

KOBELCO

Cranes Europe

Strength through experience since 1930

Issue 1/Volume 3
Spring 2023



SPECIAL REPORT:
The UK's High Speed 2

UK FOCUS:
Hawks, SB3,
G H Johnson
And more...

CRANES:
CKE800G-3
CKE2500G-2
And more...

KOBELCO

STRENGTH THROUGH EXPERIENCE SINCE 1930

KOBELCO G-SERIES

- **EU Stage 5 compliant power plant**
- **Up to 25% fuel consumption thanks to G-mode: G-Engine, G-winch and Auto-Idle-Stop**
- **Ergonomic, luxurious, spacious cap with joysticks**
- **Dual pump flow for clamshell, bucket or material handling***
- **Efficient transport**
- **Fast assembly / disassembly**
- **Tractor type crawlers***
- **Over-swing preventative device***
- **Low maintenance**
- **Excellent reliability**
- **Worldwide service network**

*optional items

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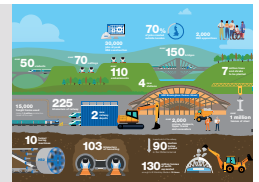
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Join Kobelco Cranes on social media and stay up-to-date with all the latest news and competitions!



COVER: BPH Equipment and Q Crane & Plant Hire working at HS2's Old Oak Common station build. All photos HS2 Ltd unless otherwise stated



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“



Masakazu Usami
Division Director Cranes
(Kobelco Construction Machinery Europe)

Hello and welcome to this special issue of Kobelco Construction Machinery Europe - Crane Division's customer magazine, which focuses exclusively on the construction of the UK's £100 billion High Speed 2 (HS2) project.

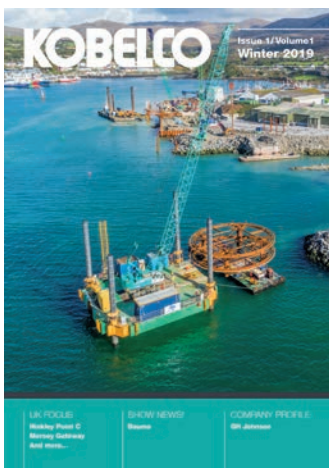
Inside this issue, we take an in-depth look at the crucial role Kobelco crawler cranes and our customers are playing in the construction of HS2, showcasing their capabilities and importance within the construction industry.

HS2, the largest infrastructure project in the UK, promises to revolutionize the country's transport network and requires the construction of viaducts, cuttings, embankments, four new stations, 330 km of new track, and 103 km of tunnels.

Kobelco crawler cranes have been an integral part of the project's construction thanks to their high-performance capabilities and reliability. Their ability to work in challenging environments and high lifting capacity has proven essential to the construction of HS2.

As the construction of HS2 continues, Kobelco crawler cranes remain an integral part of the construction process, highlighting the important role they can play in delivering large-scale infrastructure projects.

I hope you enjoy reading it as much as I have.



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HS2 Phase 1: the route

Phase One of High Speed 2 will see a new high-speed railway line constructed from London to the West Midlands, where it will re-join the existing West Coast Mainline. Services will travel onwards to places like Manchester, Glasgow, Liverpool, Preston and Wigan. Phase One is expected to open between 2029 and 2033.



Construction of HS2's 3.4km-long Colne Valley Viaduct, between Hillingdon and the M25, is using a 700 tonne, 160m-long 'launching girder', and will be the longest railway bridge in the UK when complete in 2025.



One of SB3's four Kobelco CKE1350G-2 lifting rebar during construction of HS2's Old Oak Common station box's 1.8km-long, 25m-high diaphragm walls, and associated structures.



New High Speed infrastructure

- ○ ○ Stations
- HS2 Phase One
- HS2 Phase 2a
- HS2 Phase 2b Crewe–Manchester
- HS2 East

This map includes the proposed removal of the connection between the HS2 network and the West Coast Main Line just south of Wigan from the Crewe-Manchester Bill which is subject to Parliamentary approval.



