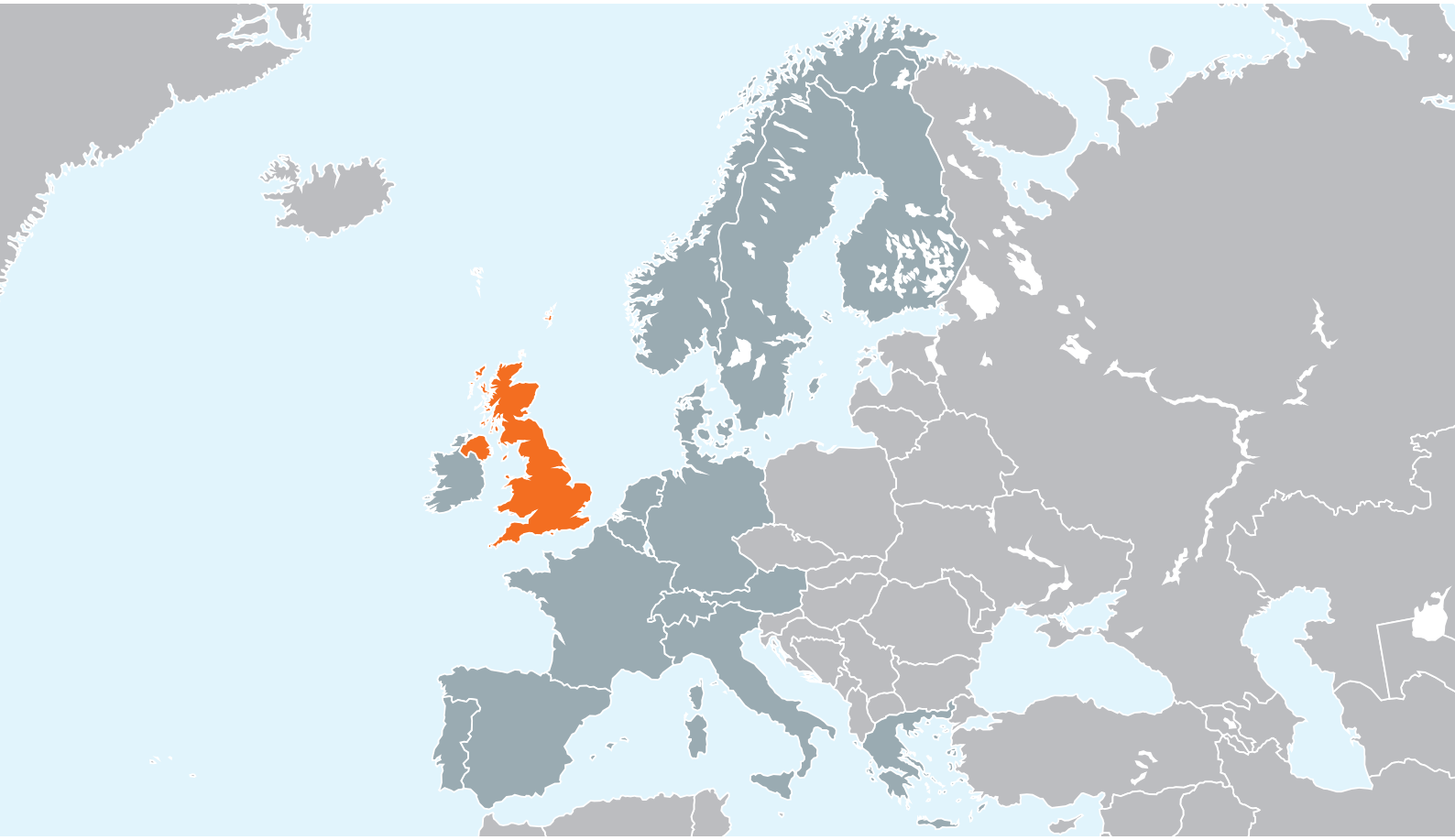
EQUIPMENT ANALYSIS

The construction equipment industry in the UK

CRAWLER EXCAVATORS

OCTOBER 2020



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CONTENTS

INTRODUCTION

This report analyses the UK market for track-mounted hydraulic excavators capable of being turned through 360 degrees, which may range in size from 6 tonnes to over 300 tonnes. The wheeled excavator industry in the UK is now covered in a separate report, as are machines with a weight below 6 tonnes, known as mini excavators. Hydraulic excavators with a weight classification of 6-10 tonnes, often referred to as 'midi' excavators, are included in this report.

The findings presented in this report are based on Off-Highway Research's existing database and on information collected during an extensive interview programme undertaken during September 2020, which included all domestic manufacturers and leading importers.

The UK market for crawler excavators is one of the most competitive sectors in the European construction equipment sector, with more than 20 manufacturers competing and one that always appears to welcome new suppliers.

SUMMARY

Table 1. UK: Statistical summary of crawler excavators, 2019

No. of domestic manufacturers	2
Market leader	Hitachi
Production (units)	4,542
Domestic sales (units)	8,754
Importers' Penetration (%)	79
Population (units)	50,000
Sales Forecast 2024 (units)	8,500

Source: Off-Highway Research

Since the publication of Off-Highway Research's last report on this subject in 2016, the market has enjoyed a good period of growth, only to be followed by Covid-19 which has had a very negative impact upon all sectors of society, and in particular the construction equipment sector. The market enjoyed a period of record growth prior to the arrival of the pandemic, and whilst 2020 was forecast to see some reduction in volumes as the market readjusted, the pandemic accelerated the decline. Overall volumes will be in the region of 20 per cent down in 2020, compared with five per cent that had been originally forecast at the beginning of the year. Any recovery to pre-pandemic levels will not occur until 2023 at the earliest.

Domestic production of crawler excavators had been steadily increasing over the last five years, but with both manufacturers cutting their output in 2020 as a result of the pandemic and future domestic and international markets being badly affected, it is unlikely that there will be much recovery in output for the foreseeable future. There are still only two manufacturers compared to four over a decade ago, but production volumes, whilst not solely dependent upon domestic activity, are often boosted when demand at home is high. The move to the new Stage V engine emission standards has made the European market a more important region for both domestic manufacturers, and thus the outcome of the current Brexit negotiations will have a major impact upon both companies.

Sales of crawler excavators in 2019 had just passed their peak in the current cycle, having increased by 30 per cent since 2015. Given that volumes in 2010 were only 4,270 units, this shows a very solid recovery.

The forecast for sales over the next five years is for a recovery to 8,500 units by 2023 after the expected decline to 5,000 units in 2020. This might present a slightly optimistic picture, as over the next three years the market will decline rapidly before staging a recovery. Apart from the pandemic itself, the population is now much younger than it was five years ago, and there will be no pressure upon hire companies to replenish their fleets. The pressure will only come if all the proposed infrastructure projects go ahead and hire companies and contractors will need to enlarge their fleets to meet demand.

However, the last five years have taught us that external events can have a significant bearing upon demand. The potential problems of Brexit have yet to be resolved and external events have the potential to derail any positive sentiment that currently exists in the market. The government is committed to an expansive infrastructure spend over the next few years, but there must be serious questions over its ability to fund these major projects in the wake of the havoc that the pandemic is currently having on long term finances.

The structure of the market has remained relatively unchanged for almost a decade. The introduction of new emissions standards has forced some companies to replace their older machines, but the most popular sized machines today are still the same as five years ago.

ECONOMIC AND CONSTRUCTION ACTIVITY

Table 2. United Kingdom: Construction output, 2016-2018 (£ million, annual % change, 2016 prices)

	2016	2017	2018	2019
Public housing	4,862	5,499	6,092	7,084
Private housing	29,718	32,181	36,181	40,301
Total housing	34,579	37,681	42,274	47,385
Infrastructure	17,853	19,055	20,604	24,918
Public non-infrastructure	10,770	10,387	9,709	10,587
Private industrial	4,439	4,308	4,938	5,945
Private commercial	28,184	29,552	28,951	31,951
Total new work	95,821	100,983	106,480	120,788
Total housing R&M	27,618	29,273	28,515	28,865
Non-housing R&M	25,255	26,028	27,988	28,363
Total R&M	52,871	55,301	56,503	57,328
Total all work	**148,692**	**156,281**	**162,983**	**178,116**

Source: ONS

Construction output over the last few years had been steadily improving, as shown in Table 2, but 2020's pandemic has had a devastating impact upon the sector. There are signs that the situation is improving but the outlook is most uncertain and any further change in Covid-19 infection rates will have a significant impact on construction activity and equipment demand.

Monthly construction output grew by a record 23.5 per cent in June 2020, substantially higher than the previous record monthly growth of 7.6 per cent in May 2020; despite this strong monthly growth it has come from a very low level, and construction output in June 2020 remained comparatively low at 24.8 per cent below the February 2020 level, which was before the full impact of the pandemic became evident.

