

Japan, Southeast Asia, China, others

Meet 21 Harvesting the hidden energy of garbage to benefit the environment

Where garbage used to be seen as just waste, people are beginning to view it as a valuable fuel source – especially as communities run out of places to bury the ash left over from incineration.

At the waste-to-energy (WtE) facilities of Mitsubishi Heavy Industries Environmental & Chemical Engineering (MHIEC) stoker-type incineration plants with advanced incineration stability and scalability are combined with the MHI Group's power generation technology to convert the energy in garbage into electricity with high efficiency. Residual heat is used for district heating and cooling and to warm public swimming pools.

By utilizing energy from waste at the gasification and ash melting system, the remaining ash is converted into molten slag, which can be used as road bed materials and for other applications.

Eco-friendly WtE facilities have been installed in communities across Japan as well as in China, Southeast Asia and other regions, and through technology for high-efficiency combustion reduce greenhouse gas emissions and provide for reuse of residual ash.



Creating energy from garbage!

By harnessing the heat from waste incineration, MHI technology efficiently generates electricity.



Domestic & overseas tire manufacturing plants

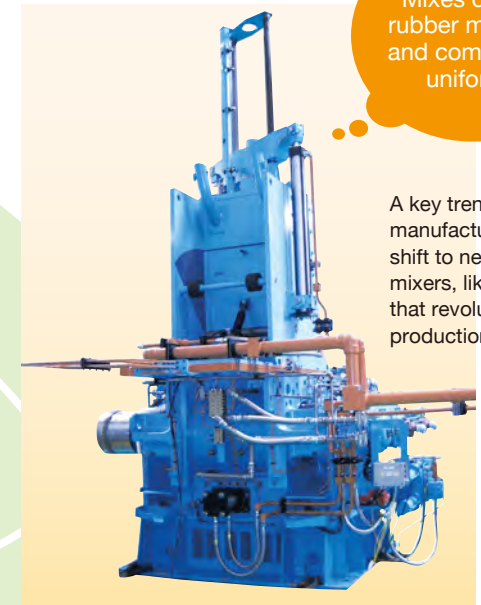
Meet 22 New mixing technology supports production of fuel-efficient tires

Tires with high fuel-efficiency ratings have become increasingly popular in Japan since the 2010 introduction of labeling requirements. However, this has become a challenge for tire makers because achieving the highest ratings requires that silica be compounded into rubber via a mixing process that is difficult to do with existing equipment.

Tire manufacturing is very complex, from the initial production stage where carbon black and chemicals are kneaded into the raw rubber, through forming processes and vulcanization that establishes the final shape, to final quality inspection. The initial mixing process has a major impact on product quality.

Mitsubishi Heavy Industries Machinery Technology Corporation (MHIMT) has developed the Mitsubishi Internal Mixer (MR-EX), an intermeshing mixer used to knead silica into rubber. It overcomes the technical challenges of uniform mixing and dispersion, while limiting rises in the rubber's temperature. A significant advance, the new system has drawn close attention from tire makers worldwide.

In addition to contributing greater efficiency and lower energy costs in manufacturing, the new system also contributes to the environment through lower vehicle fuel consumption.



Mixes diverse rubber materials and compounds uniformly

A key trend in tire manufacturing today is the shift to new intermeshing mixers, like the MR-EX, that revolutionize the production process.

Meet MHI

Life with MHI

MHI's innovative technologies and outstanding products surround us, expanding across land, sea, air and even out into space. The company is quietly supporting every aspect of our daily lives with technologies from Japan-across the world and far beyond.

Japanese & overseas newspaper publishers

Meet 23 Bringing the latest news to readers! Mitsubishi Newspaper Offset Press DIAMOND SPIRIT

For Japan's newspapers, which boast a total circulation of roughly 45 million copies daily, it's fresh news that counts and that freshness is a result of shorter print production time.

Mitsubishi Heavy Industries Printing & Packaging Machinery* (MHI-PPM) has been advancing technologies for newspaper presses since 1964, about the time when Japan was entering a period of high economic growth. Starting with its first letterpress developed in 1964, MHI-PPM went on to develop the first newspaper offset press in 1966 with technologies that ushered in a new era of colorful newspapers.

While continuously enhancing its technologies in line with the needs of the newspaper industry, MHI-PPM developed the DIAMONDSTAR in 2001, a press featuring the world's fastest printing speed at that time.

The DIAMOND SPIRIT, launched in 2004, offers significant energy and resource savings and cuts printing plate costs in half. The press is highly reputed for meeting today's publishing demands and has been installed at a large number of newspaper printing plants in Japan and other countries as well.

The DIAMOND SPIRIT contributes to improving print quality and boosting productivity, while also increasing the timeliness of the news delivered to readers.



Delivering high productivity in newspaper printing at a speed of 80,000 copies per hour.

In addition to reduced makeready time, the DIAMOND SPIRIT offers such improvements as lower energy consumption and paper waste, reduced operating noise, and a 50% reduction in printing plate costs.

* By Mitsubishi Heavy Industries from 1964 until 2010 at which time MHI-PPM was established as a fully owned MHI Group company for all business related to printing machinery and paper converting machinery.

Shenzhen, China

Meet 24 Vibration control to keep China's second tallest high-rise from swaying in the wind

As extremely tall buildings probe ever higher into the world's skies, Shenzhen's Ping An Finance Center, scheduled for completion in 2016, is causing many eyes to look up, way up, at the second tallest building in China and the fourth tallest in the world.

Such extremely tall buildings can easily be affected by severe winds, so limiting swaying is crucial. That's why the developers turned to Mitsubishi Heavy Industries Mechatronics Systems for a vibration control device featuring massive 300-ton weights.

When the building begins to sway in strong winds, sensors equipped at the top of the building detect the motion and the 300-ton weight is actuated to control by reflexive reaction the movement according to instant computer calculation and motor drive. The sway can be reduced to approximately 60% through the action of the device, which is required to ensure the livability, safety and reliability of ultra-high-rise buildings.



The 300-ton weight and associated control unit are installed 524 meters above the ground.

The weight installed in the Shanghai World Financial Center in 2008 was 150 tons, but the Ping An Finance Center weight will be double that at 300 tons.