G H Johnson's CKE800G-3 and CKE2500G-2, working at Stanton Precast's factory in Ilkeston, Derbyshire, are helping deliver over 13,000 pre-cast concrete segments for three of HS2's tunnels.



The SB3 JV is using four Kobelco CKE1350G-2 crawler cranes during construction of the £1 billion Old Oak Common main station box's diaphragm walls and associated structures.

East Midlands Parkway

Interchange

Euston

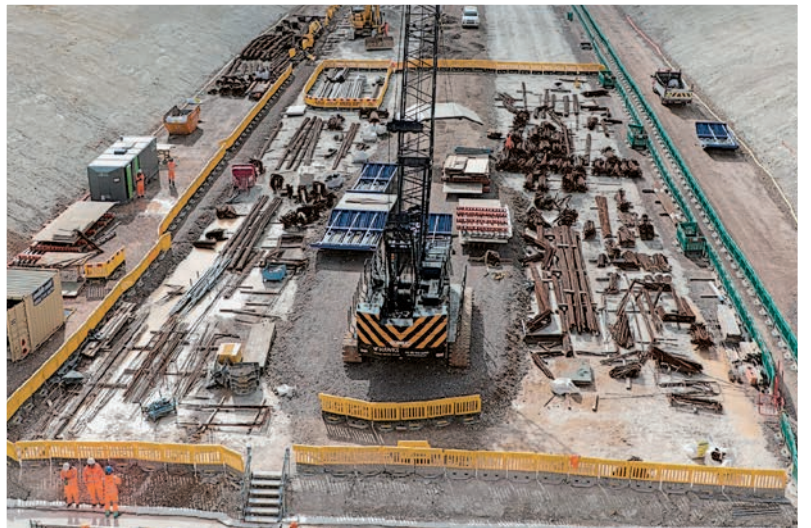
Oak Common

Heathrow
Airport

London
Euston



BPH Equipment's CKE900G-3 crawler cranes are using Kobelco's KCross remote operation management system to monitor working conditions, location, maintenance history and fuel usage during operation at Old Oak Common station build.



Hawks' Kobelco CKE900G played a central role in delivering the TBM launch pad for the Align Joint Venture's £1.6 billion High Speed 2, C1 package.

High Speed 2: in figures

The largest infrastructure project in the UK, High Speed 2 will create thousands of jobs and require significant earthmoving, as well as the construction of viaducts, cuttings and embankments and four new stations. Over 2,000 pieces of plant, including TBMs, dumper trucks, cranes and excavators, will be necessary to complete the project.