Quarterly construction output fell by a record 35.0 per cent in Quarter 2 (April to June) 2020 compared with Quarter 1 (January to March) 2020, and was driven by record falls of 35.2 per cent in new work and 34.7 per cent in repair and maintenance.

The decline in new work (-35.2 per cent in Quarter 2 2020 was because of record quarterly falls in almost every new work sector; the largest contributor was private new housing, which fell by 51.2 per cent in Quarter 2 2020 compared with Quarter 1 2020.

The decrease in repair and maintenance (-34.7%) in the second quarter 2020 was because of record falls in all repair and maintenance sectors; the largest contributor was private housing repair and maintenance, which fell by 46.5 per cent in the second quarter 2020 compared with the previous quarter.

New orders decreased by a record 51.1% in the second quarter compared with the first quarter of 2020; this decrease was because of record falls in both all other work and new housing, which declined by 51.9 per cent and 49.0 per cent, respectively.

The value of new orders in the three months to June was £6,173 million, which was the lowest level of new orders since records began in the first quarter of 1964.

The two sectors that are of most importance to the suppliers of construction equipment are housing and infrastructure. Whilst the results were poor in the latest data, it would appear that the worst is now over, and it is more a case of how long the recovery will take to recoup the lost business caused by the pandemic. The expectation is that it will be 2022 before output once again exceeds 2019 levels.

Table 3. UK: Housing starts and completions, 2015-2019 ('000 units)

	2015	2016	2017	2018	2019
Private Enterprise					
– Completions	110,620	114,650	134,040	134,070	125,300
– Starts	119,630	129,460	129,260	136,440	148,900
Social Housing					
– Completions	31,790	23,930	29,170	30,090	26,800
– Starts	25,060	22,070	27,160	28,110	26,010
Total Completions	142,410	140,660	163,210	164,160	155,270
Total Starts	**146,090**	**153,370**	**156,420**	**164,550**	**174,910**

Source: ONS

Annual housing starts totalled 174,910 units in 2019, up by 4 per cent compared with the year before, and almost 20 per cent above the level seen in 2015. Annual housing completions in England totalled 155,270 in 2019, an increase of 9 per cent compared with 2015, but a decrease of 5 per cent compared to the previous year. The general improvement in the housing market has been one of the major factors behind the recent surge in sales of construction equipment in the country.

The introduction of help-to-buy schemes and reductions in stamp duty has buoyed the housing market and may be contributing to the relatively strong growth in house prices. The increased demand for housing may also be a factor spurring construction in the housing sector.

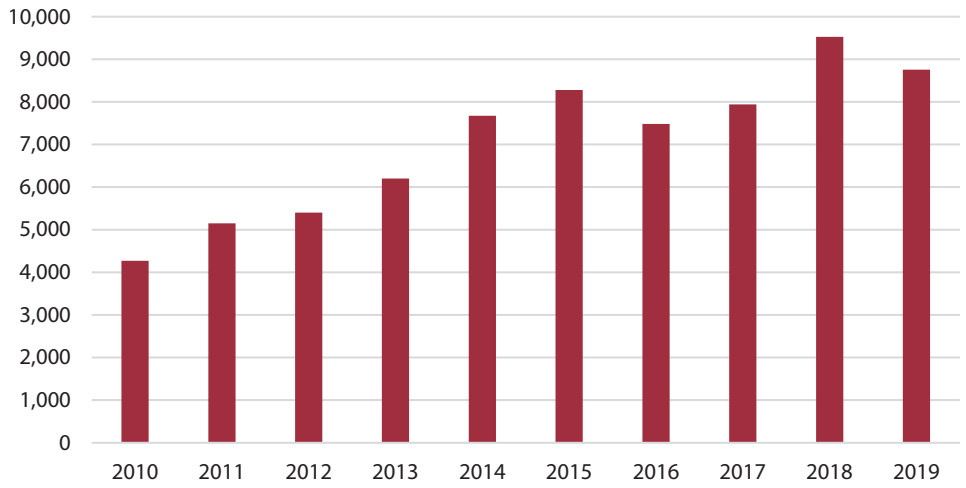
MARKET SIZE AND TRENDS

Table 4. UK: Sales of crawler excavators, 2010-2019 (Units)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4,270	5,150	5,400	6,200	7,675	8,280	7,480	7,940	9,525	8,754

Source: Off-Highway Research

Chart 1. UK: Sales of Crawler Excavators, 2010-2019 (Units)



Source: Off-Highway Research

During the 1990s, average annual crawler excavator sales were 2,694 units, while between 2000 and 2010 they rose by 89 per cent above the average to 5,078 units a year. The last ten years have seen even further improvement, with the average sales volumes rising again to 7,067 units. These figures show that the market had fully recovered from the depths of the recession in 2009. At the peak of demand prior to the last recession, sales of crawler machines in 2007 were considered to have peaked at an unsustainable 8,800 units. Since then, that level was surpassed in 2018 so the recovery can be seen to have been strong and sustained. A correction was expected in 2020, when Off-Highway Research forecast that sales would be some 5 per cent lower at around 8,250 units, but the pandemic in March has resulted in a dramatic demand. It is unlikely that a full recovery will take place within three years.

The pandemic has resulted in a totally different market situation from that seen after the financial crisis of 2008. Then, rental companies offloaded machines very quickly indeed to ensure that liquidity was maintained. This time round, most rental companies have just not renewed their fleets, as opposed to selling them. In a recent survey undertaken by the European trade association, over 75 per cent of rental companies have not reduced their fleets as a result of the current market conditions.

The dramatic decline in sales has been traumatic for many, but with a significant amount of work in the pipeline and due to be released very soon, the recovery this time round should be rather quicker than that of post-2008. There is no question that the current level of optimism is certainly high compared to a decade ago.

A further factor complicating any market outlook is the introduction of Stage V emission engines, for many dealers and manufacturers had been storing Stage IV engines to drip feed into the market during 2020. Unfortunately, the sudden collapse in demand and uncertainty about future demand has meant that many of the Stage IV machines have needed to be offloaded immediately, and often at reduced prices, so 2020 data might well be slightly inflated than would otherwise have been the case.

Looking at machine trends in the last few years, there have been an increasing number of short tail, ultra-short or zero tailswing models introduced. Where two options are available, the zero or the ultra-short version are increasing in popularity. The one sector in which this trend is not so apparent is the ubiquitous 13 tonne crawler class, which is the traditional size of machine preferred by the market. The higher purchase price and doubts over the stability of short tail machines have resulted in many customers of 13 tonnes demanding unchanged specifications.

Some companies, like Kobelco, only offer zero tailswing machines while other suppliers only offer a zero option on certain models, such as Komatsu, on models of 13 tonnes and below. The rationale for zero tailswing is when operating space is limited.

Contractors working on highways require machines that can turn within the width of a single carriageway so that only one lane is shut, and the flow of traffic is maintained. For crawler machines up to 13 tonnes the requirement is a zero or reduced tail swing. This falls to 10 per cent or less when machines of 20 tonnes are used and as the size increases demand for zero tail swings declines.

In Scotland there is little or no demand for zero tail swing machines, as the ground conditions are generally wet and muddy, and customers believe the zero-tail swing option does not offer the stability of a standard machine.

In general, the hydraulic excavator market has not been particularly innovative, partly because the plant hire sector is conservative and wants a cheap, reliable product, but more importantly because the UK accounts for only a fraction of total world demand. This has meant that very often the customer has to accept the standard machine available from European or Far Eastern suppliers, together with its inherently higher level of sophistication than would otherwise have been liked.

This conservatism is highlighted by the dilemma as to when to buy new machines and with what engines. Some companies brought forward their renewal programme to take advantage of the large stocks of Stage IV engines available, rather than purchase the newer, more advanced but more expensive Stage V engines. The debate is also to be seen over the new hybrid concept being introduced by many suppliers. Domestic customers are generally traditional and what they most require is a more reliable, cheaper version of their existing models.

The standard specification calls for machines of between 13 and 25 tonnes being piped for a quick hitch coupler and a hydraulic breaker, while today an extra system is often added for potential rotating use. Caterpillar has included this system as standard on its new series of machines, even though not everybody needs this facility, which is an additional extra cost in a very price competitive sector.

The standard crawler machine has a long undercarriage, something that all zero tail swing machines have. Excavators up to 13 tonnes will have a 700mm shoe, whilst a 25 tonne excavator will have an 800mm shoe.

