



KOMATSU

PC4000-11

**HYDRAULIC
EXCAVATOR**



**WE CREATE
YOUR FUTURE**

WE CONSTANTLY IMPROVE OUR PRODUCTS FOR YOUR SATISFACTION

WE SET THE RIGHT COURSE FOR YOUR FUTURE

Komatsu Germany is the Komatsu manufacturing plant for ultra-large hydraulic mining excavators. We convince with 110 years of experience and quality made in Germany. The combination of Japanese and German values, e.g. engineering superiority and highest safety standards as well as manufacturing accuracy, are the unique selling points of our machines.

The brand Komatsu is a worldwide synonym for high quality, achieved through continuous product development, innovation and reliability. We strive to be the technology leader and to give a promising future to our customers.

As a globally acting OEM of ultra-large hydraulic excavators, you can expect challenging assignments allowing you to plan and develop your daily business actively. That is why we are driven by the constant pursuit of increasing the efficiency of your mine.



**WE PROVIDE
SOLUTIONS**

WE ARE THE KEY TO YOUR SUCCESS

PC4000-11

The PC4000-11 comes with the latest technology on board. Features like the Simplified System, Komtrax Plus 2 and several safety improvements like the 45° access system, additional handrails, rescue hatch and the unrivalled emergency egress ladder are the results of continuously engineering processes improvements of Komatsu. Combined with the latest maintenance features, the PC4000-11 results in higher production, enormous safety results, fewer maintenance activities and operation monitoring.

The Sales and Service team will answer all questions to your satisfaction. We are looking forward to getting in touch with you.

