

## Results of environment-friendly and creative activities

### Development of environment-friendly technologies and products by Consolidated Division

Class Division	Reduction of environmental load		Zero emission		Saving energy and resources	
	Products	Technologies	Products	Technologies	Products	Technologies
Pipe and fluid systems engineering consolidated division	<ul style="list-style-type: none"> <li>• Pipe-type water permeable breakwater</li> <li>• Waterproof wall-type jacking conduit</li> <li>• Penetration piles</li> <li>• Environment-friendly scenic fountain equipment</li> <li>• Buried valves at shallow depth</li> </ul>	<ul style="list-style-type: none"> <li>• Danby method of piping repair</li> <li>• Aseismatic joint technology</li> </ul>	<ul style="list-style-type: none"> <li>• Roadbed materials (1) Recycling of slag (2) Recycling of cement mortar dewatered sludge</li> <li>• Tunnel ground stabilizing materials (Hightom)</li> <li>• Plants converting waste plastics into oil</li> </ul>	<ul style="list-style-type: none"> <li>• Recycling technology for FW pipes</li> </ul>	<ul style="list-style-type: none"> <li>• Aseismatic water storage tanks for emergency use</li> <li>• Electric power generation equipment using pump with reverse rotation impeller</li> <li>• Non-sprinkling snow melting system</li> <li>• Multi controller for pumps</li> </ul>	<ul style="list-style-type: none"> <li>• For manufacturing processes: (1) Application technology of combined cogeneration system (2) Temperature control technology for annealing furnaces</li> <li>• Saving energy operation technology for pipe extruding machine</li> </ul>
Farm and industrial machinery consolidated division	<ul style="list-style-type: none"> <li>• Rice polisher New "riz-frais" system</li> <li>• Livestock excreta treatment system</li> <li>• Vertical diesel engine V3300 series and so on</li> <li>• Manifest issuing system for truck scales</li> </ul>	<ul style="list-style-type: none"> <li>• Low noise design technology (tractors, construction machinery, engines)</li> <li>• Rice-transplanting-soil fertilizing technology</li> <li>• Simultaneous pesticide distribution technology for rice transplanting</li> <li>• Clean exhaust gas technology (engines)</li> </ul>	<ul style="list-style-type: none"> <li>• Material identification marking on resin parts</li> </ul>	<ul style="list-style-type: none"> <li>• Easy disassembly design technology</li> </ul>	<ul style="list-style-type: none"> <li>• Backward small-radius circling mini-backhoe (auto-idle function)</li> <li>• Radio-controlled lawn mower</li> </ul>	<ul style="list-style-type: none"> <li>• Four-wheel drive technology for tractors</li> <li>• Work efficiency improvement technology Various types of control technology Speed-doubling turn technology and others (tractors) SST turn technology (farm machinery)</li> <li>• Body weight reduction technology (tractors, farm machinery)</li> <li>• Technology to reduce weight per output (engines)</li> <li>• Integrated saving energy technology for automatic vending machines</li> </ul>
Environmental control plant consolidated division	<ul style="list-style-type: none"> <li>• "Super" power generation combined with refuse incinerator</li> <li>• Dioxins decomposition units</li> <li>• Nitrification and denitrification system using carrier</li> </ul>	<ul style="list-style-type: none"> <li>• Water treatment technology with submerged organic membrane filter</li> <li>• Dioxins control and decomposition technology</li> <li>• Gasification and melting system</li> </ul>	<ul style="list-style-type: none"> <li>• Sewage sludge incineration and melting furnace</li> </ul>	<ul style="list-style-type: none"> <li>• Wastes recycling system</li> </ul>	<ul style="list-style-type: none"> <li>• Sewage sludge circulation fluidized bed incineration system</li> </ul>	<ul style="list-style-type: none"> <li>• Saving energy type melting furnace control system</li> </ul>
Housing materials and utilities consolidated division	<ul style="list-style-type: none"> <li>• Membrane separation Joukaso system</li> </ul>		<ul style="list-style-type: none"> <li>• Raw materials for cement: Recycling of dewatered sludge on production process</li> </ul>	<ul style="list-style-type: none"> <li>• Recycling technology of residual materials discharged at construction sites</li> <li>• Recycling technology of wastes into construction materials (fly ash, used paper pulp)</li> </ul>		<ul style="list-style-type: none"> <li>• Saving energy technologies at manufacturing processes: Efficient use of steam and recovery of waste heat Improvement of thermal efficiency in drying furnaces Prevention of motor slipping</li> </ul>
Materials division	<ul style="list-style-type: none"> <li>• Segments for underground river</li> <li>• Drainage cast iron pipes</li> </ul>		<ul style="list-style-type: none"> <li>• Roadbed materials: recycling of waste molding sand</li> </ul>	<ul style="list-style-type: none"> <li>• Recycling technology of molding sand</li> </ul>	<ul style="list-style-type: none"> <li>• Centrifugal casting radiant tubes MERT</li> </ul>	<ul style="list-style-type: none"> <li>• Heat pattern improvement technology for annealing furnaces</li> <li>• Self-annealing technology for cast products</li> </ul>
Technology development headquarters	<ul style="list-style-type: none"> <li>• Ah-Immunoassay for toxic detection of dioxins</li> </ul>	<ul style="list-style-type: none"> <li>• Noise reduction technology for drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Impurities sorting equipment for plastic pellets (PLATON)</li> </ul>	<ul style="list-style-type: none"> <li>• The development of the recycling technology for the waste F.R.P. bathtubs</li> </ul>	<ul style="list-style-type: none"> <li>• CFC-free heat pump system complying with multiple fuels</li> <li>• The development of micro-porous materials</li> </ul>	<ul style="list-style-type: none"> <li>• High strain-rate-super-plastic forming</li> </ul>