

# WHEELED LOADING SHOVEL



A Product of Hard Work



COMFORT AND PERFORMANCE IN THE MOST DEMANDING APPLICATIONS



**40 years of pioneering production...  
The JCB wheeled loading shovel performs like no other**

A lot has changed in forty years. But one thing hasn't. JCB's commitment to being the best. This drive, which has seen us grow from a UK-based family business to a global brand, is responsible for our dedicated approach to new product development. And that hinges on constant innovation; always looking for better technology, processes, materials and systems to provide our customers with the solutions they need.

Designed with customer input at every stage of the design process, our current wheeled loading shovel line up pays close attention to what you tell us are your major priorities; namely safety, efficiency, ease of use, productivity, performance, availability and comfort. The resulting range is 11 machines, from compact hydrostatic drive models starting at 2 tonnes, to larger powershift workhorses weighing in at over 20 tonnes. All guaranteed to give you more.

## The economics of ownership

More done, more often,  
more value

A machine that can be used more productively, is available for more of the time and then a few years down the line will be worth more than you imagined. Just how does the JCB wheeled loading shovel manage to offer so much more.

**1. More often.** Versatility is the key. A wheeled loading shovel is a flexible tool carrier – so it's always in demand, always producing, always increasing turnover. Through a variety of configurations JCB wheeled loading shovels provide increased utilisation with unrivalled productivity.

**2. More for less.** It's a basic formula – the less time taken to maintain, the more time spent working and earning. Therefore machine availability is of the utmost importance in the design process. Supreme reliability and extended service intervals minimise downtime, so these machines are always ready when you need them.

**3. More value.** Advanced technology, legendary quality, style.... It's a powerful package that, when combined with the strengths of the JCB brand, makes for high residual value. JCB wheeled loaders also keep running costs low and productivity levels high: it's a simple formula but one that requires an incredible amount of technology to realise. Efficiency is key in this, with the JCB loading shovel driveline and hydraulics designed to give the best solution.

If you need a fourth good reason to invest, how about our flexible finance options, along with individually tailored insurance, warranty and service packages. It's a sound investment made easy.



## Feel the force

Grounded in high power,  
torque and efficiency

From the ground up, JCB wheeled loading shovels are designed and built to give you more; more power, more torque, more work done, more for your money.

So let's start on the ground. Here is where you need to win material, through powerful breakout forces, excellent traction and high power-to-weight ratios. You also need all-wheel drive along with torque proportioning or limited slip differentials and a range of tyre profiles, for maximum drive and no slipping. Meanwhile, excellent ground clearance and departure angles also keep things moving.

Moving up to the powertrain, only the finest components result in world-class performance. Efficient engines provide high torque at low engine speeds; a combination of hydrostatic and powershift transmissions deliver fuel efficiency and ease of use; and powerful, efficient hydraulics help to achieve the rapid cycle times that make the difference to your bottom line.

Compact models feature a two-speed hydrostatic drive with larger models utilising a ZF powershift transmission. This fully automatic drive ensures the correct gear is always selected, matching drive to conditions.

Careful attention has also been paid to producing smart hydraulic systems. Gear pump systems are used on compact models giving simple, cost-effective performance. Larger heavyline models feature load-sensing, variable-displacement piston pump hydraulics which only use power on demand, lowering fuel consumption and giving performance when it is most needed.



## Your machine, your way

### A bespoke approach for ultimate versatility



Maximum versatility hinges on tailoring the machine to the specific application required. In all of this, your choices are imperative.

First, choose your loader arm design. Compact hydrostatic models feature parallel-lift loader geometry, ideal for pallet handling with exceptional visibility. Larger heavyline models offer a choice. Opt for ZX and you'll get a machine focused on power, perfect for tough extraction through high breakout forces. Go for HT (High Torque) and you turn your machine into a tool carrier, featuring equal levels of torque throughout the lifting arc with increased visibility.