04 INTRODUCTION

06 SIMPLIFIED SYSTEM

08 KOMTRAX PLUS 2

10 KOMVISION

12 OPERATOR'S CAB

14 SAFETY FEATURES

16 ENGINE

18 SPECIFICATIONS

22 COMPANY



WE ENHANCED THE PC4000 WITH STUNNING FEATURES AND BENEFITS

HIGHER TON PER HOUR

RELIABILITY IMPROVEMENTS

IMPROVED SAFETY

LESS MAINTENANCE

OPERATION MONITORING



TECHNICAL SUPERIORITY

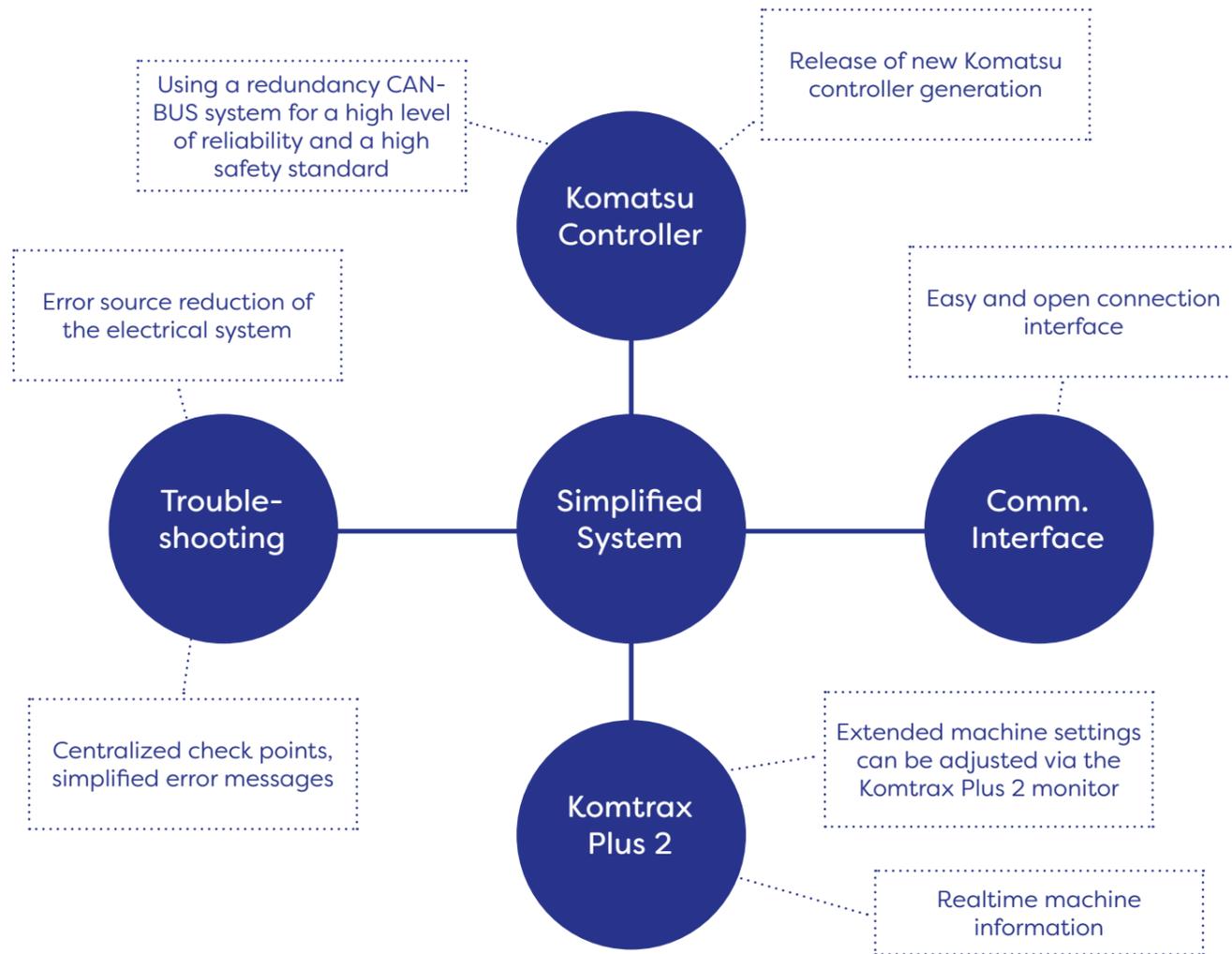
KOMATSU

WE SIMPLIFIED THE

SYSTEM OF THE MACHINE

FOR YOUR ADVANTAGE

KOMATSU

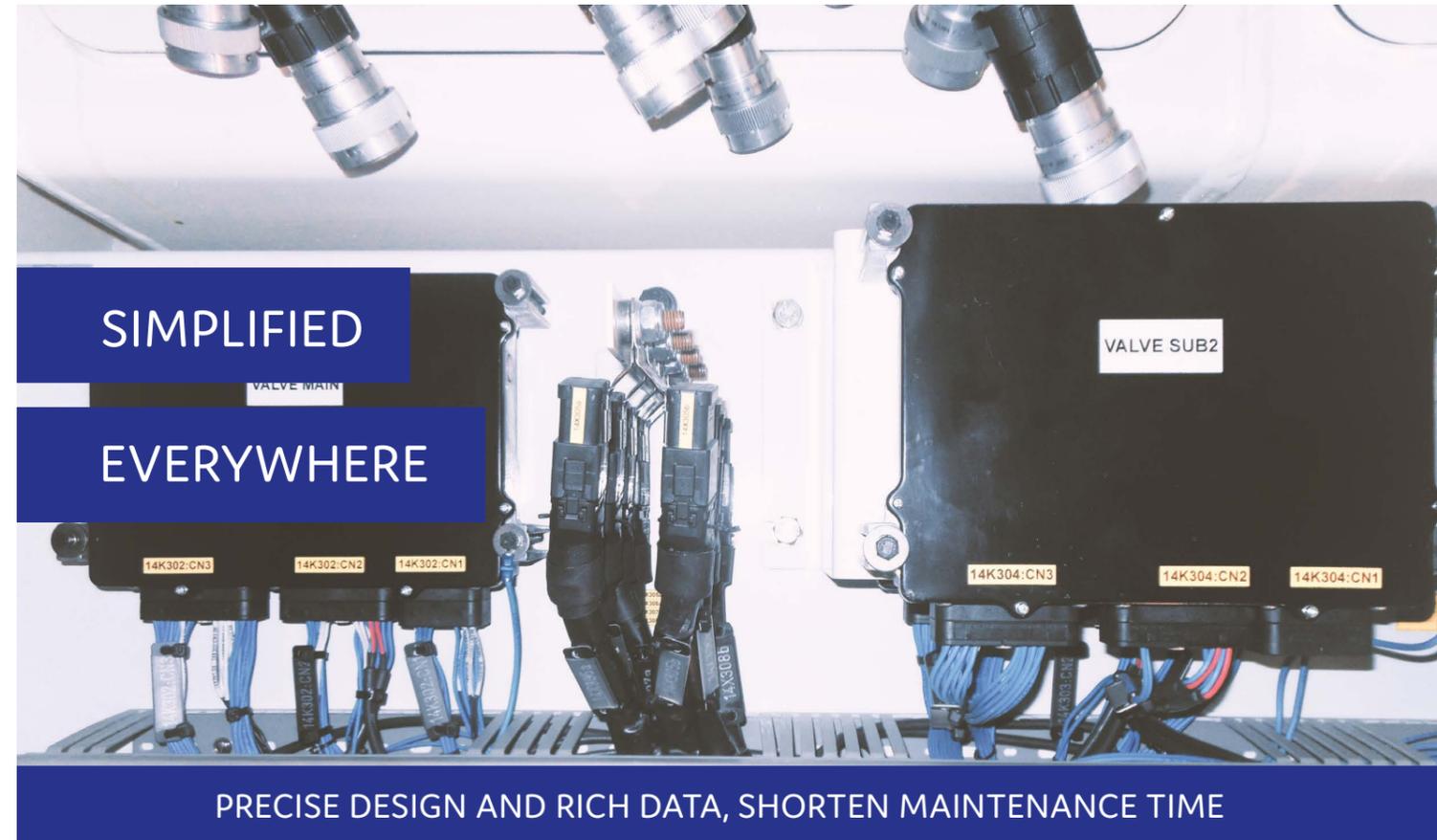


EASIER MAINTENANCE

The simplified system is a result of engineering power. Saving of electrical parts as well as no need for additional node boxes and the release of new controller generation.

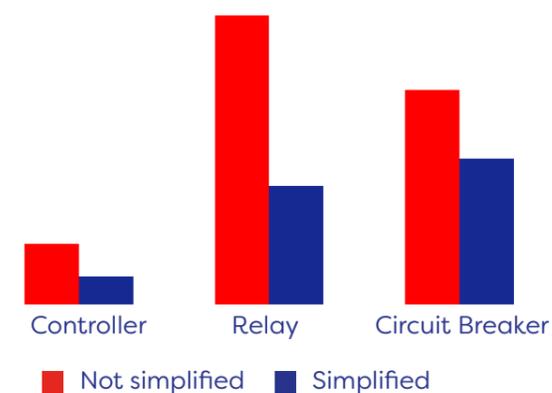
Added to this, we worked on a well structured, clean and lean electrical switch cabinet. The relays and connectors are placed in a separated sealed switch cabinet. We enhanced the extended machine settings to adjust via the Komtrax Plus monitor in the cabin. We developed new sensors for measuring data. Thus, we can show every error on the machine for real-time maintenance.

Through our new developments, customers have a simplified troubleshooting, higher availability and lower cost per tone.

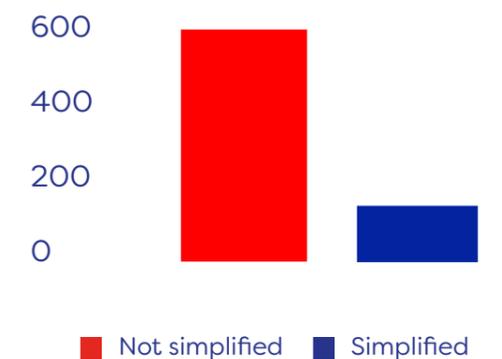