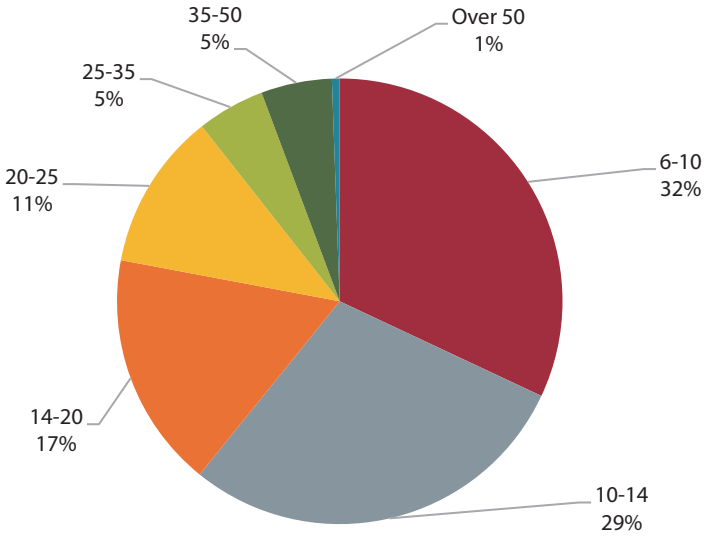
DEVELOPMENTS BY WEIGHT CATEGORY

Table 5. UK: Sales of crawler excavators by weight category, 2007-2019

	2007		2010		2014		2018		2019	
Tonnes	Units	%	Units	%	Units	%	Units	%	Units	%
6-10	2,300	26	1,060	25	2,450	32	3,300	35	2,800	32
10-14	2,700	31	1,360	32	1,920	25	2,700	28	2,525	29
14-20	875	10	425	10	1,230	16	1,700	18	1,500	17
20-25	1,800	20	935	22	1,535	20	975	8	1,000	11
25-35	575	7	295	7	240	3	425	4	430	5
35-50	475	5	170	4	240	3	360	4	450	5
Over 50	75	1	25	1	60	1	65	1	49	1
Total	**8,800**	**100**	**4,270**	**100**	**7,675**	**100**	**9,525**	**100**	**8,754**	**100**

Source: Off-Highway Research

Chart 2. UK: Sales of crawler excavators by weight category, 2019 (tonnes)



Source: Off-Highway Research

Buyers in the crawler excavator market have traditionally showed two distinct preferences in terms of machine weights: the 10-14 tonne, and the 20-25 tonne categories. However, in recent years the market has seen the development of a new and highly important sector, the 'midi' excavator at around 6-10 tonnes.

The 13 tonne machine is popular largely for historical reasons. The plant hire industry originally built up its fleets with a British machine, the Hymac 580, and, given the conservative nature of the industry, continued to buy that size of excavator for no other reason than it had always done so in the past. It can still be justified for use on small development sites, and while the size is still popular, its dominance is waning.

The 20-25 tonne class is the most popular size throughout most of Europe and is the ideal match for a 25 tonne articulated dump truck, and so is much favoured by earthmovers.

The table above shows that it is predominantly the smaller sized machines that have been bought recently, something that is understandable given that it is the plant hire sector that has been replenishing their fleets. The larger machines are largely used by more niche sectors such as demolition, waste and quarrying, and these machines are replaced on a more regular cycle.

The major growth area is now the new 'midi' class of machine with a weight of 6-10 tonnes, and in the recent past approximately one in three of all new sales have been in this category. Whereas once the argument in this sector was whether customers required a product that had the sophistication of a standard excavator coupled with the advantage of the zero tail swing of a mini excavator, or merely a larger mini excavator with its more basic specification and lower price, the latter has prevailed. Better engines and designs mean machines in this category are now as powerful as larger machines were only a few years ago. In addition to being able to undertake the same work as would previously have been done with larger machines, the size and range of attachments that can be used with them has also increased.

Demand for excavators over 50 tonnes' capacity has been reduced in line with the decline in the opencast coal sector, while the quarrying sector replaced much of its fleet in the years prior to the recession, and with the contraction of this sector due to mergers and acquisitions, volumes, while up on three years ago, are still at a low level.

There has been a gradual trend towards slightly larger machines, but this is largely due to excavators becoming bigger as a result of the changes brought about by the new engine emission rules, rather than any requirement from customers for larger capacity excavators.

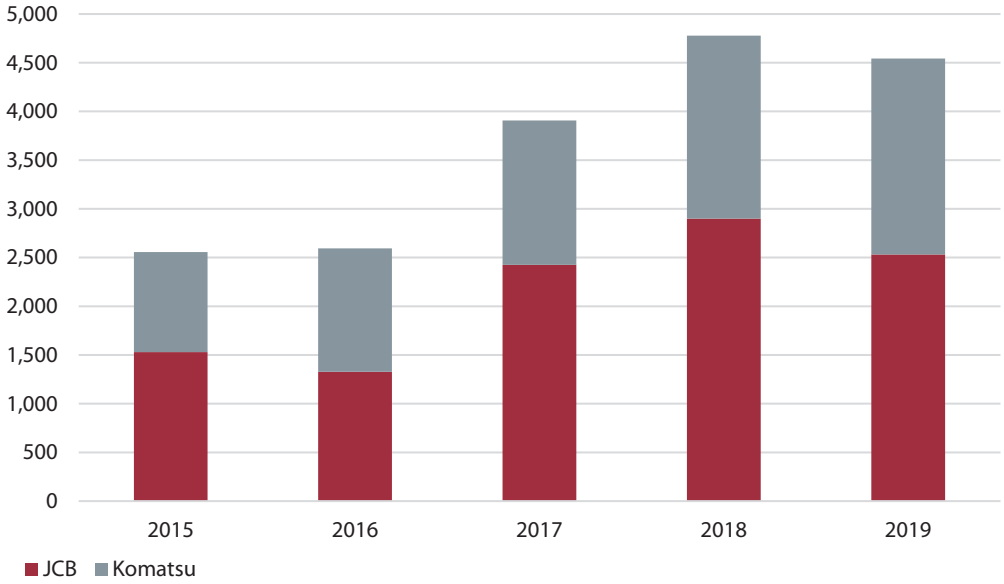
PRODUCTION

Table 6. UK: Production of crawler excavators by company, 2015-2019 (units)

	2015	2016	2017	2018	2019
JCB	1,530	1,327	2,424	2,899	2,532
Komatsu	1026	1,267	1,482	1,879	2,010
Total	**2,556**	**2,594**	**3,906**	**4,778**	**4,542**

Source: Off-Highway Research

Chart 3. UK: Production of crawler excavators by company, 2015-2019 (units)



Source: Off-Highway Research

Production volumes over the last five years have grown steadily, a reflection not only of the improvement in the domestic market, but also throughout Europe where most of the UK's production is destined. Production volumes last year were 77 per cent higher than five years ago, which is a sign of the strong market environment throughout Europe, and also reflects the desire of manufacturers to maximise production volumes before the more expensive Stage V emission engines become mandatory.

JCB

JCB manufactures its hydraulic excavators in its Heavy Products Division, created in 1998 to replace the ill-fated JCB-Sumitomo relationship that foundered when its partner announced it was to create a worldwide association with Case. JCB's success in going independent was underlined in late 2008, when it moved into a new 50,000 m^2 factory that functions as the heart of its excavator operations. The operation is adjacent to the JCB World Parts centre on the main road between Derby and Stoke, approximately 5 kilometres from the company's world headquarters in Rocester.

The new factory is 2.5 times larger than the premises it replaced in the centre of Uttoxeter, and as a specially built facility for excavator production, the efficiency

savings available to the company are enormous. The old site was outdated and cramped, and was restricting the company from expanding its worldwide excavator business.

JCB's substantial investment in the Heavy Products plant has given the company the capability to produce up to 8,000 excavators a year. Obviously, in the current market conditions these capacity volumes remain as offering potential, but are typical of the company in planning for the future and using the recession as a stepping stone for greater achievements when markets begin to recover.

The 50,000 m² plant is split into two main parts – an assembly area and a large fabrication area – and is manned by 48 teams manufacturing its range of 25 tracked and wheeled excavators from seven to 46 tonnes. The new improved facility ensures a higher quality build, and this is reflected in the company extending the standard warranty on the product from one year to two, or up to 3,000 hours.

Part of the investment has been in new machining centres which has put JCB in direct control of component quality. These are also able to self-position and 'find' components to maximise machining accuracy, giving consistent quality to fabrications.

Recently, the company has begun to introduce its new X range of excavators. The first model was the 220 that was launched this year, to be followed by the 131, 140 and 150. The new machines incorporate a larger cab and are generally more operator friendly and efficient than the range they are replacing.

KOMATSU

Komatsu began excavator production in Birtley in 1986, and for many years was the leading producer of crawler excavators in the country. For 14 years from 1992, the plant was also the major worldwide source for Komatsu's wheeled excavators, but in 2005 the decision was taken to move these to Hannover.

The decision to transfer wheeled excavator production was taken for two reasons. First, the growth in the crawler excavator sector throughout Europe, Africa and Middle East and Komatsu's increasing share of the market meant that there was pressure on Birtley to increase production significantly. Its ability to meet this increased demand was restricted by the continued production of wheeled excavators. Second, Germany was a more natural production source for wheeled excavators, being their single largest market, and where many key component suppliers were based. During 2006 wheeled excavator production was phased out in Birtley and moved to Germany.

