

# A new production base, Hitachinaka Works, meets rising worldwide demand.

Construction of our Hitachinaka Works in Hitachinaka, Ibaraki Prefecture, was completed in August 2007. The works began operations the following month. This new plant manufactures components for large and ultra-large hydraulic excavators, etc., thereby playing an extremely important role in responding to rising worldwide demand.

## Responding to market changes and demands of the times

Japan, Europe and the US led the market in construction machinery for a long time. But in the last couple of years, the market has begun to shift towards emerging countries such as China and Russia. Demand for construction machinery is increasing due to the infrastructure improvements and natural resource exploitation of the emerging countries. Now sixty percent of the demand is from advanced countries, and forty percent of that is from emerging countries. Large-scale investments as well as increased production by the current plants are required to respond to this change, and we are rapidly restructuring production bases, including those of group companies. The construction of Hitachinaka Works is part of these efforts.

## A new plant in a good location

Hitachinaka Works is located in the east of Hitachinaka, and has good access to a port and an express highway. The site area and floor area is 218,000m<sup>2</sup> and 25,000m<sup>2</sup> respectively, and the buildings have a sharp, neat design. Hitachinaka Works has taken on the manufacture of large reduction gears, travelling equipment for dump trucks and winches for cranes from Kasumigaura Works and the manufacture of transmissions and axles for wheel loaders from the Ryugasaki plant of TCM, one of the group companies. Annual production of 48,000 components for hydraulic excavators and 6,500 components for



Center building

wheel loaders and wheel excavators is expected as the first phase. To further raise manufacturing capacity, the second phase of construction work is underway, with startup planned for December this year. Hitachinaka-Rinko Works for the assembly of large machines is also under construction.



Inside the plant

## Design considering work efficiency and environment

New measures implemented to raise work efficiency at Hitachinaka Works include elimination of unnecessary movement of products between processes with a rational layout focusing on product flow, a fifty percent improvement in work efficiency by implementing a new heat treatment system, and significant reduction in processing time from new processing systems and original tool technologies. We have also implemented various new measures considering environmental aspects, mainly cutting down energy consumption. We use aluminum alloy-coated steel plates with high-performance thermal insulation material sandwiched between them for the exterior wall of the building. We also realized high thermal insulation by laying thermal insulation material on the top of roof material and covering it with waterproof film. This shortened period of air conditioning and raised the efficiency of air conditioning. We used LNG (liquid natural gas), which generates less CO<sub>2</sub> than type-A heavy oil or LPG (liquefied petroleum gas), for heat sources for air conditioning, etc., and installed an exclusive tank for LNG on the site. We also designed the center building, which houses the offices and the canteen, to reduce CO<sub>2</sub> emissions by using a heat pump with a thermal storage system which consumes electricity during the night, for baths, etc., and IH (electromagnetic induction) heaters for the cookers in the kitchen. A 10kW solar generation system installed on the roof of center building provides power for the air conditioning and lighting. In emergencies, such as during power failure triggered by lightning, the output is used



New plant appearance

for telephones and the in-plant announcement system. Joint research with NEDO (New Energy and Industrial Technology Development Organization) is performed on this solar generation system.

In addition, we conduct thorough wastewater management in accordance with our own wastewater standards, which reduce impurities down to 80 percent of the level

permitted by the national standards, and includes weekly wastewater monitoring.

## Good working environment to improve productivity

We use Hf (high-frequency) fluorescent lighting in the offices, and ceramic metal halide lights in the plant, to reduce the energy consumed for lighting, which accounts for a great proportion of the total, and also for good illumination to improve the working environment. Displacement air conditioning, which maintains the same temperature without moving the air, operates in the plant to provide a pleasant working environment, regardless of the season.



Mr. Ogasawara, manager of Hitachinaka Production Section, Production Department

My child was born at about the same time that construction of Hitachinaka Works started. So I enjoyed seeing the construction of the plant as if I was seeing the growth of my child, despite being very busy. I was very glad when the plant was completed.



Exclusive LNG tank



IH heaters



Solar panels

## Column

### Interacting with local communities

We welcome visitors to tour Hitachinaka Works using a special, broad, safe path. Tours promote interaction with local residents and help them to get to know about Hitachi Construction Machinery. The plant received letters from pupils of Nakaminato Daiichi Elementary School who visited the plant in March 2008. We participated in city events such as the Hitachinaka



industry fair and the beach festival, and cherish good relations with the local community.

A plant visit by elementary school pupils