

KOBELCO

Green is our symbol.

KOBELCO

KOBELCO CRANES CO., LTD.

17-1, Higashigotanda 2-chome, Shinagawa-ku, Tokyo 141-8626 JAPAN
Tel: +81-3-5789-2130 Fax: +81-3-5789-3372
URL: <http://www.kobelco-cranes.com/>

Contributes to the Environment



Green is our symbol.

Our mission is to create efficient and sustainable social infrastructure. We work in earnest, and environment-friendliness is our fundamental commitment. Kobelco Cranes are green, reflecting our respect for the environment.

KOBELCO

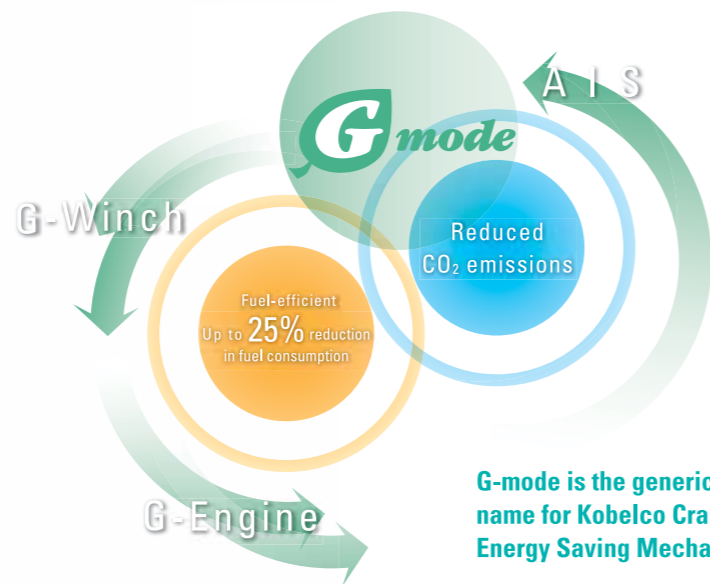




G-mode

AIS / G-Winch / G-Engine

Environmental protection is a matter of increasing priority. For effective use of limited resources, we place advanced environmental protection measures as an integral part of the development of our machines. Leading-edge technologies ensure optimal performance fitted for the new era.



G-mode is the generic name for Kobelco Cranes' Energy Saving Mechanism.

※ CKE2500G



TECHNOLOGIES

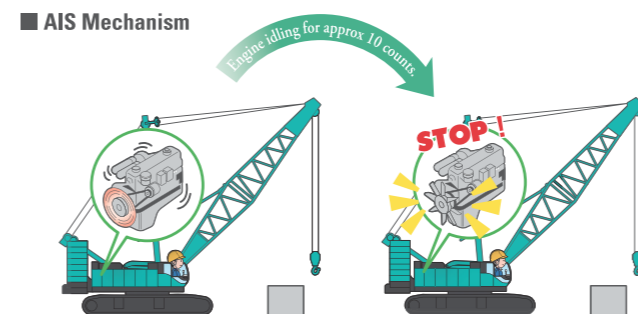
We design solutions to meet the environmental requirements of next-generation cranes.

〈Crawler crane + G-Mode〉

Avoids use of unnecessary energy

AIS (Auto Idle Stop)

When AIS is activated, it detects idling status (where the crane is not operating, for example when materials are brought into the site), the AIS (Auto Idle Stop) system automatically shuts off the engine to avoid fuel waste during the standby period.



Ensures consistently high fuel efficiency

G-Engine

The "G-Engine" feature reduces fuel consumption by controlling engine speed for better fuel economy. Maximum engine speed is limited but hydraulic pump displacement increased, maintaining the speed of up/down hoisting, on main and aux winches for light loads.

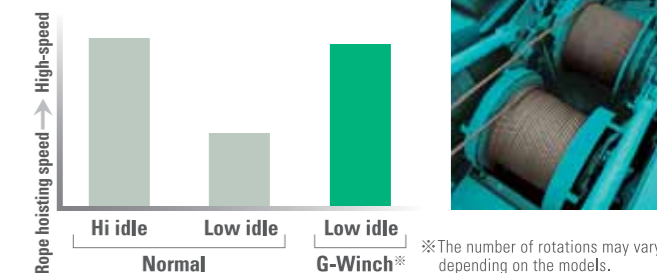


Energy-saving but also fast

G-Winch

In conventional cranes, hoisting speed is simply proportional to engine speed, but with Kobelco Cranes' G-Winch system, maximum hoisting rope speed is achieved for no-load operation with low engine speed, saving energy and for fast job.

