# Initiatives for Reducing Impacts on the Environment

## Basic Approach

Plant effluents and emissions can be a source of water, air, and soil pollution that poses a threat to local communities. At the Minebea Group, we believe that harmony with local communities is indispensable to our business activities, and as such, we are striving to reduce our impact on the environment.

## Results of FY2015 Initiatives

The Minebea Group ensures compliance with the environmental laws and regulations of each country and locality. For plant wastewater and other types of waste that are hard to manage, we have established voluntary environmental standards exceeding the national and local regulations and monitor waste management on a daily basis. In FY2015, at all of our Group plants, we further strengthened daily monitoring and environmental patrols to ensure there are no leakages, foul odors, noise, vibration or other issues that could inconvenience surrounding communities.

## Plant Initiatives

### Plant Wastewater Purification

Prior to releasing wastewater into rivers, Minebea Group plants use their own processing equipment to purify wastewater to within fixed environmental standards. These plants adhere to environmental laws of the countries and localities in which they operate, and independently monitor such wastewater discharges, including regular testing for such metrics as pH[1], COD[2], BOD[3], SS[4], and the oil content of n-hexane extracts[5].

1. pH: A scale indicating whether substances are acidic or alkaline. pH7 is neutral. pH values below 7 indicate increasing acidity, while values above 7 indicate increasing alkalinity.
2. COD (chemical oxygen demand): The amount of oxygen consumed to oxidize organic substances (pollution) in water. COD measurement takes less time than BOD measurement, but is less reliable. COD is generally used as a metric in wastewater management for sea, lake, and marsh waters.
3. BOD (biological oxygen demand): The amount of oxygen required for bacteria to consume and decompose organic matter (pollution) in water. Higher values indicate greater degrees of pollution.
4. SS (suspended solids): The volume of substances suspended in water. The higher the number, the greater the degree of water pollution.
5. n-hexane extracts: Substances extracted from oils and detergents that are difficult to volatilize in water using a substance called n-hexane as solvent. In this report they signify mineral oils.

Fujisawa Plant's wastewater processing facility

### Bang Pa-in Plant Wins Award for Excellence in Water Quality Conservation (Thailand)

NMB-Minebea Thai has been awarded the Award for Excellence in Water Quality Conservation by the Thai Ministry of Industry as part of its "The Factories Love Rivers Project." The award recognizes the company's efforts to protect the environment and preserve water quality. The ministry's project celebrates the 83rd birthday of Her Majesty Queen Sirikit (August 12, 2015) by promoting awareness and understanding of the importance of environmental conservation and restoration.

At the award ceremony held at the National Theatre in Bangkok, Mr. Masayuki Imanaka, General Manager of Regional Affairs for South East Asia, received the award from Mr. Pramot Wittayasuk, Deputy Minister of the Ministry of Industry of Thailand. A total of six companies received awards.

Mr. Masayuki Imanaka, General Manager of Regional Affairs for South East Asia, receives award from Mr. Pramot Wittayasuk, Deputy Minister of the Ministry of Industry of Thailand

### Operation of Plant Wastewater Zero System (Thailand & China)

The Minebea Group operates plants which use large amounts of water in the processing of manufactured products and take measures to reduce emissions of wastewater. Our plants purify used water to reduce the level of waste to below standards required by each country and locality before releasing the water into the environment. Despite these measures, we cannot guarantee that the released water has zero impact on the surrounding environment. At our plants in Thailand and China, which use large amounts of water, we have adopted the "Plant Wastewater Zero System" to reduce to as close to zero as possible the wastewater released and its impact on the environment.

In this system, the plants further purify wastewater that was previously treated and released into the environment, and then reuse the entire amount of wastewater internally at the plant without any external emissions. Currently, this system is being used by the Bang Pa-in and Ayutthaya plants in Thailand, as well as the Shanghai and Xicen plants in China.

## Future Issues and Goals

The Minebea Group continues to conduct business operations in compliance with environmental laws in Japan and around the world, and is proceeding with cleanup work in areas where it has caused environmental contamination in the past.