The financial crisis of 2008 brought the production boom to an end with devastating results. Production fell 95 per cent in 2009 when only 169 units were manufactured at Birtley. There was a fivefold increase in 2010 but again production was under 1,000 units, a level not seen since production began in the mid-1980s. Production increased again in 2011, before the decision was taken to move the 13 tonne model to Italy. This brought a reduction in volumes in 2012 and when the PC170 was moved to Italy in 2014, production volumes fell again.

However, despite the low volumes, new models of the Dash 10 continued to be launched, particularly specialist machines such as the PC450 high demolition machine. Komatsu also launched the first hybrid excavator in 2008 and showed it in Europe for the first time at the Bauma exhibition in April 2010, and the company has now introduced the hybrid HB215 to the Birtley facility. Powered by the Komatsu Hybrid System, the hybrids use a newly developed electric swing motor, power generator motor, capacitor, and diesel engine. Komatsu developed its hybrid system to work on the principle of swing energy regeneration and energy storage using the Komatsu Ultra Capacitor system.

The current model range produced in Birtley includes all standard crawler models from the PC210 up to and including the PC800 rated at 79 tonnes.

The factory covers an area of 202,540 m^2, of which 74,200 m^2 is covered and is constantly being upgraded. Production is undertaken in an area of 50,000 m^2. The production process is fully flexible with different models on the same production line, while there is a separate line is for the PC600 and PC800 models where volumes are considerably smaller. Because of the size of these two models, they are shipped in three separate sections and assembled in the country of destination. However, before shipping, each machine is fully built up and tested at the factory before it is broken down again into sections for shipping. Approximately 400 people work at the factory.

The factory is now an important part of Komatsu's general marketing strategy. The site includes a well-equipped demonstration ground that was built in 1999 as well as full training facilities, and is able to help hold stock for its dealers in its two main markets, the UK and Germany.

COMPONENT SOURCING

Table 7. UK: Suppliers of crawler excavator components, 2019

	JCB	Komatsu
Cabs	JCB	Komatsu
Cylinders	Kayaba	Komatsu
Engines	Isuzu, Kohler, JCB	Komatsu, Cummins
Hydraulics		
– Motors	Toshiba, Kayaba, Kawasaki	Komatsu
– Pumps	Kawasaki	Komatsu, Kayaba
Transmissions	ZF, Bosch Rexroth	-
Undercarriages	Berco	Komatsu, Berco

Source: Company Information

While the last three years have seen many market changes, there have been relatively few alterations in the component supply arrangements of the two domestic manufacturers.

Komatsu's policy is to create a pool of high-quality component suppliers to which it remains loyal, provided quality, pricing and delivery schedules are maintained. The introduction of the new Dash 10 Series in 2012 saw quite a significant overhaul in their specifications, as all models incorporated a new engine to meet Stage IIIB regulations, which is the result of the Komatsu-Cummins joint venture, with all engines up to the PC450 built locally at the Cummins Darlington plant. Engines in the PC600 and PC800 are sourced from Japan due to their lower volumes. In 2014, Komatsu launched the new Dash 11 version of the PC240 and PC490 that incorporates the new Tier 4 engines.

The Birtley plant manufactures its own booms, counterweights, and frames, while the arms are sourced from Komatsu's facility in China. The company's factories in Japan supply it with cabs, cylinders, and hydraulic motors. Many of its requirements are sourced from its other factories around the world.

JCB's product range is currently being upgraded in line with the introduction of Tier 4 engines, and as a result, several changes have been introduced to the model range. The Kohler engine made specifically for JCB has been introduced on the midi sized machines, whilst the JCB engine is used on machines from 12 to 25 tonnes. Models above this range and currently outside the JCB engine range still use the Isuzu engine. In line with most other European manufacturers, Japanese componentry is heavily used, and as well as the Isuzu engine hydraulics continue to come from a variety of Japanese sources.

The one significant change over the last three years has seen the introduction of JCB's own cab, replacing the one previously supplied by TIM.

FOREIGN TRADE

Table 8. UK: Exports of crawler excavators by supplier, 2018-2019

	2018		2019	
	Units	% of production	Units	% of production
JCB	1,640	57	1,525	60
Komatsu	1,000	53	1,050	52
Total	**2,640**	**55**	**2,575**	**57**

Source: Off-Highway Research

JCB's Rocester factory is its main source for crawler excavators, although the company has invested heavily in India by building a new Heavy Products factory in Pune, and a new factory in Brazil. It is this flexibility in production, as well as JCB's ability to make quick and decisive decisions, that allows the company to often benefit from any sudden changes in demand in any of its markets.

Komatsu's Birtley factory sells mostly to Europe, Africa and to the Middle East, but has in the last few years in more buoyant market conditions than today, shipped small volumes to the Americas to meet growing demand that could not be met by its local factory.

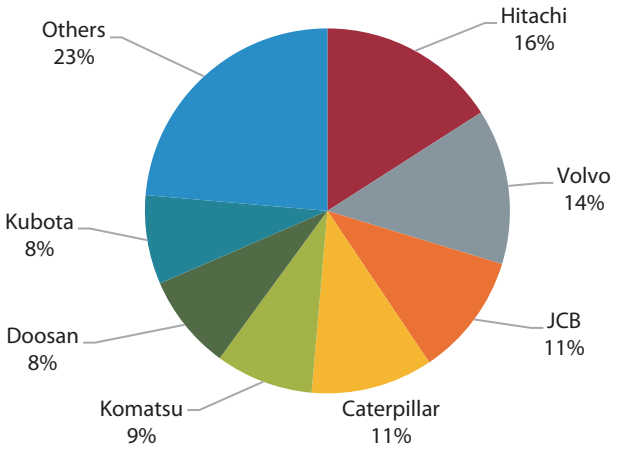
MARKET SHARES

Table 9. UK: Suppliers of crawler excavators and their market shares, 2015-2019

	2015		2016		2017		2018		2019	
	Units	%	Units	%	Units	%	Units	%	Units	%
Hitachi	1,388	17	1,075	14	1,100	14	1,190	12	1,475	17
Volvo	640	8	650	9	780	10	1,560	16	1,274	15
JCB	1,312	16	1,017	14	1,111	14	1,240	13	1,006	11
Caterpillar	1,102	13	970	13	975	12	1,050	11	1,000	11
Komatsu	716	9	546	7	650	8	789	8	802	9
Doosan	682	8	779	10	749	9	781	8	700	8
Kubota	429	5	471	6	511	6	729	8	635	7
Kobelco	199	2	294	4	285	4	504	5	477	5
Case	514	6	650	9	594	7	492	5	426	5
Hyundai	611	7	502	7	487	6	407	4	281	3
Takeuchi	204	2	210	3	185	2	215	2	190	2
LiuGong	78	1	75	1	160	2	170	2	150	2
Wacker Neuson	61	1	26		92	1	152	2	123	1
Bobcat	103	1	70	1	117	1	102	1	79	1
Liebherr	85	1	105	1	100	1	95	1	75	1
Yanmar	60	1	11		11		40		30	
Others	4		10		29		1		26	
Sany	20		2		-	-	2		5	
Atlas	2		2		4		5		-	-
Eurocomach	-	-	-	-	-	-	1		-	-
New Holland	70	1	15		-	-	-	-	-	-
Others	4		10		29		1		26	
Total	**8,284**	**100**	**7,490**	**100**	**7,969**	**100**	**9,526**	**100**	**8,780**	**100**

Source: Off-Highway Research

Chart 4. UK: Suppliers of crawler excavators and their market shares, 2019



Source: Off-Highway Research

The last decade has seen great volatility in demand throughout much of Europe. It started with the financial crisis in 2008 and is ending with the Covid-19 pandemic, while in between there has been the uncertainty of Brexit, which has still not been resolved, and the enforced introduction of new engine emission standards. In spite of all these events, demand reached record levels over a sustained period, as a result of which one would have expected significant changes in markets shares. While there has been some movement in market positioning, the level of change has been relatively minor.

There was certainly more change in 2009 after the financial crisis, when dealers and manufactures were left with large stocks of machines, either at the factory or in dealers' yards, when orders dried up. The options were to seek 'fire sale' orders, trying to dispose of stocks to willing customers who had a ready outlet, often overseas, or to sit and wait out the crisis. It would appear that the harsh lessons of 2008-2009 have largely been remembered and avoided in 2020.

The last two years have been more a reflection of which company was able to meet the demand as markets around the world reached unprecedented levels. Rental companies have purchased large fleets in single orders, but despite this market shares have remained relatively stable. However, the crawler excavator market remains highly competitive, and one in which a large order from one of the major rental companies can determine a significant change in market share.

Market leadership has changed on several occasions throughout the last decade and will doubtless continue to do so in the future. The fact that there are so many companies vying for market leadership means that the customer is the ultimate winner, enjoying competitive prices and good service support for the latest available technology.