Our goal was to reduce and simplify the electrical system. As a result of it, we reduced the random harnesses. Using a redundancy CAN-BUS system for a high level of reliability and a high safety standard due to the redundancy control lines. Extended machine settings can be adjusted via the Komtrax Plus monitor in the cabin. The PC4000-11 provides a tidied up, simplified system which helps the customer to have an easier access to the harnesses and a better troubleshooting support.

LESS ELECTRONICAL COMPONENTS



DOWNTIME REDUCTION





THE EFFICIENT
MONITORING
SYSTEM

ONCE YOU HAVE USED IT, YOU DON'T WANT TO MISS IT

KOMTRAX PLUS 2 CONSISTS OF

Komtrax Plus 2 is the development of the well-proven and optional Komtrax Plus monitoring system from Komatsu with years of experience.

The system provides realtime machine data to the operator and to the maintenance crew. Fault messages are monitored, stored and alarmed by acoustic and visual alarms as standard. Added to this Komtrax Plus 2, offers a reduction of service time by easy maintenance condition analysis. As well as an comprehensive reporting function for the mine management.

| | | |
|--|-------------------------|-----------------------------|
| Error history and simplified troubleshooting | | |
| | Error history data list | Simplified maintenance data |
| | | |
| | Condition monitoring | Preventive maintenance |