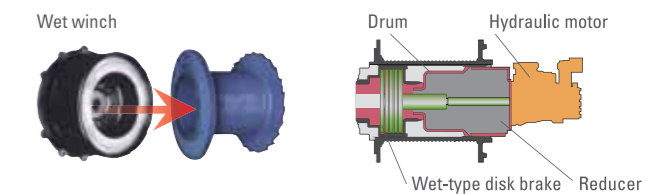
■ G-Winch Mechanism



Innovative braking system to reduce environmental loads

Wet-type disk brake

Kobelco Cranes' new oil-cooled wet-type multi-disk brake system is top in its class, providing quiet, dependable braking power. The multiple disks are self-adjusting and self-equalising, forced-oil circulation ensures smooth braking and keeps brake temperatures cool during long continuous operation, and as there is no brake band, the brake operates quietly and does not generate lining dust.





P

Productive

Q

Quality

In the pursuit of ecological-production, it is essential to reduce lead time, but without compromising superior quality. This is our challenge.

※ CK2750G

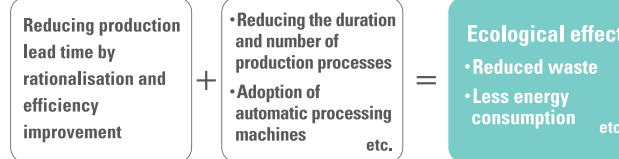


PRODUCTION

Environmental protection is at the centre of our production.

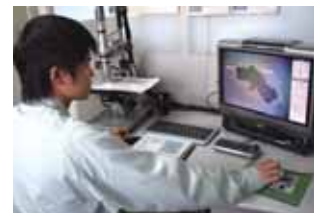
Efficient production and optimisation of systems Reducing lead time

Production lead time is the period from the reception of an order to the completion of production. Reductions in lead time minimise the amount of waste, and the consumption of paper and power, thus protecting the environment. We are rationalising our production lines, improving their efficiency, elaborating production technologies to reduce the duration and number of production processes, and adopting automatic processing machines to increase unmanned operation and reduce work shift, all to reduce the lead time.



Instruct parts manufacturers, and check components before assembly Quality assurance during production

Ensuring product quality leads to customer satisfaction and effective environmental protection. In particular, defects in cranes and other large machines would cause significant waste of labour and materials if only detected after assembly. We thus require thorough quality control at our parts manufacturers, to minimise parts defects, and we perform strict examinations of components prior to assembly, such as contamination testing to ensure that the product contains no contaminants. Such efforts reduce unnecessary production processes, waste oil and other waste.



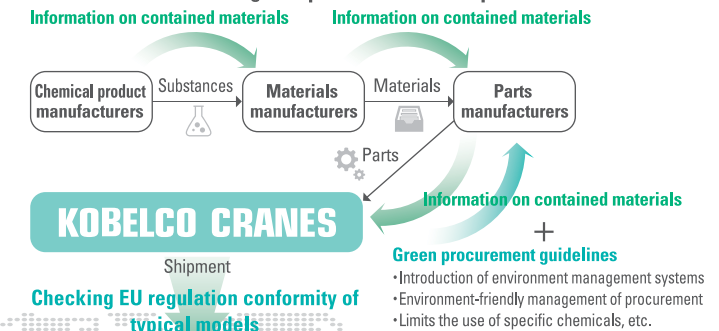
■ Contamination testing

Production free of toxic contaminants, both input and output

Green procurement, and examination of chemical substances contained in typical models

In cooperation with our suppliers, we adopt green procurement, procuring parts with less regulated toxic materials and environment-friendly. We also strictly inspect our products before shipment, to prevent environmental pollution and contribute to a recycling-oriented society. For example, we examine all chemical substances contained in the parts of typical models among those specified for European market, to verify that our machines do not contain toxic substances exceeding the levels defined by the strict European REACH standard.

■ Schematic flow from green procurement to shipment



Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

is a European Union regulation governing all range of products, and is the most strict regulation of its kind today.

- For international markets
- Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)(EU)
 - End of Life Vehicles (ELV) Directive (EU)
 - Restriction of Hazardous Substances Directive (RoHS) (EU), etc.



45,000 kg *Maximum transportation weight*

2,990 mm *Transport Width*

Special environmental measures are also required for transporting large construction machines to customers and construction sites. Our products are designed with weight and size partitioning for easy transportation.



TRANSPORTATION

Our products are designed for easy transportation.