HITACHI

This operation is wholly owned by Hitachi Construction Machinery, which has proved to be a great asset over recent years, and was a major beneficiary when Hitachi needed to offload large quantities of stock held at its Dutch factory. However, the excellent crawler excavator range has been well received by domestic customers over a number of years, and this has allowed the company to greatly increase its share of the market. Hitachi is one of the leading brands and is likely to remain so in the future, but its share of the market will still fluctuate dependent upon which customers are buying machines in bulk.

VOLVO

Volvo is the one company to have made a significant improvement in the last couple of years, which can be attributed to the fact that its dealer ceased to be a company owned subsidiary when it was bought by its dealer SMT International. SMT GB is now one of 29 Volvo dealerships worldwide that is owned by SMT International, including Belgium and the Netherlands in Europe, and Africa. The change in ownership has allowed the company to be more aggressive in the marketplace, enabling it to operate with high stock levels which allowed the company to take advantage of the growth in sales in 2018. It was able to offer customers environmentally friendly engines before most competitors, which has been well received by many customers.

JCB

JCB has often been a beneficiary during volatile times and one would expect the company to benefit in the current situation. However, over the last couple of year it has seen its share fall slightly, reflecting the growth in sales has been in those end-user sectors where the competition is currently stronger.

CATERPILLAR

Caterpillar has the most extensive product range available but has not always achieved the results that it or its dealer might have expected. It is seen as being traditionally strong in products over 25 tonnes, where it has done particularly well in recent years, but is not so strong in the growing midi size sector under 10 tonnes.

KOMATSU

Komatsu is the company that fared the worst from the surplus of product after the collapse of the market in 2008. It quickly sought to balance out production and sales, and its market share recovered significantly in 2011 and 2012. The last couple of years have seen its share remain steady.

DOOSAN

Doosan has maintained a steady level of sales over the last five years, which is a reflection of the strong position the company now enjoys in the market, but also a realisation that to grow to the next level it will have to sell hard to the rental companies that traditionally purchase from the leading two or three suppliers.

HYUNDAI

Hyundai has seen its sales and market share halve over the last five years, indicating that it does not offer enough machines in the significant growth class of machine, the midi excavator.

KOBELCO

A re-entrant to the market in 2014 following its separation from the joint venture with Fiat, Kobelco has made steady progress over the last five years. The company had a wealth of goodwill from customers who had previously bought its products in the early 2000s, and it has been able to build upon that solid base with an excellent product range. This has helped the company attract an excellent national dealer in the Molson Group which has greatly enhanced the Kobelco name since its appointment.

CASE

Case has had a difficult period in recent years as corporate changes and pronouncements have negatively impacted the company.

LIUGONG

The company has established a significant foothold in the market, but the task ahead is to develop that position at a time when demand is declining, and new, more advanced machines are required.

LIEBHERR

Liebherr has never been a leading volume supplier, largely because the company has a reputation for supplying high quality, premium specification, high priced machines which have never found favour with the low cost preferences of the dominant customer, the plant hirer. Nevertheless, the company has been able to be selective in what business it does receive, and this ensures an excellent reputation for resale values, as well as good levels of profitability from new sales.

The rapid rise in the midi sector has seen many companies that were once confined to the mini excavator market making significant inroads into the standard excavator sector. There are seven companies that were once considered mini excavator companies very active in the standard excavator sector.

As a result, companies such as **Takeuchi**, **Yanmar**, **Bobcat**, **Wacker Neuson** and **Kubota** now have a combined 12 per cent share of the market, a level that is likely to grow over the next few years.

MARKETING AND DISTRIBUTION

Table 10. UK: Distribution networks for crawler excavators, 2020

Manufacturer	Company subsidiary	Independent importer	Branches	Independent dealers	Direct sales	Number of outlets
Bobcat	No	Yes	-	18	Yes	33
Case	Yes	No	-	10	Yes	13
Caterpillar	No	Yes	-	2	No	13
Doosan	Yes	No	1	10	No	15
Hitachi	Yes	No	8	-	Yes	8
Hydrema	Yes	No	1	1	Yes	2
Hyundai	No	Yes	-	7	No	7
JCB	Yes	No	1	9	Yes	45
Kobelco	No	Yes	10	-	Yes	13
Komatsu	No	Yes	5	1	No	6
Kubota	Yes	No	1	18	No	22
Liebherr	Yes	No	8	-	Yes	8
LiuGong	Yes	Yes	1	1	Yes	2
Takeuchi	Yes	No	2	30	Yes	30
Volvo	Yes	No	8	-	Yes	8
Yanmar	No	Yes	-	13	Yes	20

Source: Off-Highway Research

All companies agree that the most important factor in promoting a product, and retaining the confidence of the customer, is to offer exceptionally good parts availability and service support. However, the changing economic situation and the increasing pressure on margins in the market have forced many companies to reappraise their dealer networks, and those that have only recently entered the market must be prepared to invest heavily over a number of years before acceptable profits can be achieved.

The concept of a manufacturer having an independent importer, with a network of independent sub-dealers, has not always proved to be cost effective in this market, where profit margins, particularly in selling to the important plant hire sector, are very low. This situation is made even worse where the supplier is only involved in one or two product sectors.

The problem facing potential new suppliers to the market is that there are very few available dealers with national coverage, and even fewer dealers who do not already have a competitive franchise. This has been a major problem for all companies that lost dealers during the economic problems following the financial crisis. The solution is often to extend the area of existing dealers to cover the area lost by another.

The ideal number of branches required to cover the market adequately from a parts and service aspect cannot be quantified, although between six and 10 would appear to be a satisfactory number. The total is dependent upon the level of sales and how widely the customer base is spread.

Both Caterpillar and JCB have an exceptionally wide coverage, but this is more a reflection of their broad and successful range of other products rather than solely the requirements of excavator customers, although their dense coverage has been very beneficial to both companies. Hitachi, Komatsu, and Volvo have proved that such an extensive network is not necessary, as long as the quality of service given is excellent, and that there is total commitment to both the machine and the customer. Recently, Hitachi opened a new depot in Minworth to replace existing depots in Northampton and Birmingham.

It is not necessary for suppliers to have fixed depots throughout the country, for mobile service engineers are sufficient to meet the demands of most customers. Fast moving parts can be delivered by local courier or a service engineer, while major parts can be delivered overnight from centralised parts depots located in Europe. Smaller, independent dealers are more suitable for customers of small horsepower machines. Most local depots will keep only fast-moving items, the volume of parts being dependent upon the number of machines for which they are responsible. However, the average customer is nothing but contrary in that he totally agrees with the above statement, but if a local depot is closed to facilitate more mobile service engineers he is the first to complain about the perceived non-commitment of the manufacturer. This is particularly so in the more remote parts of the country.

The techniques in selling excavators have altered very little in recent years. Extended warranties and repair and maintenance contracts are offered to promote the product and are widely available. The problem of securing finance, prevalent during the financial crisis has now eased and is no longer a barrier to purchasing a new machine.

The level of trade-ins has increased in recent years, but it is still manageable. Dealers are aware of the problems of the building up of second-hand stock and the last three years have taught all dealers not to build up high levels of inventory. In fact, many dealers do not want to keep any stock, which they think should be held by the manufacturer either at its factory or importation point into Europe. This is something manufacturers are loathe to commit to on a long-term basis, but maybe will become a necessity.

The market still has more than 10 major suppliers and a host of smaller ones, and while demand levels were high to ensure even the smallest supplier is gaining sufficient sales to sustain a reasonable distribution network, the significant decline in the market over the last three years has put excessive strain on the smaller companies to maintain an after sales network of acceptable quality.

The growth in the midi sector is largely being served by the major mini excavator suppliers, and they have faced many challenges in recent years. The problem facing all companies is that there are only a limited number of strong, financially secure

companies, which are capable of actively marketing mini excavators and do not already have a franchise. The belief amongst some mini (and now midi) suppliers is that between 15 and 20 outlets are needed to enable a company to compete competitively throughout the country. Nearly all suppliers have this number and some, like JCB, have considerably more. This "ideal" number has been thrown further into doubt by the changing customer base, for fewer hire companies would suggest that fewer outlets are needed to give full national coverage.

Additionally, a greater proportion of business is undertaken directly between the customer and supplier. This particularly applies to the large national and regional hire companies and reduces the need for a large number of full sales, service, and parts dealerships. What is required is national coverage from a support aspect. Many of the full dealerships will be in the far reaches of the country, where a local presence is very much appreciated, but where sales volumes are invariably low.

The companies best served are those that have been in the market the longest, and found good dealers at an early stage, or already had an established network selling other products within the company's range. Those that already have a network still need to adapt it to sell mini (and midi) excavators, for a network originally set up to sell large earthmoving equipment is not necessarily suitable for selling smaller machinery.

PRICING

Pricing has always been a contentious issue with suppliers, for the country has a history of being a low priced, low margin market compared to most others in Europe. This has traditionally been blamed upon the plant hire sector, but suppliers have also played an important role in the problem.