KOMTRAX PLUS 2

IS A BREAKTHROUGH TO

ENHANCE YOUR PRODUCTIVITY



THE
PROTECTION



... TO HAVE A
BIRDS-EYE-VIEW
OF THE EXCAVATOR

KOMVISION HELPS THE OPERATOR TO AVOID DANGER

WE PROTECT THE OPERATOR

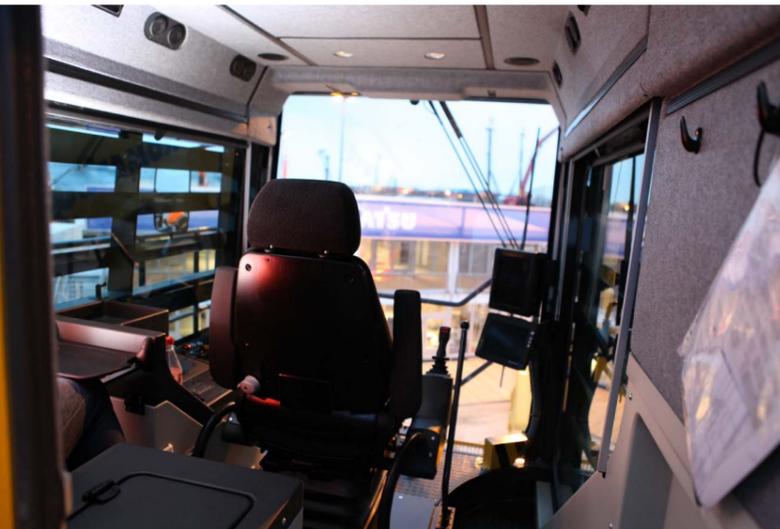
Safety is the major topic in the mining industry. KomVision helps to reduce the accidents at the job site and it provides a better feeling for the operators.

KomVision is one of our key features regarding safety. It helps to protect the operator from dangers. Several cameras on and around the excavator are mounted to grant the best safety conditions.

Selected areas around the excavators mark the safety area, the working area and the dumping area. The operator recognizes any movement of foreign objects in his working area and can react. All devices of the seven implemented cameras are available for a single view to provide a detailed image of the surroundings.

| Product | Standard | Option |
|-----------|----------|--------|
| PC4000-11 | | x |





INTERIOR VIEW OF THE CABIN



A PLACE TO FEEL COMFORTABLE



EXTERIOR VIEW OF THE CABIN

COMFORTABLE CABIN

The large and comfortable cab is mounted on 18 viscous damping pads and is sound insulated. The cabin has automatic climate control and is pressurised. The operator's seat is air-suspended, electrically heated and has a two-point seatbelt and offers multiple adjustments. The second seat is also equipped with a seat belt. Low-effort joystick controls are electrohydraulic with foot pedals for front shovel clam, crawler and swing brake.

OPERATOR CUSTOMIZED

Full instrumentation, KOMTRAX Plus and an AM/FM radio with CD player and AUX in is installed. The windshield wiper has two speeds and intermittent operation. Amenities include a refrigerator and storage cabinets. Heated mirrors are adjustable from inside the cab. External metal sun blinds on the cab side window and internal roller blinds on all windows are standard. The left-hand window is an emergency exit. All windows are tinted parsol green. The cab has a special penetration proof front window (acc. DIN EN1063, resistance classification BR2-S) to increase the safety level of the operator. There is a walkway around the cabin.

ISO CERTIFIED SAFETY

- FOPS-test standard certified
- ISO 10262 - Earth-moving machinery - Hydraulic excavators - Laboratory tests and performance requirements for operator protective guards
- ISO 6394 - Determination of emission sound pressure level at operator's position - Stationary test conditions
- ISO 10263-4 Heating and air conditioning - Second heater or air second conditioner as an option



YOU WILL BE

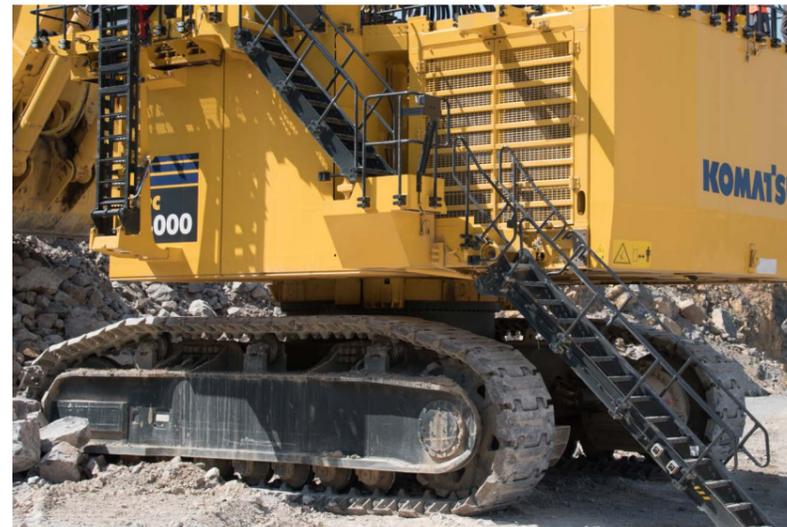
THRILLED BY THE

EASY OPERATION



ACCESS SYSTEM

The access system has been newly designed to grant the best safety conditions for the operator. The access and egress system is designed to meet the highest standards in comfort and safety. The 45° stairway system allows the operator and the maintenance staff comfortable and safe access to the machinery house level and cab level. The stairway system with steps made of anti-slip gratings and an additional anti-slip edge are the main features.