Next select from a range of loader arm lengths. A choice of standard, high-lift and super-high-lift arms gives the flexibility to load over a variety of heights.

Now the quickhitch. Market compatible and designed to accommodate a vast range of attachments, plus quick-disconnect couplers help speed up attachment changeovers for faster cycle times.

Fourth, hydraulics. All models offer a choice of three- or four-spool hydraulics, with two-spool also available on the ZX. Basically, whatever the attachment, we can tailor the hydraulics for perfectly matched performance.

And just when you thought we'd reached the peak of versatility, JCB goes that extra mile, with our bespoke machine tailoring. So for instance, our waste packages add extra protection while quarry customising may involve higher safety levels and enhanced visibility.



**Are you sitting comfortably?**

Yes, and safely, stylishly, spaciouly, ergonomically, effortlessly...



Keeping the operator comfortable is key to productivity. The machine can do more for less - so can the operator. More, because fatigue-free working increases productivity. Less, because every task is easier and requires reduced effort. JCB wheeled loading shovel cabs are put together with all this, and more, in mind.

Access to the cab is effortless and safe, with well angled and spaced steps combining with perfectly positioned grab handles to give three-point contact.

Every full ROPS/FOPS certified cab is rubber-pad mounted to isolate the operator from vibration and noise. Also with health and safety firmly in mind, we've ensured full 360° visibility and to the attachment at all heights.

For true comfort, the cab interior and controls adapt to individual needs, with fully adjustable steering columns and suspension seats, and a choice of hydraulic control options to suit individual preference.

All controls fall intuitively to hand and are easy to use, and there are lots of added comforts; optional heated seat and mirrors on heavyline models, superb ventilation with optional air conditioning and plenty of storage space, for instance.

Our brief at every stage of cab development is to make the operator's life easier, and therefore more productive. So with optional hydraulic quickhitch pin locking controlled from inside the cab, there's no need to get out to change attachments.



406/409 cab



Above: 411/416 cab Right: 426/436/456 cab



## Prevent and protect

Consummate quality ensures complete reliability and long life



Use the finest raw materials and components, ensure quality at every stage and then protect, protect, protect to guarantee long life and reliability. We put more time, effort and attention to detail into every machine we make – it's no wonder JCB quality is legendary.

As a world-class manufacturer, all of our processes are geared towards optimising quality. We employ cutting-edge design, assembly and purchasing procedures. We only use precision components machined to strict tolerances that ensure long life and less wear. We subject machines to rigorous testing over 1,000s of cycles in a variety of demanding conditions. We use finite element analysis to eliminate high-stress components for a stronger, more durable build. All in pursuit of ultimate quality.

When our wheeled loading shovels leave our factory, we know they're the best they can be. We also know the huge demands they're going to be under and how much our customers rely on their continued productivity. That's why we take steps to protect your investment.

Full underbelly guarding packages are available to protect the main driveline components. Electrophoretically dipping the cab protects against corrosion. Positioning of the steer rams high in the articulation region protects against damage. Electronic safeguard systems prevent catastrophic failures, shutting down the machine to protect both it and the operator. Look on it as a battle – this is your armour.



## Easy, quick, safe

Care and attention doesn't  
have to be time consuming



The build quality and inherent reliability of JCB wheeled loading shovels ensure optimum potential uptime. But to keep these incredible machines ready to go to work whenever you are, servicing and maintenance are inevitable.

At JCB, we make the inevitable easier, safer and, with extended service intervals, less frequent. The key is giving engineers and operators ground-level access and grouping components for added efficiency. So checks and fills can be carried out wherever possible without climbing, pressure test points are grouped, all the major components are effortlessly accessed, and grease points are clearly marked (with an auto-greasing option to make life even easier on larger models).

On compact models, a one-piece bonnet gives engine bay access, while the hydraulic valve block, electrical fuses and heater matrix are easily accessed through a side door. Larger models feature gull-wing type doors for engine access and a swing-out fan reveals a single-faced cooling system designed to stay debris-free so the machine always works at the correct temperature giving optimum performance. These models also feature an optional auto-reversing fan, plus you can specify fine mesh air-intake screens for reduced debris entry.