Table 11. UK: Selected transaction prices for crawler excavators, 2004-2020 (£'000)

Tonnes	2004	2008	2011	2015	2020
6-10	-	35-45	38-44	48-55	50-60
10-14	40-48	44-48	44-51	56-70	65-80
18-21	60-75	56-78	58-80	78-96	85-120
25-32	95-130	68-135	80-145	120-240	135-200
50-60	325-400	220-400	175-400	275-350	275+

Source: Off-Highway Research

While price is a very important factor, there appears to be no fear of a price war developing, at the moment at least. Customers want the best machine at the cheapest price, but they are also increasingly aware of other factors, such as after sales service and residual prices, which play a vital part in the purchasing decision.

After a period where the real transaction price of the machine was declining, due to a number of factors, including the increased competition amongst manufacturers, and the fluctuations in the value of Sterling versus the euro.

Over the last few years there has been a significant rise in retail prices, and this has been due to two main reasons. This has been due to two main reasons; the introduction of new emission standard engines which are more expensive to manufacture; and since 2016, Sterling has been on a downward spiral since the announcement that the UK was to leave the EU. The value of Sterling has fallen from around €1.25: £1 to a position today where it is hovering between €1.05-1.10: £1. A view put forward during many discussions over the last three years is that if the rate is above €1.20, dealers will be able to absorb the change but the further the rate falls below that level, the greater the need for suppliers to pass the change on to customers.

However, in 2020, due to the pandemic, some manufacturers have built up stocks of older Stage IV machines which needed to be sold quickly and consequently at reduced prices. However, this is a temporary problem which will be over by the end of the year.

The second-hand market is not quite as buoyant as it was three years ago, but residual values remain strong. This is important because many more machines are being purchased on operator lease schemes, where ownership of the machine stays with the finance house and not the customer. The lease is usually over three years and the customer will know the repayment value. The residual value is important,

as it will determine the number of weeks of work needed at current hire rates to generate a profit for the customer.

Despite the perceived low-priced nature of the market, dealers, hire companies and suppliers all seem to be relatively happy and profitable. Dealers are always seeking to improve their sales and margins, while a recent addition has been the greater use of service contracts particularly with the larger hire companies and operators of excavators. This has enabled those suppliers with superior after sales service facility to maintain and often gain sales.

POPULATION AND END-USERS

Very few suppliers of excavators keep accurate records as to how many machines they have currently working in the field, but data from previous Off-Highway Research reports, and information from its International Database Service, gives one a very good guide. After a period when the population of machines has steadily declined, the four years prior to the pandemic in 2020 have seen a significant increase in the number of machines kept in rental fleets, as companies sought to take advantage of the improving economic conditions and cheap money to upgrade their machines, and in many instances enlarge their fleets.

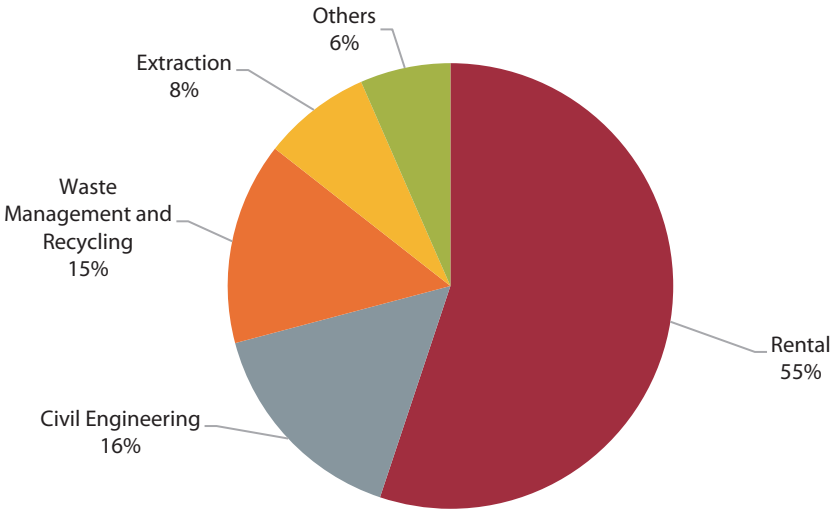
It is estimated that the working population of crawler excavators is now 50,000 units, an increase of 10,000 units since the publication of the last report in 2015. The increase in rental fleets of over 25 per cent reflects the current abundance of work in the market, which is expected to continue in the future

Table 12. UK: Sales of crawler excavators by end-user, 2014-2019

	2014		2019	
	Units	%	Units	%
Rental	4,065	53	5,250	55
Civil engineering	1,225	16	1,500	16
Waste management and recycling	1,150	15	1,400	15
Extraction	615	8	750	8
Demolition	150	2	175	2
Building and light construction	150	2	200	2
Material handling	75	1	100	1
Others	245	3	150	2
Total	7,675	100	9,525	100

Source: Off-Highway Research

Chart 5. UK: Sales of Crawler excavators by end-user, 2019



Source: Off-Highway Research

The years of recession after 2008 saw the population age considerably as well as decline in number, as hire companies sold off the new models first, as they attracted

higher prices. The current fleets are young and to the latest specifications, and are well able to meet current and future demands of the industry.

The plant hire industry dominates the market, but its influence over it is invariably dependent on prevailing economic conditions. In times of recession, the importance of the plant hire sector in the buying process is less important, while in more buoyant times, its ability to dictate volumes can have a significant impact, as has been seen in recent years.

The most significant sectors to have emerged in the last few years have been waste management and recycling, together with scrap and materials handling. The move towards environmentally aware programmes has grown rapidly, and as a result a new industry of waste and recycling is requiring specialist machines to operate to which most of the leading suppliers now offer variations of their standard excavators. However, the real surge in sales over the last few years has been led by the rental companies renewing and extending their fleets.

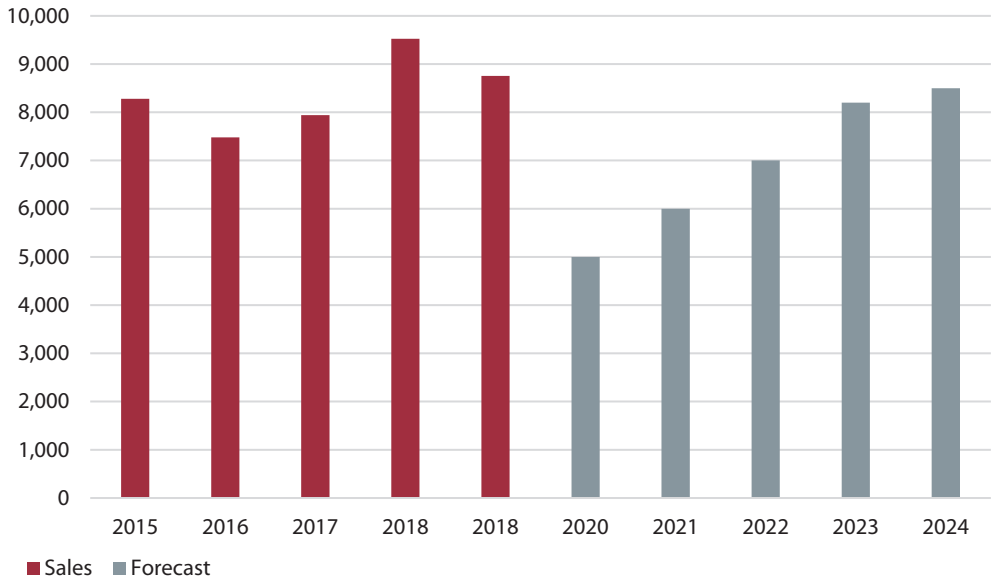
FORECAST

Table 13. UK: Forecast sales of crawler excavators, 2020-2024 (units)

2020	2021	2022	2023	2024
5,000	6,000	7.000	8,200	8,500

Source: Off-Highway Research

Chart 6. UK: Sales and forecast sales of crawler excavators, 2015-2024 (units)



Source: Off-Highway Research

The last five years have seen the market experience a period of steady sales levels at extremely high volumes, and during this period annual average sales have been 8,290 units. This compares very favourably with the annual average of 4,820 units in the five years following the last recession in 2008, and the annual average of 6,100 units in the five years prior to 2008.

This suggests that the market at the beginning of 2020 was approaching saturation point, and that a downward correction would have been inevitable even without the impact of Covid-19. At the beginning of the year Off-Highway Research estimated that the decline for the full year would be around 5 per cent, but accurately calculating the medium term forecast now is very difficult to determine because of the many permutations that have been thrown up by Covid-19 during the last six months.

The three month lockdown period of 23 March to the end of July was a very difficult time for all in the construction sector. In April, all activity was halted, whilst in May some construction sites began to re-open and most were opened by the end of June. The net effect of this was that equipment sales fell 39 per cent in the first six months of 2020 compared to 2019. Sells fell 74 per cent in April, 54 per cent in May and 36 per cent in June.