30,000
jobs at peak
HS2 construction

over **50** viaducts



over **70** cuttings

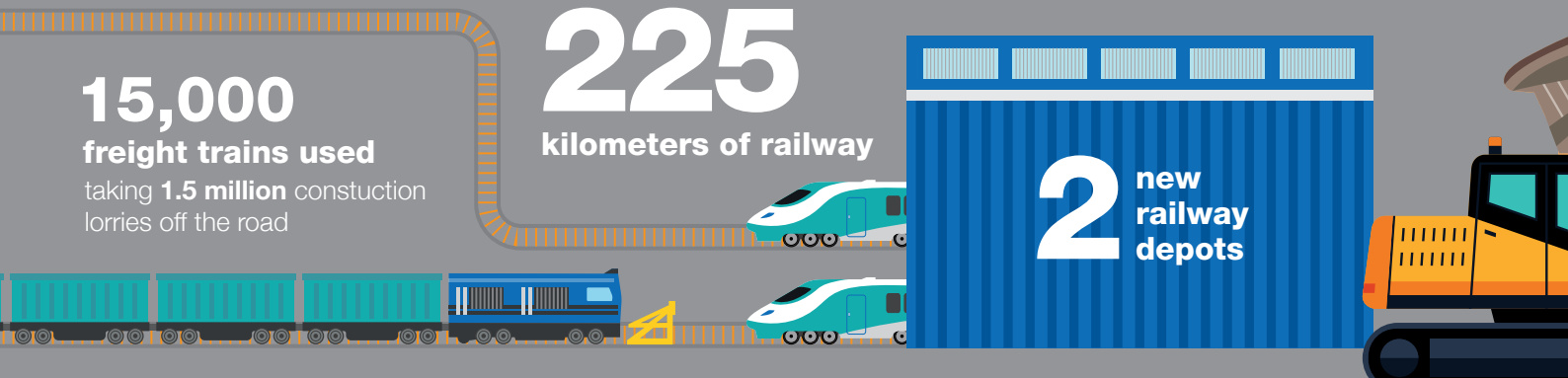


over **110**
embankments

15,000
freight trains used
taking 1.5 million construction
lorries off the road

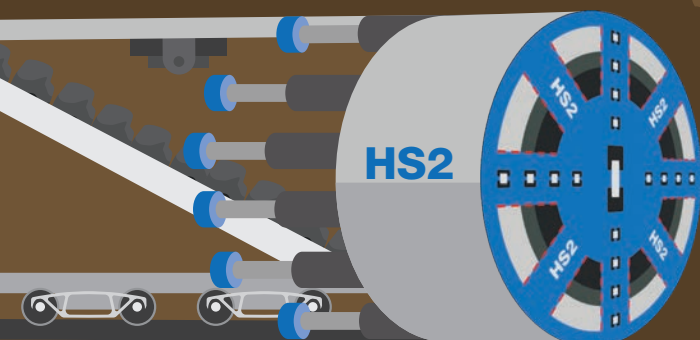
225
kilometers of railway

2 new
railway
depos



10 tunnel
boring
machines

103 kilometers
of tunnelling



70%

of jobs created
outside London

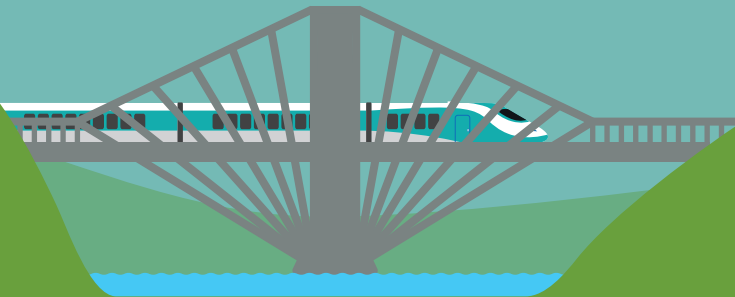


2,000

HS2 apprentices



over **150** bridges



7 million trees
and shrubs
to be planted

4 new
stations

HS2 Birmingham Curzon Street



over **2,000**
cranes, dumpers,
tipper trucks
and excavators

over
1 million
tonnes of steel



lowest point of the railway
90 metres
below
ground
in the Chilterns tunnel

130 million tonnes
of earth
excavated
enough to fill Wembley Stadium **15** times



KCROSS

- Crane Remote Observation Satellite System -



KOBELCO has developed a remote operation management system for our cranes. Machines fitted with this system transmit working condition, location, and maintenance history to provide owners with fact-based information that gives tremendous advantages for their asset management.

Main Functions



LOCATION

> Acquire Working Condition and Location of the Fleet

The system is based on satellite mapped images, Internet connection, and other means to remotely monitor a crane's working condition and its location. This information is useful in planning maintenance schedules and providing guidance to operators, helping to ensure that crane owners can maximize their fleet efficiency.



WORKING

> Managing Safety/Operational Records and Monitoring Working Status

Crane owners can monitor and record the working condition and operational status of onsite machines on entire fleet basis, promoting greater crane safety.