45° ACCESS STAIRWAY SYSTEM

EMERGENCY EXIT

An unique emergency egress system allows the operator to escape from the machine in case of an emergency event. The newly developed two solid flip-down emergency ladders will enable a way out from each side of the excavator. The emergency hatch which enables the escape from the machinery house up to the roof is also a part of the emergency egress system. It is unique in our excavator class and makes our machines safer. All this results in an unrivalled safety for the operator and the maintenance staff.



EMERGENCY RESCUE HATCH

MAINTENANCE

Wide walkways to the regular service points, proper platforms equipped with handrail and kickboards as well as easy access to all service points provide a high safety standard for maintenance. When we simplified the maintenance, one of the primary focuses was the accessibility and safety during servicing and the accessibility for maintenance activities. The working space in the machinery house had been extended, the first stage fuel filter had been removed into the fuel tank structure and is to reach from the machinery house easy.



SIMPLIFIED MAINTENANCE



WE HAVE THE

RESPONSIBILITY TO

PROVIDE THE SAFEST PRODUCTS

THE ENGINE

The engine, a long proven 16-cylinder SDA16V160E-3 Komatsu power aggregate with a power of 1400kW is still the core component in the PC4000-11. The engine, which is single stage turbocharged, and aftercooled, has been improved by new settings to full fill all relevant requirements of the EPA Tier 4 final regulations and to be part of the complete exhaust after-treatment-system. Provided by fuel from the onboard fuel tank the engine is able to run 24h without interruption. We combine reliability with durability to enable an efficient production.



IMPROVED ENGINE COMPONENTS

THE SYSTEM

With the new settings of the engine, Komatsu could reduce the Particulate Matter (PM) in-cylinder. This reduction of the PM is only one element of the new Tier 4 final concept of the PC4000-11. The other important element is the Oxides of Nitrogen (NOx) control through the Selective Catalytic Reduction (SCR) system. By replacing the previous silencer of the exhaust system in the excavator, no additional space for the SCR is necessary. Injecting Diesel Exhaust Fluid (DEF) into the exhaust flow the SCR system transform the harmful NOx into harmless nitrogen and steam to protect the environment.



REDUCED MAINTENANCE

ENVIRONMENTAL BENEFITS

The reduction of PM and NOx, is the major requirement to full fill the Tier 4 final regulation. The environmental pollution will be reduced significantly. The NOx reduction could be reduced tenfold and even the PM pollution could be reduced almost 14 times in comparison to the Tier 1 regulation. Due to the implementation of all the features, we meet all environmental regulations.



REDUCTION OF FUEL CONSUMPTION



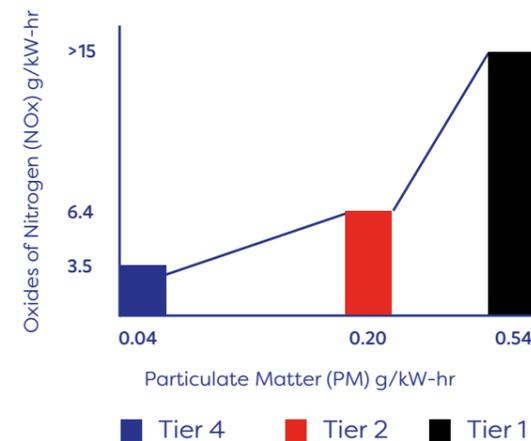
ENVIRONMENTAL PROTECTION



TIER 4 PROVIDES A SIGNIFICANTLY NOX AND PM REDUCTION

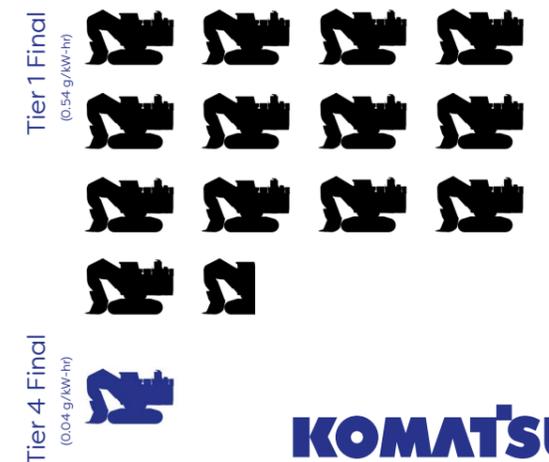
Compared to the Tier 1 version, the NoX reduction of the Tier 4 final version is significantly decreased. Added to this, the emission of particulate matter of one Tier 1 machine comply with 14 Tier 4 final machines. The DEF tank is located on the roof of the excavator and it is injected into the exhaust pipeline where it is binding to the PM to reduce the emissions which you can see underneath.