Wheeled loading shovels with the added benefit of an Electronic Monitoring System also feature data logging and downloading for service technicians. The system controls and monitors the components, triggering built-in safeguards that prevent major, costly damage, while fault codes make identifying problems a much quicker process.



**Small machine. Huge versatility.**

Incredible manoeuvrability is achieved through articulated steering and an oscillating centre-pivot design.

Compact dimensions result in unrivalled versatility easy access in confined spaces.

Hydraulic quickhitch options are available to accommodate the vast range of available attachments.

**Power and efficiency where it's needed most**

Tier 3 emissions compliant, oil-cooled Deutz engine delivers high torque at low engine speeds.

World-class, well-balanced powertrain uses only the finest components.

Two-speed range perfectly matches machine speed to the application, for added fuel efficiency.

Limited slip differential axle option allows the machine to maintain traction even in poor ground conditions.

An oscillating centre pivot keeps the wheels in contact with the ground at all times.

**Loader performance designed for effective tool carrying and multi-attachments**

Two-ram loader geometry is designed with a parallel-lift loader end which gives excellent visibility and easy, safe load handling.

Gear pump hydraulics are simple, effective and provide fast cycle times.

Smooth Ride System (SRS) provides load suspension, ensuring material is retained even at higher speeds or on bumpy terrain.

Articulated steering lets you place loads with spot precision, with no need to reposition the whole machine.

Hydrostatic drive provides inching capability for easy load handling.

**Built to keep on performing**

1,000-hour service intervals ensure maximum machine availability and uptime.

Electrochromatically dipped cab prevents corrosion.

Powder-coated paint process ensures the best quality finish.

High quality filtration prevents debris from passing through the hydraulic circuit.

The Smooth Ride System's 'floating' action prevents shock loadings from passing through the machine and causing premature wear or damage to major components and structures.

**Comfortable, safe and fatigue-free working**

Class-leading, spacious cab with intuitive controls maximises operator productivity.

Ergonomically styled with optional fully adjustable air suspension seat and steering column.

Loader controls can be isolated for extra safety when transporting.

Sound suppression and an isolated cab result in low noise and vibration.

Excellent all-round visibility is achieved through expansive glass panels, narrow cab pillars, a sloping bonnet and an unobstructed view to the attachment.

**Safe and simple to operate and maintain**

Through a wide door aperture and simple one-step entry, access to the cab environment is excellent.

Hydrostatic transmission is simple to operate, ideal for rental or multi-user operations.

All daily checks can be carried out quickly and safely from ground level.

A wide opening bonnet gives access to the engine bay and a side opening cab door gives easy access to electrical fuses, heater matrix and hydraulic valve block.

Wet disc brakes give superior stopping power and are virtually maintenance free.

### Powerful, controllable performance gets more done in less time

Efficient, Tier 3 emissions compliant, turbocharged Cummins engine delivers high torque at low engine speeds.

Fully automatic drive configuration with ZF powershift transmission matches machine drive and engine speed to the conditions, maximising fuel efficiency.

Rapid cycle times are achieved through incredible manoeuvrability, fast travel speeds (up to 40kph) and efficient hydraulics.

An oscillating rear axle keeps the machine stable in uneven terrain.

Wet disc brakes give superior stopping power.

Smooth Ride System (SRS) provides load suspension; ensuring material is retained even at higher speeds or on bumpy terrain.

### Loader-arm configurations are designed to perfectly match the application

ZX loader geometry gives power and productivity for tough extraction or bulk handling duties. This design also has reduced maintenance points.

HT (High-Torque) 4-ram loader design transforms the machine into an efficient tool carrier, giving equal levels of torque throughout the complete lifting arc. Designed to provide additional visibility to the loader end, HT is ideal for multi-attachment use with the added benefit of parallel lift.