The good news is that worst would now appear to be over and a strong recovery might be underway, but the damage done in the first six months will take a while to recover from. It was thought at the beginning of the pandemic the damage would be serious but that there would be a rapid recovery, but it is evident that the recovery will be slow and painful.

From crawler excavator sales of 8,755 units in 2019, it is likely that there will be only 5,000 units sold in 2020, and 6,000 units in 2021. It is unlikely that 2019 levels will not be approached until 2023. The positive news is that the recovery appears to be strong, and recent surveys suggest construction output will fall 25 per cent this year but recover 18 per cent next year.

In contrast to the aftermath of the 2008 financial crisis, currently the number of cancelled orders has not been significantly above normal levels, and rental companies are selling off their fleets to generate cash.

The downturn in the market has adversely impacted the larger sized machines used on larger infrastructure projects. This is to be expected, but the government is committed to increasing expenditure on major infrastructure projects and so larger machines should be in favour in future.

Whilst all the signs for the medium term future are positive, there must also be a considerable amount of caution. The outlook is positive, but it is not going to be before 2022 at the very earliest before the market recovers to levels experienced pre-Covid. The level of work is still strong and whilst new orders are being delayed, they are not being cancelled.

At the end of 2020, the UK will leave the EU single market. At the time of writing in late September there is every possibility of a no-deal outcome, and if this would happen most of the machines currently imported would be subject to import tariffs. This cost might be passed on to customers, or absorbed by importers. In any event, the unknowns of both Brexit and Covid-19 will combine to result in a very volatile market for the years to come.

MACHINES AVAILABLE

Table 14. UK: Crawler excavators available, 2020

Manufacturer	Model	HP	Engine Manufacturer	Service weight (tonnes)	Product source
Atlas	160 LC	109	Deutz	18.0	Germany
	170 LC	130	Deutz	19.0	Germany
	190 LC	143	Deutz	19.7	Germany
	225 LC	158	Cummins	23.9	Germany
	260 LC	175	Cummins	26.6	Germany
	340 LC	245	Deutz	35.5	Germany
Bobcat	E62	49	Yanmar	6.2	Czech Republic
	E85	59	Yanmar	8.5	Czech Republic
Case	CX75CSR*	56	Isuzu	8.0	Italy, Japan
	CX80CMSR*	56	Isuzu	8.6	Italy, Japan
	CX85D SR*	69	Yanmar	7.9-8.5	Italy, Japan
	CX90D MSR	69	Yanmar	8.6	Italy, Japan
	CX130D	100	Isuzu	13.2	Italy, Japan
	CX145DSR*	105	Isuzu	15.4	Italy, Japan
	CX160D	115	Isuzu	17.4	Italy, Japan
	CX180D	115	Isuzu	18.5	Italy, Japan
	CX210D	166	Isuzu	21.5	Italy, Japan
	CX240D	166	Isuzu	22.6	Italy, Japan
	CX250D	188	Isuzu	25.4	Italy, Japan
	CX245DSR*	166	Isuzu	26.0	Italy, Japan
	CX300D	207	Isuzu	30.8	Italy, Japan
	CX350D	282	Isuzu	35.8	Italy, Japan
	CX370D	282	Isuzu	38.0	Italy, Japan
	CX490D	362	Isuzu	50.8	Italy, Japan
	CX750D	512	Isuzu	71.4	Italy, Japan
Caterpillar	307.5	56	Caterpillar	8.2	China
	308 CR	70	Caterpillar	9.4	China
	309 CR	70	Caterpillar	9.4	China
	310 CR VAB	70	Caterpillar	9.5	China
	310	70	Caterpillar	10.2	China
	311F L RR	71	Caterpillar	12.9	Japan
	313F L	92	Caterpillar	15.0	Japan
	313F GC	70	Caterpillar	13.2	Japan
	315F L	97	Caterpillar	17.1	Japan
	316F L	117	Caterpillar	17.7	Japan
	318F L	117	Caterpillar	19.1	Japan
	320 GC	121	Caterpillar	22.0	Japan
	320	162	Caterpillar	22.8	Japan
	323	162	Caterpillar	25.4	Japan
	325F L	162	Caterpillar	25.8	Japan
	326	201	Caterpillar	26.0	Japan
	330 GC	205	Caterpillar	30.3	Japan
	330	273	Caterpillar	30.8	Japan
	335F L	200	Caterpillar	37.6	Japan
	336 GC	314	Caterpillar	38.0	Japan
	336	314	Caterpillar	38.5	Japan
	340F	314	Caterpillar	42.8	Japan
	349F	417	Caterpillar	48.6	Japan
	352F L	431	Caterpillar	53.5	Japan
	374F L	492	Caterpillar	75.5	Japan
	390F L	551	Caterpillar	92.3	Japan
	6015B	824	Caterpillar	140.0	Germany
	6020B	1058	Caterpillar	253.0	Germany
	6030/6030FS	1550	Caterpillar	294.0	Germany
	6040/6040FS	2032	Caterpillar	407.0	Germany

Source: Company information

Table 14. UK: Crawler excavators available, 2020 (continued)

Manufacturer	Model	HP	Engine Manufacturer	Service weight (tonnes)	Product source
Caterpillar (continued)	6050/6050FS	2520	Cummins	537.0	Germany
	6060/6060FS	3046	Caterpillar	650.0	Germany
	6090FS	4570	Caterpillar	980.0	Germany
Doosan	DX62R-3	59	Yanmar	6.4	Korea
	DX63-3	49	Yanmar	6.4	Korea
	DX85R-3	59	Yanmar	8.6	Korea
	DX140LC/R-3	109	Perkins	14.5	Korea
	DX160LC-3	109	Perkins	14.4	Korea
	DX140LC-5	117	Perkins	14.4	Korea
	DX140LCR-5	115	Perkins	15.5	Korea
	DX160LC-5-HT	109	Perkins	16.8	Korea
	DX180LC-5	131	Perkins	18.5	Korea
	DX225LC-5	166	Doosan	22.1	Korea
	DX235LCR-5	189	Doosan	24.3	Korea
	DX235NLC-5	166	Doosan	22.4	Korea
	DX255LC-5	190	Doosan	25.5	Korea
	DX300LC-5	271	Doosan	30.9	Korea
	DX300LC-7	271	Doosan	30.3	Korea
	DX340LC-5	318	Doosan	36.2	Korea
	DX350LC-7	290	Doosan	36.1	Korea
	DX380LC-5	318	Doosan	40.2	Korea
	DX420LC-5	345	Doosan	42.6	Korea
	DX490LC-5	379	Doosan	49.5	Korea
	DX530LC-5	379	Doosan	52.1	Korea
Eurocomach	85SB	73	Yanmar	8.3	Italy
	90ZT	73	Yanmar	9.0	Italy
	95UR	73	Yanmar	9.1	Italy
	100TR	73	Yanmar	9.9	Italy
Hidromek	HMK 70 W	95	Electric	NA	Turkey
	HMK 140 LC	123	Isuzu	15.5	Turkey
	HMK 145 LC SR	123	Isuzu	16.8	Turkey
	HMK 220 LC	172	Mitsubishi	22.9	Turkey
	HMK 300 LC	216	Isuzu	31.9	Turkey
	HMK 370 LC	284	Isuzu	39.3	Turkey
	HMK 490 LC HD	362	Isuzu	50.8	Turkey
Hitachi	ZX65USB-6	57	Yanmar	6.2	Japan
	ZX85US-6	57	Yanmar	8.9	Japan
	ZX85USB-6	57	Yanmar	9.0	Japan
	ZX130-6	107	Isuzu	15.7	Netherlands
	ZX135US-6	117	Isuzu	16.0	Netherlands
	ZX160LC-5G	121	Isuzu	18.0	Netherlands
	ZX160LC-6	121	Isuzu	18.6	Netherlands
	ZX180LC-5G	121	Isuzu	19.5	Netherlands
	ZX190LC-6	175	Isuzu	21.6	Netherlands
	ZX200LC-3G	147	Isuzu	21.9	Netherlands
	ZX200LC-5G	168	Isuzu	21.5	Netherlands
	ZX210-6/LC-6/LCN-6	175	Isuzu	23.7	Netherlands
	ZX210X-6	175	Isuzu	23.4	Netherlands
	ZX220LC-GI	170	Isuzu	21.4	Netherlands
	ZX225USLC-6	175	Isuzu	28.5	Netherlands
	ZX225USRLC-6	177	Isuzu	25.4	Netherlands
	ZX240LC-5G	177	Isuzu	25.8	Netherlands
	ZX240N-6	175	Isuzu	23.8	Netherlands
	ZX250LC-6	190	Isuzu	28.1	Netherlands
	ZX280LC-5G	177	Isuzu	28.4	Netherlands
	ZX300LC-6/LCN-6	268	Isuzu	32.3	Netherlands

Source: Company information

Table 14. UK: Crawler excavators available, 2020 (continued)