NOx REDUCTION



PM EMISSION REDUCTION

Fourteen Tier 4 Final machine has the same PM emission like almost one Tier 1 machines





THE PC4000-11 WAS DESIGNED TO CHANGE THE WAY OF OPERATION

OUR TECHNOLOGY MACHINE

The PC4000-11 is available with the latest diesel technology EPA Tier 4-Final to meet the latest environmental regulations or Tier 2 configuration which is still available. The engine power is 1,400 kW (1,875 HP) @ 1,800 rpm.

The features of the engine are electronic engine management, low engine emission levels, optional time savings engine oil management system; Centinel, engine reserve oil supply and eliminator oil filter system.

The operating weight ranges from 393 - 409 tons (866,400 - 901,700 lbs). The shovel capacity is about 22 m³ (29 yd³) SAE 2:1 heaped. The backhoe capacity is about 22 m³ (29 yd³) SAE 1:1 heaped. The PC4000-11 matches from 150 to 240 U.S. ton trucks for the best productivity.

MATCHES:

The right truck match matters when having certain production goals. Komatsu helps you to determine the shovel for your truck.

| Passes per Truck | Short tons | PC4000 |
|------------------|------------|--------|
| HD1500 | 150 | 4 |
| 730E | 200 | 5 |
| 830E | 240 | 6 |

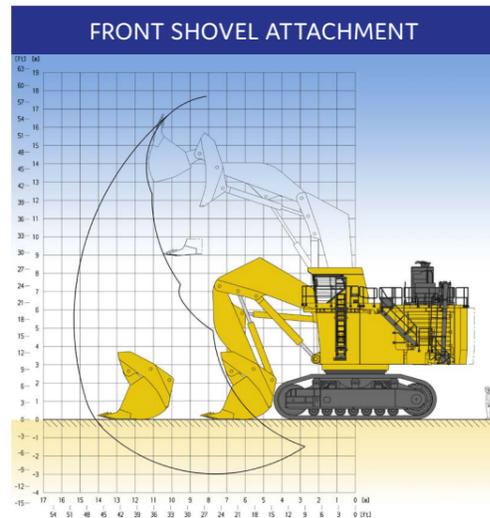
ATTACHMENTS:

Operating weight including 9,750 mm (32'0") boom, 4,500 mm (14'9") stick, 22 m³ (29 yd³) backhoe bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

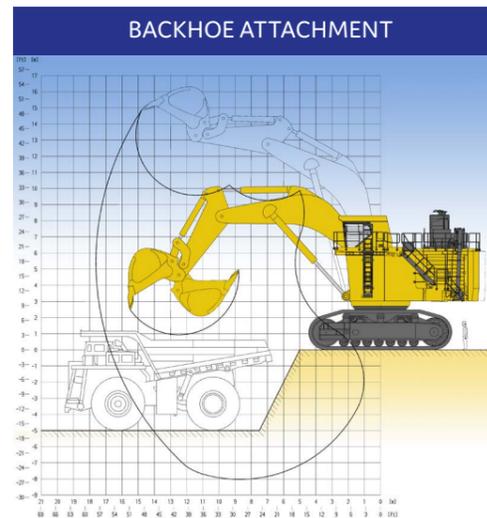
| Type | Shoe width | Operating weight | Ground pressure |
|------------------|----------------|--------------------|-----------------------------------|
| Backhoe - Tier 2 | 1,200 mm (47") | 399 t (879,600 lb) | 21.9 N/cm ² (31.8 psi) |
| Backhoe - Tier 2 | 1,500 mm (59") | 404 t (890,700 lb) | 17.7 N/cm ² (25.7 psi) |
| Backhoe - Tier 4 | 1,200 mm (47") | 404 t (890,700 lb) | 22.2 N/cm ² (32.2 psi) |
| Backhoe - Tier 4 | 1,500 mm (59") | 409 t (901,700 lb) | 17.9 N/cm ² (26.0 psi) |

Operating weight including 7,150 mm (23'6") boom, 4,900 mm (16'1") stick, 22 m³ (29 yd³) shovel bucket, operator, lubricant, coolant, 1/3 fuel and standard equipment.