SAFETY

> Remote Failure Diagnosis

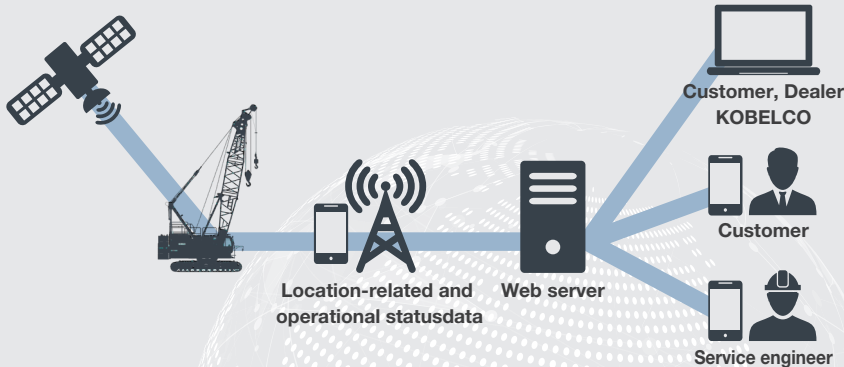
It is possible to narrow down possible failure causes quicker and more accurately by remotely accessing to the current and historical status of the machine, helping to minimize the machine downtime.



MAINTENANCE

> Preventive Maintenance Ensures Good Machine Condition and Protects Value

The system recommends appropriate parts replacement timing based on the machine working hour. Regular maintenance can help the machines running at peak performance at all times.

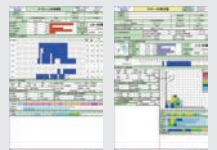


Viewing of machine data via the Internet allows provision of complex machine data

Using the Internet, customers can check on a crane's operational status from the office, and its location can be checked with GPS. Operation data such as whether or not a crane is in operation, total operating and idling hours, etc., is displayed in easy-to-read graph and table formats.



Location display



KCROSS reports (Possible to customize data)

Detailed Machine and Operation Data Can Be Accessed over the Internet

Operating data for a given crane can be accessed and accurately monitored from the Internet terminal in the crane owner's office.

Main Data Handled

- Map: Shows past and latest locations and travel history of all machines in the owner's fleet.
- Performance record: Hours of operation, Lift operations, and Safety record in the period of a day, a week, or other desired span.
- At-a-glance function: Outputs a report (in the form of a record log or sheet) that shows whether or not the machine is currently operating, its total operating hours, and other operating data.



Operation data can be received on a mobile phone

When necessary, this system can send data as a text message to a mobile phone



Equipment required

- IT controller
- IT antenna, GPS antenna
- Set-up package (including bracket, signal relay harness and software)
- Computer with broadband connection for internet access (Microsoft IE6.0)
- Excel software (Microsoft Office 2000 or later) to view downloaded documents

Equipment required

- KOBELCO hydraulic crawler cranes, including some existing models

We have lift-off!



Hawks' Kobelco CKE900G plays a central role in delivering TBM launch pad for Align JV's £1.6 billion High Speed 2 C1 package.

Dartford-based crane rental company Hawk Crane Hire's Kobelco CKE900G-2 crawler crane has played a key role in the delivery of a tunnel-boring machine (TBM) 'launch pad' for the UK's £100 billion High Speed 2 railway line, as part of the Align joint venture's C1 package

The £1.6 Billion C1 package, awarded to the Align joint venture (Bouygues Travaux Publics, Sir Robert McAlpine, and VolkerFitzpatrick) in July 2017, consists of 21.6km of high-speed

rail infrastructure, including a 3.37km-long viaduct, the 16kmlong, 9.1m-diameter twin-bored, Chiltern tunnel (the longest on the project), and five ventilation shafts with associated infrastructure.

The 90-tonne capacity CKE900G arrived on site in July 2020 on a six-month rental contract to aid the construction of the approximate 150m-long, 50m-wide TBM 'launch pad', next to what will eventually be the finished tunnel exit at Mantle's Wood, north of the village of Hyde Heath, Buckinghamshire.

During construction of the concrete podium, the CKE900G was used for "typical civils duties", according to Hawks' Managing Director Elliot Hawkins, including moving rebar for the launch pad, and 17m-high headwall's 636 'soil nails' – some up to 20m long, as well as pre-cast concrete elements, concrete delivery hoppers and small pieces of construction equipment.