Range of arm lengths adapt the machine to suit the required lift height: ZX models offer standard or high lift, and HT standard or super high lift.

Range of hydraulic options tailor the machine perfectly to the required attachment and operator preference

### Powerful breakout forces with high traction and power-to-weight ratios allow you to win material effortlessly

Transmission kickdown feature gives increased traction during dig cycles.

Torque proportioning and limited slip differential axle options maintain traction even in poor ground conditions.

Load-sensing, variable-displacement piston pump hydraulics only consume power on demand, giving performance where it's needed most and effective load handling.

Transmission dump function diverts available power with maximum flow to the hydraulics for increased performance during loading duties.



### Simple and safe to service

High-quality, industry-recognised components are reliable and durable.

All daily checks can be carried out quickly and safely from ground level with all components in accessible areas.

Wide opening gull-wing doors provide easy access to the engine area, while a swing-out fan reveals access to the single face cooling pack.

Oil-immersed wet disc brakes are virtually maintenance free for less downtime and maximum machine availability.

### Comfortable, safe and fatigue-free working

Safe path of entry/exit through inclined step access, non-slip surfaces and grab handles, enabling 3-point contact at all times.

Class-leading, spacious cab with ample storage space maximises operator productivity.

Excellent all-round 360° visibility is achieved through expansive glass panels, narrow cab pillars and sloping bonnet, with front quarter panels overlooking the central articulation area.

Sound suppression and a rubber-pad mounted cab give low noise and vibration.

Smooth Ride System reduces shock loadings for a comfortable ride.

Air-conditioning option gives day-long fatigue-free working.

Well-positioned mirrors and an optional reversing camera increase visibility and safety.

An Electronic Monitoring System features a dashboard display panel which shows machine operating conditions, keeping the operator informed.

### Built to keep on performing

Full underbelly guarding packages protect the main driveline components from damage.

Electrophoretically dipped cab prevents corrosion.

Powder-coated paint process ensures the best quality finish and increased residual value.

Electronic safeguard systems prevent catastrophic failures, shutting down the machine in the event of abnormal working conditions.

High-quality filtration prevents debris from passing through the hydraulic circuit.

The Smooth Ride System's 'floating' action prevents shock loadings from passing through the machine and causing premature wear or damage to major components and structures.

An automatic reversing fan option keeps the machine working at its optimum temperature by removing debris from the cooling pack.

## Exceptionally versatile

JCB attachments help you get even more from your machine

When every part of your machine works in harmony, the result is superlative performance.

JCB attachments are all designed and manufactured to be perfectly matched to your machine and application, while our engineering expertise and exhaustive testing ensure quality, reliability and durability.

The breadth of our attachment range is unrivalled. From buckets in every size and style, to speciality hydraulic attachments which can be speedily interchanged using the hydraulic quick couplers: we offer real solutions to specific customer needs, maximising the versatility, profitability and utilisation of your JCB wheeled loading shovel.



### GENERAL PURPOSE SHOVEL

Complete range, fully matched to machine and application for maximum productivity  
Replacement wear parts available from JCB Parts



### 6-IN-1 SHOVEL

Gives true versatility in multi-role applications  
Used as a shovel and for grabbing, grading, backblading, dozing and digging



### HI-TIP SHOVEL

Gives increased load-over height for use with high sided trucks and hoppers



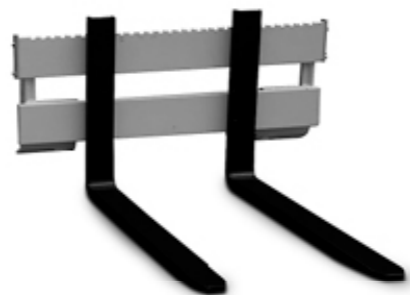
### REFUSE SHOVEL

Incorporating hydraulically operated top grab  
Designs are available tailored to the application, including compost, refuse, waste paper and recycling.