| Type | Shoe width | Operating weight | Ground pressure |
|-----------------------|----------------|--------------------|-----------------------------------|
| Front Shovel - Tier 2 | 1,200 mm (47") | 393 t (866,400 lb) | 21.5 N/cm ² (31.2 psi) |
| Front Shovel - Tier 2 | 1,500 mm (59") | 398 t (877,400 lb) | 17.5 N/cm ² (25.4 psi) |
| Front Shovel - Tier 4 | 1,200 mm (47") | 398 t (877,400 lb) | 21.8 N/cm ² (31.6 psi) |
| Front Shovel - Tier 4 | 1,500 mm (59") | 403 t (888,500 lb) | 17.7 N/cm ² (25.7 psi) |



| Boom length | Stick length |
|-----------------------|-----------------------|
| 7,150 mm (23'6") | 4,900 mm (16'1") |
| Max. cutting height | Max. dumping height |
| 17,690 mm (58'0") | 11,710 mm (38'5") |
| Max. digging depth | Max. digging reach |
| 2,970 mm (9'9") | 15,330 mm (50'4") |
| Break-out force (ISO) | Crowd force (ISO) |
| 1,349 kN (303,220 lb) | 1,330 kN (298,950 lb) |



| Boom length | Stick length |
|-----------------------|-----------------------|
| 9,750 mm (32'0") | 4,500 mm (14'9") |
| Max. digging height | Max. dumping height |
| 14,880 mm (48'10") | 9,610 mm (31'6") |
| Max. digging depth | Max. digging reach |
| 8,000 mm (26'3") | 17,610 mm (57'9") |
| Break-out force (ISO) | Tear -out force (ISO) |
| 1,239 kN (278,490 lb) | 1,058 kN (237,810 lb) |

DIESEL DRIVE

| | |
|-------------------------|--|
| Model | Komatsu SDA16V160E-2 (Tier 2) Komatsu SDA16V160E-3 (Tier 4) |
| Type | 4-cycle, water-cooled, dir. injection |
| Aspiration | Turbocharged and aftercooled |
| Number of cylinders | 16 |
| Rated power (SAE J1995) | 1,400 kW 1,875 HP @ 1,800 rpm |
| Governor | All-speed, electronic |

The Engine meets EPA T4 final low emissions level by using Selective Catalytic Reduction and High Pressure Common Rail Injection System. The integrated engine oil and filter system combining the oil stabilising systems, Reserve and Eliminator oil filter extends the oil change interval up to 1,000 hours. The high capacity Mesabi engine radiators are cooled by a hydraulically driven fan for cooling efficiency.

ELECTRIC SYSTEM (DIESEL)

| | |
|-----------------------------|--|
| System | 24 V |
| Batteries (series/parallel) | 2 x 2 x 12 V |
| Alternator | 260 A |
| Standard working lights | 14 LED lights |
| Standard service lights | Throughout the platform including emergency egresses and stairways |

UNDERCARRIAGE

Undercarriage consists of one centre carbody and two track frames, each side attached by high torque bolts.

| | |
|--------------|-------------------|
| Centre frame | H-type |
| Track frame | Steel box-section |

CRAWLER ASSEMBLY

| | |
|--------------------------|--------------------------|
| Track adjustment | Automatic hydraulic type |
| Number of track shoes | 49 each side |
| Number of top rollers | 3 each side |
| Number of bottom rollers | 7 each side |

TRAVEL AND BRAKE SYSTEMS

| | |
|------------------------|------------------|
| Gradeability | Up to 50% |
| Travel speed (maximum) | 2.1 km/h 1.3 mph |
| Service brake | Hydraulic brake |
| Parking brake | Multiple-disc |

SWING SYSTEM

| | |
|-----------------------------|-----------------|
| Hydraulic motors and drives | 2 |
| Swing brake, service | Hydraulic brake |
| Swing brake, parking | Multiple-disc |
| Swing ring teeth | External |
| Swing speed | 4.0 rpm |

ELECTRIC SYSTEM (ELECTRIC)

| | |
|-----------------------------|-------------------------|
| System | 24 V |
| Batteries (series/parallel) | 2 x 2 x 12 V |
| Alternator | 260 A |
| Standard working lights | 14 LED lights |
| Standard service lights | Throughout the platform |

ELECTRIC DRIVE -6

| | |
|--------------------|-------------------------------------|
| Type | Squirrel cage induction motor |
| Power output | 1,350 kW |
| Voltage | 6,000 - 7,200 V *(other on request) |
| Amperage (approx.) | 145 A - 120 A |
| Frequency standard | 60 Hz @ 1,800 rpm |
| Frequency option | 50 Hz @ 1,500 rpm |

HYDRAULIC SYSTEM

The power train consists of one main drive. One gearbox drives four identical pumps which draw hydraulic oil from an unpressurised hydraulic tank. Open circuit hydraulics provide maximum cooling and filtering efficiency.