"The CKE900G is a very flexible and reliable crane" explained Elliot, "so was exactly what was needed to complete the work on time,

C1 facts & figures

- In July 2017 the Align joint venture was awarded the C1 package of the UK High Speed 2 line (HS2).
- C1 consists of 21.6km of high speed rail infrastructure in a rural environment. This will include a 3.37km viaduct, 16.04km twin-bored tunnel and five vent shafts handling both intervention and tunnel ventilation facilities.
- TBMs arrive in the UK in December 2020 ahead of their launch in 2021
- TBMs named Florence and Cecilia, after Florence Nightingale, the founder of modern nursing who spent many years living in Claydon, Buckinghamshire and pioneering astronomer and astrophysicist, Cecilia Payne-Gaposchkin, who was born in Buckinghamshire
- The 170m-long, 2,000 tonne TBMS, the largest ever used on a UK rail project, will be assembled on-site, and are expected to work 24/7 for more than three years.
- Built by Herrenknecht in south-west Germany, they were transported to the UK in more than 300 separate shipments over the course of two months
- Designed specifically for the mix of chalk and flints





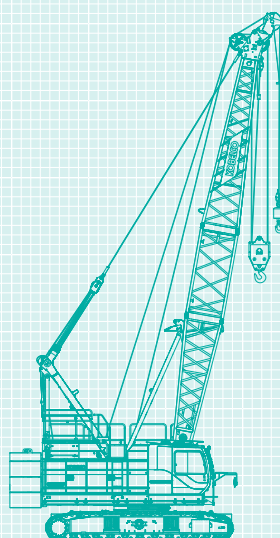
especially as the site was running virtually 24/7. Having bought the machine in 2015, our first Kobelco crawler, we knew it had been maintained and serviced correctly over its 6,500 hours of operation, giving us the confidence that it was more than up to the job.”

“This is backed up by Kobelco’s commitment to quality control,” added Elliot. “When I first visited the Kobelco crane factory in Japan, that commitment was evident from the start of the manufacturing process to the finish and was one of the things that impressed me most and is one of the main reasons we decided to put our faith in the Kobelco brand.

“The machines may be ‘simple’ engineering-wise,” explains Elliot, “but that engineering is top class, which gives us all the

confidence we need to compete and win work on high-profile, large-scale infrastructure projects such as HS2.”

CKE900G-3



ENGINE: STAGE V/TIER 5



MAX LIFT CAP: 100 TONNES

under the Chilterns, the identical TBMs will dig separate tunnels for north and southbound trains, with Florence launching first and Cecilia following a few weeks later

- Each TBM operates as a self-contained underground factory and will dig and line the tunnels with 56,000 concrete wall segments each, grouting them into place as it moves forward at a speed of 15m/day
- The 112,000 walls segments for the Chiltern tunnel will be made of high-performance fibereinforced concrete at a temporary pre-cast factory next to the TBM launch pads at what will be the south portal of the tunnels. This will avoid putting extra HGVs on local roads and ensure a steady supply of segments for the TBMs.
- The TBMs will convert the spoil into slurry which will be pumped back to the Align main site where it will be treated before being used for landscaping on-site
- As one of the most sustainable railways in the world, HS2 will support the UK in transitioning to a net zero carbon economy. It will minimise carbon emissions by delivering low carbon journeys and cut carbon emissions from other forms of transport.

Eye in the sky: Two of Alfreton-based crane hirer G H Johnson's Kobelco crawler cranes – a CKE800G-3 and a CKE2500G-2 – are helping deliver over 13,000 pre-cast concrete segments for three tunnels on the UK's High Speed 2.

Pre-cast concrete segments made at Stanton Precast's factory in Ilkeston, Derbyshire, are being sent by road to three locations in rural Northamptonshire and Buckinghamshire.

Central to operations at Stanton's factory, and a perfect fit for the cramped site, says Jason Thompson, operations manager at GH Johnson Crane Hire, are a Tier 5/ Stage V, 80-tonne capacity CKE800G-3, and a 250-tonne capacity Tier 4 Final/ Stage IV CKE2500G-2.

The CKE800G-3 was supplied with a 36m boom and single sheave block, while the CKE2500G-3 came with a 42m boom and single sheave block, as well as a ball hook on an auxiliary sheave. Maximum lift at the site has been 48 tonnes.

