 minutes in manual re-adjustment a year.



Customer Satisfaction: System to Reflect Customer Needs

■ Development of a temperature control device for grains and noodles

As China has started paying closer attention to food safety, the current trend for grain storage is to store at low temperature, lowering the temperature of grains in storage using a refrigeration system and ensuring the average temperature is kept at 18°C or below.

Through comprehensive exchange with experts from the Sichuan Food Design Institute and industry workers, we have come to understand that conventional air conditioning does not meet the needs of low temperature storage of grains with the following primary issues:

1. Lack of countermeasures to prevent corrosion from hydrogen phosphide;
2. Short ventilation distance;
3. Risk of water leaks in separator structure not suitable for use in grain silos; and
4. The problem of high electricity consumption by the unit and short service life made it difficult to satisfy the usage needs of customers or project tender requirements.

In order to meet the low temperature storage needs for grains, SZMQ has developed a new integrated-structure grains and noodles temperature control device, with electrophoretic anticorrosion treatment on the evaporating side, R410A inverter compressor, and a high static pressure blower, which fully addresses various issues of refrigeration systems in grain storage. This product has received unanimous approval from the design institute and users.



■ Brand new integrated all inverter water source heat pump

Since we started supplying dual-purpose products on the market, the combined growth rate in the most recent three years has reached close to 42.8%, while a supply boom has begun in eastern and northern China. Through communicating with our essential trading companies on product information, we understood two major demands for geothermal heat pumps.



1. Users want a more intelligent user experience with energy-saving products. There was a lot of user feedback on issues such as high electrical energy consumption, big vibration in water temperature, loud noise, and operating and control delays. This indicated the current inverter and separated type of geothermal heat pump are not meeting user needs.
2. Companies that specialize in geothermal heat pumps expect to increase their profits by developing differentiated products. However, the trading companies are looking for the development of products compatible with green technology residences--a concept of high-end system that utilizes proprietary technological advantages. As non-inverter products cannot access integrated control and intelligent homes, and are delayed by the dual-purpose in current housing, competitiveness cannot be realized.

In order to supplement the deficiencies of conventional geothermal heat pumps, we developed a new inverter type geothermal heat pump in 2020. It is called the geothermal A+ GEO Series heat pump, which provides a smart experience in tune with the times, and further enhances SZMQ's position in the dual-effect products market.

The new product has the following distinctive features:

1. The compressor and water pumps on both sides use an inverter design, which saves energy and reduces water temperature fluctuation.
2. Tidy and convenient installation with the water system including water pump, and expansion tank centralized within the unit interior.
3. Improved user experience with capability of both unit and interior unit integrated control, smart home system and accessibility using smartphone app.

Human Resources: Training for Employees

■ Employee training

To improve the comprehensive skills of our employees, during FY2020 we held TPM comprehensive facility maintenance training, AEO & system training, special procedures and equipment operations certification training, service training education, and McDonald training.



Human Resources: Promoting Diversity

■ Coaching for improvements

We invited two technical advisors from DIL to provide coaching for improvements.

1. Hisanori Nishino, Advisor,
Product Engineering Department



2. Toshikazu Ohno, Advisor,
Quality Control Department



Human Resources: Occupational Safety and Health

■ Reducing processes the pose a risk to occupational health

The P board line of production division number three mainly manufactures controllers, thermostats, and other products. The manufacturing process requires application of varnish, which is a liquid chemical containing benzene that is toxic and volatile. Direct skin contact or inhalation of the volatile gas poses health risks to the operator. As such an automated system was introduced to replace the manual operation and eliminate contact with varnish, thereby reducing higher risk processes and ensuring occupational health and safety.

Before



After



Communities: Environmental Protection

■ Outdoor group running

In August 2020, the ME Training Team held an outdoor group running program. The program aimed to promote the ideas of green travel, energy consumption and emissions reduction among employees.



Communities: Support for Education

■ Family eco-craft contest

In June 2020, the Environmental Management Committee hosted the family creative eco-craft contest. This event combined environmental initiatives with family fun by inviting employees to work with their children on creating crafts using recycled items, in order to cultivate environmental awareness and creativity in the future generation.



Communities: Other Local Activities

■ World Car Free Day

In September 2020, the Environmental Management Committee held an event in conjunction with World Car Free Day. Employees were encouraged to use low-carbon modes of transport to commute to work, such as walk or use public transportation, instead of driving their own car. A total of 121 employees participated in this event. As a result, 0.434 tons of CO₂ was reduced.



■ Volunteer activity

We provided traffic control assistance during school hours in support of students.