### LOG GRAB

Available in a range of styles with fixed and adjustable forks.  
Twin ram design, heavy-duty construction



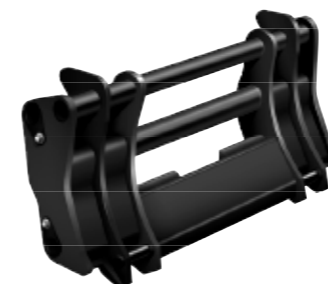
### PALLET FORKS

Used for handling unit loads such as brick and timber packs, steel fabrications and concrete products  
Safe use is facilitated by parallel lift on most JCB loader models



### SWEeper COLLECTOR





Used for site and yard maintenance, and on road repair jobs  
Options are available for water sprinkler system and gutter brush













### QUICKHITCH





Allows increased versatility from the use of multiple attachments on one machine



		403	406	409	411 HT
					
Max. operating weight	kg	1990	5082	5924	9170
Max. gross engine power	kW (hp)	27 (36)	46 (62)	56 (75)	74 (100)
Shovel capacity	m <sup>3</sup>	0.3	0.8	1.0	1.2
Full turn tipping load	kg	–	3300	3914	5300
Payload	kg	–	1650	1957	2650
Max. breakout force	kN	20.5	41.9	53.8	73.2
Dump height @ 45°	mm	2180	2489	2619	2524

		411 HL	416 HT	416 SHL	426 HT	426 HL	426 ZX
							
		9450	10008	10380	14450	14720	14105
		74 (100)	97 (130)	97 (130)	123 (165)	123 (165)	123 (165)
		1.2	1.4	1.40	2.1	2.1	2.1
		5017	6299	4367	8271	6906	8273
		2508	3150	2183	4136	3453	4136
		73.2	100.4	101.4	128	128	135
		2658	2606	3454	2896	3326	2914

		436 HT	436 HL	436 SHL	436 ZX
					
Max. operating weight	kg	15935	16425	16977	16346
Max. gross engine power	kW (hp)	133 (178)	133 (178)	133 (178)	133 (178)
Shovel capacity	m <sup>3</sup>	2.7	2.7	2.7	2.7
Full turn tipping load	kg	9436	7171	5841	9055
Payload	kg	4718	3585	2920	4527
Max. breakout force	kN	134	134	139	162
Dump height @ 45°	mm	2883	3537	4100	2833

		456 HT	456 SHL	456 ZX	456 HL
					
		21179	22079	20924	21335
		160 (215)	160 (215)	160 (215)	160 (215)
		3.5	3.5	3.5	3.5
		12368	7978	12577	9382
		6184	3989	6288	4691
		143	145	154	136
		3027	3993	2845	3416

**Your machine – working efficiently,  
secure and in good health**

JCB LiveLink is the key to all three

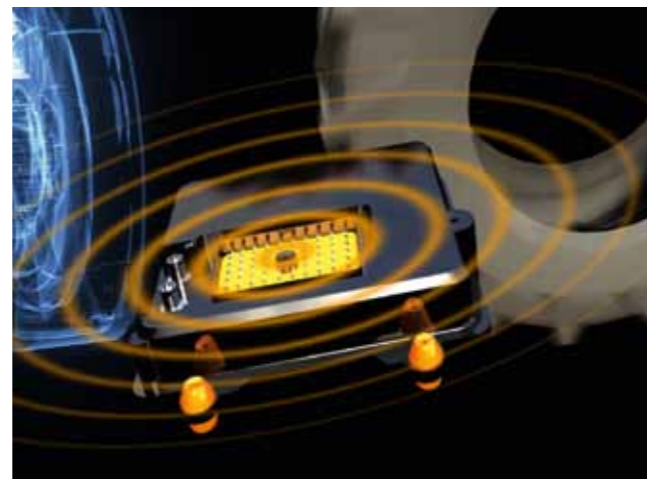
As part of our dedication to looking at new, innovative ways to help you get the most out of your machine, our latest development is JCB LiveLink: an advanced machine monitoring system that enables you to better protect your investment and accurately monitor and improve machine performance.