Weight and size partitioning for easy transport

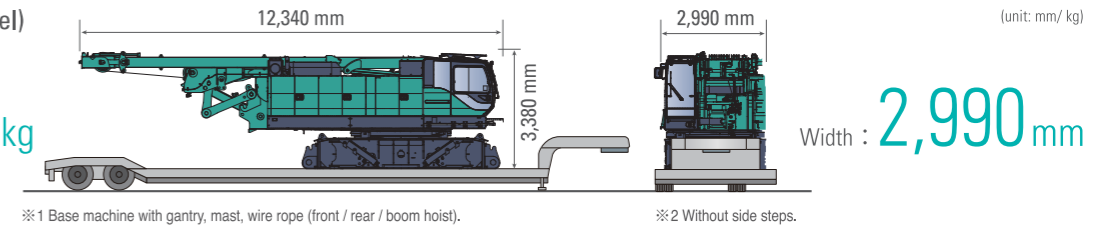
CKE-G series / BME-G series (European model)

CK-G series (American model)

CKS series / BMS series / 7000S series (Standard model)

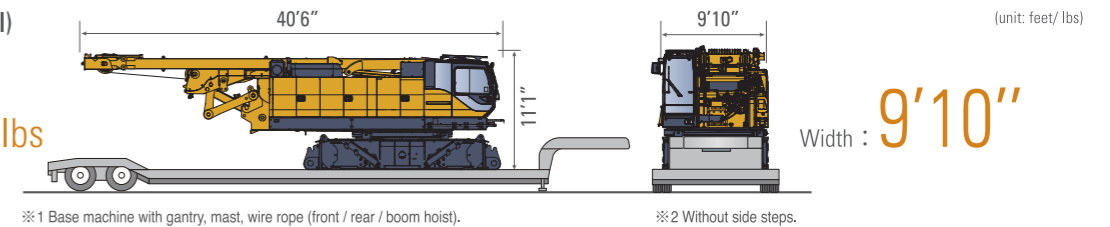
CKE2500G (European model)

Weight : 44,960 kg



CK2750G (American model)

Weight : 99,760 lbs



Environment-friendly packaging

Heavy Duty corrugated fiberboard

Wood has traditionally been used in packaging of service parts. Since the late 1990s, Kobelco Cranes has been shifting to Heavy Duty corrugated fiberboard instead of wooden containers, to protect the environment. Today, almost all service parts for export are packaged in Heavy Duty corrugated fiberboard containers.

① Heavy Duty corrugated fiberboard

Heavy Duty corrugated fiberboard, consisting of two or three corrugated layers of reinforced fiberboard, is three to four times stronger than wood of the same weight, and this light-weight, high-strength material is almost 100% recyclable.

② Environmental performance of Heavy Duty corrugated fiberboard

■ Improves fuel efficiency by reducing transportation weight

Containers made of Heavy Duty corrugated fiberboard are three to four times lighter than wooden containers of the same size, and this reduces the overall weight of cargos and improves fuel efficiency in transportation.

■ Reduces industrial waste by recycling

Most wooden containers are burned after use. Heavy Duty corrugated fiberboard is recyclable. Moreover, the light-weight fiberboard can be folded, and is thus easy for collection and recycling. Recycling of fiberboard is likely to spread worldwide.

Cross sectional view of Heavy Duty corrugated fiberboard (three layers)



Reference provided by Shina Wood Works, Ltd.

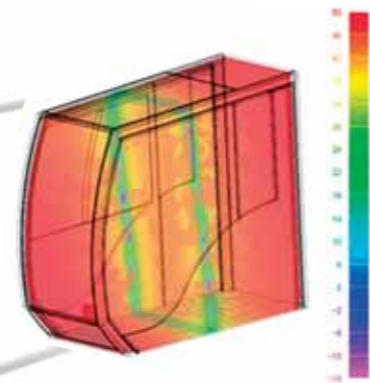
Low

Low exhaust gas emissions
and
low noise

Environmental protection is indispensable
at worksites everyday.

Low gas emissions, low noise,
and other measures that can be fear at worksites.

True impact is what is required
in environmental protection.



■ Acoustic field analysis of inside cabin

※ CK2750G



WORKSITE

Strict ecology verification at worksites. True impact is what is required for environmental protection.

Clean exhaust gas Meeting emission regulations

Cranes must satisfy various regulations, including strict controls on the levels of Nitrogen oxide (NOx) and particulate matter (PM) in exhaust gas. All cranes must satisfy these regulations to have low environmental impact for sale. Kobelco Cranes adopts state-of-the-art technologies to meet these standards.

※ The CKE-G series, BME-G series and CK-G series have been designed to fully comply with country-specific emission regulations.

■ Nitrogen oxide (NOx)

is the general term for nitrogen oxide generated during combustion of fuels at high temperature and are believed to be atmospheric pollutants that cause photochemical smog and acid rain.

■ Particulate matter (PM)

refers to the particulate content in exhaust gas. It appears as black smoke in high concentrations. These particulates are said to contain carcinogenic chemicals or the cause of respiratory diseases contributors.