| | |
|--|---------------------------|
| Rated flow (total output) | 4,140 ltr/min / 1,096 gpm |
| Relief valve setting | 310 bar / 4,495 psi |
| Swing flow rate | 1,590 ltr/min / 420 gpm |
| High pressure in line filters one per pump located at the valve blocks | 200 microns |
| Full flow return line filters at head of hydraulic tank | 10 microns |
| Case drain/by-pass return line filters | 3 microns |

The four-circuit system features a load-limiting governor with oil delivery summation to the working circuits and incorporates pressure cut-off control. Hydropilot prioritises hydraulic flow giving smooth hydraulic response, simple hydraulic system layout, and a reduced number of components. The hydraulic system includes large swing-out vertical air-to-oil hydraulic coolers with temperature-regulated hydraulically driven fans.

AUTOMATIC CENTRALISED LUBRICATION

Two hydraulically powered Lincoln single line automatic lubrication systems are provided as standard, complete with time and volume variable controls. The central lube grease system is supplied from a refillable 200 litre (53 gal.) barrel. A second, identical system supplies open gear lubricant to the swing ring teeth through a lube pinion. Replenishment of the containers is through the Wiggins connections on the service arm.

SERVICE CAPACITIES

| | |
|--|----------------------------|
| Hydraulic oil tank | 3,900 ltr / 1,030 U.S. gal |
| Hydraulic system | 5,900 ltr / 1,559 U.S. gal |
| Fuel | 6,910 ltr / 1,826 U.S. gal |
| Engine coolant | 475 ltr / 125 U.S. gal |
| Engine oil | 290 ltr / 77 U.S. gal |
| Reserve engine oil make up tank | 460 ltr / 122 U.S. gal |
| Lubrication system (total) | 400 ltr / 106 U.S. gal |
| DEF (diesel exhaust fluid) tank (only Tier 4 engine) | 587 ltr / 155 U.S. gal |

COMFORT AND ENVIRONMENT

| | |
|---|--------------------------------|
| Vibrations levels | |
| Hand-lever (ISO 5349-1) | lower than 2.5m/s ² |
| Whole body vibration and shock (ISO 2631-1) | below 0.5m/s ² |

Contains fluorinated greenhouse gas HFC-134a (GWP 1430)

PC4000-11 D Quantity of gas 5.0-9.5 kg, CO2 equivalent 7.15-13.59 t

PC4000-6 E Quantity of gas 7.4-11.9 kg, CO2 equivalent 10.58-17.02t

110 YEARS
OF VALUES AND
EXPERIENCE

WE ARE
DÜSSELDORF

OUR MOTIVATION IS TO KEEP THE RAW MATERIALS SUPPLY RUNNING

WE ARE PROUD TO HAVE BEEN BASED IN DÜSSELDORF FOR DECADES

OUR TRADITIONS AND VALUES

Komatsu Germany GmbH is a proud member of the Komatsu Group, one of the largest manufacturers of mining and construction equipment worldwide. In Düsseldorf we are specialized in hydraulic mining excavators.

Today we manufacture five types of hydraulic excavators of between 254 - 773 tons and bucket volumes up to 42 cubic meters in either front shovel or backhoe configuration. Since many of our excavators are used in the most inhospitable regions in the world, with extreme temperatures and under the harshest conditions, we are above all focused on providing quality and reliability.

Nearly 90% of the units we sold in the last 35 years have been supplied to repeat customers. That fact shows our superior quality in manufacturing and our superior service. The oldest currently operating unit with the most working hours is an excavator of the former PC4000 type, which has worked nearly 156,000 hours, that means the equivalent of more than 25 years of continuous service 24/7/365.

KOMATSU

OUR MILESTONES IN DÜSSELDORF

Since the 1930s we have been a production plant in Düsseldorf Benrath. Since then, we have continuously set milestones, year after year. Thanks to the excellent infrastructure and the proximity to the port and airport, we can ship every item in record time. We have been proud to be a part of Düsseldorf for almost 80 years. Since 1980 we have manufactured more than 1,050 excavators, more than 70% of which are still in operation.

In 2017 we opened the „Technical Center“ office building. The Technical Center is a landmark in Düsseldorf Benrath and includes attractive leisure programs and an open-space working area. The great atmosphere results in unrivaled customer service.

We train apprentices, offer further education to our trainees and our employees to develop their knowledge and to keep up to date with the latest state-of-the-art technologies. We live the legendary „SLQDC“ philosophy through all processes and departments to achieve to build the best excavator for our customers' mine.

Please note that the features stated in this brochure are maybe not available for all products. Materials and specifications are subject to change without notice.

KOMATSU

**KOMATSU GERMANY
MINING DIVISION**

KOMATSU-MINING.DE

KOMATSU