JCB LiveLink is a software system that enables JCB owners to monitor and manage their machines remotely. All you need is a PC connected to the internet. The LiveLink computer is built into the machine where it collects information from a number of sensors. This information is sent, using mobile communications technology, to JCB's secure data centre. Machine management information is then displayed to users via the LiveLink website, by email or via mobile phone.

By providing you with information on the usage and productivity of your fleet, JCB LiveLink enables you to keep track of each machine's efficiency, ensuring that you get the best value for money possible.

By providing information on the location, movement and activity of machines, the system can also assist in ensuring machines are operated at the correct times and helps to protect them from theft.

And, JCB LiveLink helps machine owners to confirm that their machines are well maintained and in good health without having to travel around work sites inspecting machines.



## A few words about JCB

A groundbreaking, class-leading family business with a commitment to supporting our customers and protecting the environment

**A family company on a global scale.** JCB is no ordinary company. From the dreams of one man, Joseph Cyril Bamford, we have grown into the world's largest privately owned construction company by volume. Since 1945, the same attention to detail, passion for progress and family spirit has taken us from strength to strength.

Nowadays JCB operates across all five continents, manufacturing at 17 factories in the UK, Brazil, Germany, China, North America and India. With 1,500 dealerships and depots selling and supporting our products in over 150 countries, we are one of the top three manufacturers of construction equipment with some of the finest engineering facilities in the world.

**A history of world-class innovation.** Our business has always been driven by innovation, using only the most advanced technology, components and processes, meticulous design and rigorous testing. In heavy products this has meant one of our largest investments to date, £40 million, into a new factory dedicated to producing large excavators. Here, with a team of industry experts and machine specialists, we're designing and developing the heavy machinery of the future.

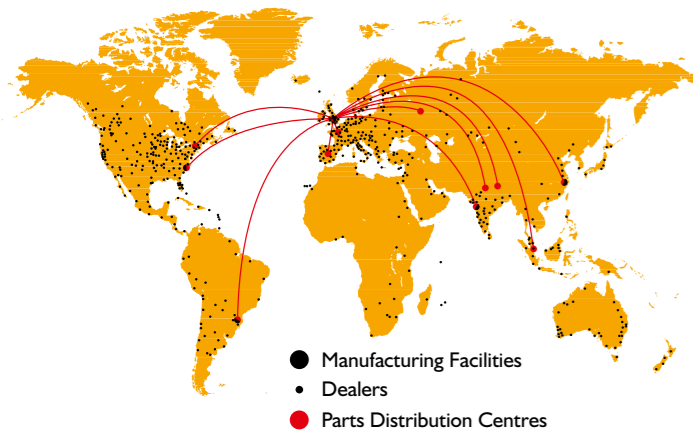


**Sustainability in all we do.** As a manufacturer of working machinery, operating in both established and emerging markets, we accept the challenge of helping to deliver economic and environmental sustainability.

Product innovations that provide the right solutions to our customers have been a vital part of our history and will be key to our sustainable future. But in addition to developing cleaner and more efficient machines, we have a commitment to ensuring our manufacturing facilities meet the highest environmental standards.

**A commitment to our customers that goes on and on.** That's a fact we remind ourselves of constantly, and it's the reason our customers are at the heart of everything we do. Whatever a customer needs, we make it our mission to provide world-class support and 100% satisfaction.

At the heart of this is a dedication to minimising machine downtime. So our state-of-the-art World Parts Centre dispatches more than a million genuine parts and attachments every week, with an 'Anywhere in 24 hours' strategy. Our JCB-trained technicians provide excellent, expert customer care, whether it's routine servicing or something more urgent. And we are constantly looking at new, innovative ways to help you get the most out of your machine.





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