Recycling of used parts DC units

Recycling of used parts is drawing increasing attention from the perspective of resource conservation. Kobelco Cranes restores the performance of used parts to new-part levels, and promotes their use, calling them DC units (for 'da capo', a musical term meaning 'from the beginning').

A load cell link



■ Before restoration

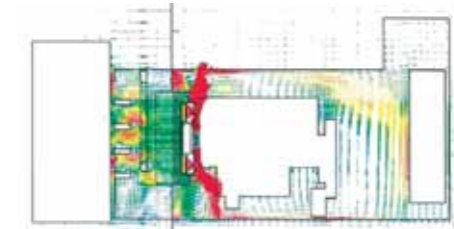
■ After restoration

Suppress noise emission and block noise leakage Low noise technologies

Low noise conflicts with heat balance characteristics, but both goals must be achieved. Noise reduction measures are difficult to implement after machine assembly is completed. We therefore conduct simulation analyses, bench component tests and other assessments, in advance, to arrive at advanced low-noise technologies.

① Preventing noise leakage from the engine guard

Various approaches are employed to achieve low noise, such as reducing noise generation at source (shroud rings, etc.), selecting materials with high sound absorptency, and minimising the size of opening by optimising opening design (intake and exhaust ports).



■ CFD analysis within engine room

② Minimising cabin noise

Cabin noise is minimised to create a comfortable working environment and promote quality work.



■ Measurement of cabin airtightness
(to reduce air borne sound)



■ Natural frequency analysis
of cabin structure
(to reduce solid borne sound)

OUR ACTION

Our quest to make the world more environment-friendly doesn't stop with our products alone. We aim to build a better future, and believe it is our corporate responsibility to promote ecology-activities that cover many different fields.

Kobelco Cranes' New Company Vehicles Environment-friendly fleet



Managing Manufacturing Waste

Kobelco Cranes is able to continue improving manufacturing quality through the use of 5S methods on the manufacturing line (Sifting, Sorting, Shining, Standardizing, Sustaining).

Establishment of Safety & Environment Section (2012)

Safety & Environment Section was established at the Okubo Plant to better tackle issues regarding safety and the environment. The office looks at different ways to tackle energy conservation and lower power consumption by reducing lighting, regulating air conditioning temperatures, and restricting elevator usage. They have also implemented an "Environmental Patrol" that promotes environmental improvement at the factory.

The Paperless Movement

Through ID-secured printing operations and by moving towards paperless meetings, we promote more effective utilization of our incredibly important paper resources.



Kobelco Cranes India - Sri City Plant

Kobelco Cranes India's "Green Kobelco" Policy

Kobelco Cranes India has social conscience of the importance of environment and green society. It is committed to contribute its part to the nature and healthy life for future generation.

Action Plan

1. To spread more greenery in the factory.
2. To plant big trees surrounding the factory walls.
3. To reduce paper & other wastes.

ACTION 1

ACTION 2

ACTION 3

ACTION 4

ACTION 5

ACTION 6

ACTION 7

ACTION 8

ACTION 9

ACTION 10

ACTION 11

TO THE FUTURE

Adoption of the Kobelco Standard Colour (1989)

Historically, construction machinery was mainly painted in yellow or red to show caution. However, as urban construction became more common, the need for machinery that blended in with the city and its people has become acute. We adopted the colour of green - turquoise - to encourage people to care more for the environment.



Mini rough terrain crane RK70M

Environmental Management System ISO14001 Certified (2002)



Expansion of the Adoption of Iron Pallets

In the past, procuring parts were usually delivered from suppliers on wooden pallets, but in recent years the concept of reducing the burden on the environment has come to the forefront. To do our part, we have shifted from waste-prone wooden pallets to iron pallets which are stronger, can be re-used more times, and can be configured into a shape that is more appropriate for shipping.

Before



After



Cleanup of the district around our factories

To enhance the partnership with local communities, which are the foundation of our business, we are actively cleaning up in and around our factory sites.



Good Design Award in Japan (2008) (2012)



25-tonne City-Conscious Crane PANTHER-X 250 (For Japanese model only) (2008)

Crawler Crane "Mastertech-G series" (For Japanese model only) (2012)

Good Design Award

Good Design Award is a sole comprehensive design evaluation and commendation system in Japan since 1957.

Kobe Steel Group Environmental Conference

To effectively implement environmental management, we need all of our employees to be more aware and do their bit on an ongoing basis. That is why a Kobe Steel Group Environmental Conference is organized every year to share details of outstanding environmental activities. The aim is to promote group activities on the environment and encourage other sites to follow suit. Kobelco Cranes also takes part in the conference and endeavors to raise environmental awareness.