The three sections of cut-and-cover tunnels, which HS2 has dubbed "green tunnels", will form an aggregate length of 6.4 Km and are in Chipping Warden (2.4 Km) and Greatworth (2.6 Km) in Northamptonshire and Wendover (1.4 Km) in Buckinghamshire.

The tunnels are being built using a cut-and-cover operation with the work expected to be finished in 2024.

Perfect Fit





Safety first

SB3 JV takes safety first approach with its four Kobelco CKE1350s during delivery of High Speed 2's Old Oak Common station.





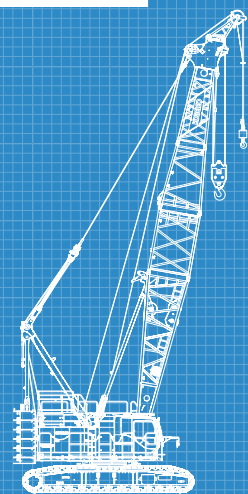
The SB3 JV (Soletanche Bachy, Balfour Beatty Ground Engineering), working for the BBVS JV (Balfour Beatty, Vinci, Systra) at the £1 billion Old Oak Common main station, is using four Kobelco CKE1350G-2 crawler cranes during construction of the station box's diaphragm walls and associated structures.

For added safety on the tight site, SB3 fitted each one with an Orlaco camera system, with winch view and load zoom capabilities, alongside its own 360° camera system, while Kobelco fitted Cab Care guards to protect the machine during transportation.

Two of the CKE1350G-2s were supplied with a 61m main boom and 18.3m fly jib and retrofitted with Groeneveld's automatic lube system, which automatically lubricates all bearings, gears, pins, and bushes, alongside ROPs/FOPs guards to doors and windscreens, during commissioning.

Two of the four machines are playing a supporting role during the construction of the station box's 1.8km-long, 25m high diaphragm walls, while the other two are being utilized for general lifting duties, including lifting cages and piling rebar.

CKE1350G-2



ENGINE: STAGE VI/TIER 4 FINAL



MAX LIFT CAP: 150 TONNES

Piling duties

One of the SB3 Joint Venture's four Kobelco CKE1350G-2 crawler cranes uses a spreader bar while lifting rebar during construction of HS2's Old Oak Common station box's 1.8km-long, 25m-high diaphragm walls, and associated structures.



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*1: For sea freight and DHL cost please contact your parts coordinator.



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*1: Delivery time is subject to change depending upon the situation of flights and customs.

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4. Customs Clearance



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5. Package Shipped

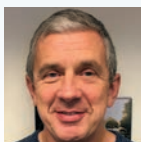


Packages that are ready to be shipped are picked up from the warehouse everyday in the afternoon for shipment.



HOW OUR ORDERING SYSTEM WORKS
36

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Productivity gains

Kobelco's KCross remote operation management system, standard on all Kobelco cranes, gives crane rental companies and contractors working on HS2 the ability to monitor working conditions, maintenance history, and fuel usage in real-time, remotely, helping improve efficiency and productivity.





The main functions of Kobelco's KCross remote operation management system include:

Working conditions & location

KCross uses satellite mapped images, Internet connection, and other means to remotely monitor a crane's working condition and location - useful in planning maintenance schedules and providing guidance to operators, helping ensure crane owners maximize their fleet efficiency.

Managing safety/ operational records & monitoring working status

KCross allows crane owners to monitor and record the working condition and operational status of onsite machines individually, or on a fleet basis, promoting greater crane safety.

Remote failure diagnosis

KCross narrows down possible failure causes quickly and more accurately by remotely accessing the current and historical status of the machine, helping to minimize downtime.

Preventive maintenance

KCross recommends appropriate parts replacement timings based on working hours. Regular maintenance helps the machines run at peak performance at all times.



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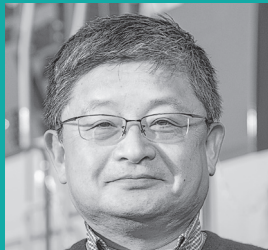
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