Manufacturer	Model	HP	Engine Manufacturer	Service weight (tonnes)	Product source
Hitachi (continued)	ZX330LC-5G/LCH-5G	250	Isuzu	34.1	Netherlands
	ZX350LC-6/LCN-6	271	Isuzu	35.3	Netherlands
	ZX400LCH-5G	246	Isuzu	38.3	Netherlands
	ZX470-870LCR-5G	483	Isuzu	46.4-86.2	Netherlands
	ZX690LCH-6	463	Isuzu	68.7-70.6	Japan
	ZX890LCH-6	515	Isuzu	84.4-87.3	Japan
	EX1200-7	760	Isuzu	117.0	Japan
Hyundai	R60CR-9A	61	Yanmar	5.9	Korea
	R80CR-9A	65	Yanmar	8.3	Korea
	HX130LCR	74	Perkins	12.7	Korea
	HX140LC	118	Perkins	14.0	Korea
	HX145LCR	118	Perkins	18.1	Korea
	HX160L	138	Perkins	18.1	Korea
	HX180L	130	Perkins	18.6	Korea
	HX220AL	174	Cummins	22.1	Korea
	HX220L	184	Cummins	22.1	Korea
	HX235LCR	174	Cummins	24.0	Korea
	HX260L	180	Cummins	25.6	Korea
	HX300L	230	Cummins	30.2	Korea
	HX300AL	260	Cummins	30.7	Korea
	HX330L	765	Cummins	33.5	Korea
	HX380L	347	Cummins	38.9	Korea
	HX430L	360	Cummins	44.1	Korea
	HX480L	427	Cummins	49.3	Korea
	HX520L	427	Cummins	52.4	Korea
	HX900L	645	Cummins	52.4	Korea
	R1200-9	745	Cummins	118.0	Korea
JCB	65R-1	49	Perkins	6.6	UK
	67C-1	49	Kohler	6.8	UK
	85Z-1	64	Kohler	8.3	UK
	86C-1	64	Kohler	8.6	UK
	90Z-1	74	Kohler	8.9	UK
	100C-1	74	Kohler	9.7	UK
	131X	75	JCB	16.2	UK
	140X LC	110	JCB	16.2	UK
	140X	110	JCB	16.2	UK
	150X	110	JCB	18.2	UK
	JS160	125	Isuzu	19.2	UK
	JS180	125	JCB	20.2	UK
	220X	175	JCB	24.7	UK
	JS330	281	MTU	36.3	UK
	JS370	281	JCB	38.6	UK
	JS145	109	JCB	14.3	UK
	JS160	109	JCB	18.4	UK
	JS180	109	JCB	19.4	UK
	JS210	173	JCB	21.7	UK
	JS220	172	JCB	23.0	UK
	JS240	197	Isuzu	25.2	UK
	JS260	188	Isuzu	26.5	UK
	JS300	221	Isuzu	32.7	UK
	JS330	281	Isuzu	33.3	UK
	JS370	281	Isuzu	38.4	UK
Kobelco	SK75SR-7	73	Isuzu	8.9	Japan
	SK85MSR-7	73	Isuzu	9.6	Japan
	SK140SRD	106	Mitsubishi	20.1	Japan
	SK140SRLC-5	106	Mitsubishi	14.5	Japan

Source: Company information

Table 14. UK: Crawler excavators available, 2020 (continued)

Manufacturer	Model	HP	Engine Manufacturer	Service weight (tonnes)	Product source
Kobelco (continued)	ED160-5	106	Mitsubishi	16.3	Japan
	SK180(N)LC-10	135	Hino	20.5	Japan
	SK200-8 / SK210LC-8	160	Hino	21.0	Japan
	SK210HDLC-8	160	Hino	21.2	Japan
	SK210D-10	160	Hino	27.4	Japan
	SK210H(N)LC-10 Hybrid	168	Hino	23.1	Japan
	SK210(SN)LC-10	168	Hino	21.7	Japan
	SK230SRLC-5	168	Hino	23.8	Japan
	SK240SN-10	168	Hino	23.3	Japan
	SK250-8/SK260LC-9	185	Hino	24.1	Japan
	SK260SR(N)LC-3	168	Hino	25.4	Japan
	SK260(N)LC-10	168	Hino	26.0	Japan
	SK270SR(N)LC-5	168	Hino	26.0	Japan
	SK300(N)LC-10	270	Hino	31.4	Japan
	SK330-8/SK350LC-8	270	Hino	34.1	Japan
	SK350LC-10	272	Hino	44.7	Japan
	SK350DLC-10	328	Hino	38.0	Japan
	SK380HDLC-8	270	Hino	36.0	Japan
	SK400DLC-10	288	Hino	48.2	Japan
	SK500HDLC-8	347	Hino	52.3	Japan
	SK500(V)LC-10	366	Hino	51.9	Japan
	SK550DLC-1ß0	366	Hino	62.3	Japan
	SK500LC-10E	348	Hino	86.6	Japan
Komatsu	PC80MR-5	62	Komatsu	8.0	Italy
	PC88MR-10	68	Komatsu	8.8	Italy
	PC138US-11	97	Komatsu	14.8	Italy
	PC170LC-11	121	Komatsu	17.9	Italy
	PC170LC-11LGP	121	Komatsu	22.0	Italy
	HB215LC-2 Hybrid	148	Komatsu	23.4	UK
	HB215LC-3 Hybrid	148	Komatsu	23.9	UK
	PC138US-11	97	Komatsu	14.8	UK
	PC210/LC/NLC/LCi-11	165	Komatsu	23.6	UK
	PC228USLC-11	165	Komatsu	24.2	UK
	PC230NHD-11	165	Komatsu	23.5	UK
	PC240LC/NLC-11	189	Komatsu	27.5	UK
	PC290LC/NLC-10	213	Komatsu	30.9	UK
	PC360LC/NLC/Lci-11	271	Komatsu	36.9	UK
	HB365LC/NLC-3 Hybrid	271	Komatsu	37.4	Japan, UK
	PC490/LC-11	362	Komatsu	48.9	UK
	PC700/LC-11	439	Komatsu	69.5	UK
	PC800/LC-8	496	Komatsu	84.7	UK
	PC1250-11	775	Komatsu	118.3	Japan
	PC2000-8	976	Komatsu	204	Japan
	PC3000-6	1260	Komatsu	261	Germany
	PC4000-6	1875	Komatsu	399	Germany
	PC4000-11	1875	Komatsu	409	Germany
	PC5500-6	2520	Komatsu	552	Germany
	PC7000-6	3350	Komatsu	694	Germany
	PC8000-6	4020	Komatsu	777	Germany
	PC8000-11	4020	Komatsu	773	Germany
Kubota	KX080-4	65	Kubota	8.3	Japan
	KX080-4 2P	85	Kubota	8.8	Japan
Liebherr	R914 Compact	122	Deutz	17.4	France
	R918	163	Liebherr	22.6	France
	R920	150	Liebherr	21.9	France

Source: Company information

Table 14. UK: Crawler excavators available, 2020 (continued)

Manufacturer	Model	Engine HP	Engine Manufacturer	Service weight (tonnes)	Product source
Liebherr (continued)	R922	150	Liebherr	23.7	France
	R924 Tunnel	175	Liebherr	34.5	France
	R926 Compact	175	Liebherr	29.6	France
	R926	204	Liebherr	28.5	France
	R930	245	Liebherr	30.4	France
	R934	272	Liebherr	37.2	France
	R938	299	Liebherr	40.4	France
	R945	299	Liebherr	47.2	France
	R950 SME	299	Liebherr	45.7	France
	R956	326	Liebherr	58.2	France
	R960SME	340	Liebherr	62.8	France
	R966	435	Liebherr	76.3	France
	R970 SME	449	Liebherr	78.6	France
	R976	544	Liebherr	95.5	France
	R980 SME	571	Liebherr	102.3	France
	R9100	757	Liebherr	112.5	France
	R984C	685	Cummins	125.1	France
	R9200	1,094	Cummins	205,0	France
	R9250	1,287	Cummins	253.5	France
	R9350	1,500	Cummins	310.0	France
	R9400	1,675	Cummins	353.0	France
	R995	2,140	MTU	450.0	France
	R996B	3,000	Cummins	676.0	France
	R9800	4,000	Cummins, MTU	810.0	France
LiuGong	CLG908D	76	Yanmar	7.5	China
	909ECR	59	Yanmar	8.7	China
	915E	109	Cummins	16.3	China
	922E	162	Cummins	23.6	Poland
	924E	162	Cummins	24.5	Poland
	925E	175	Cummins	25.5	Poland
	928E	175	Cummins	27.5	Poland
	930E	212	Cummins	32.9	China
	933E	212	Cummins	32.7	China
	936E	284	Cummins	36.2	Poland
	939E	284	Cummins	37.3	Poland
	950E	378	Cummins	48.0	China
Mecalac	8MCR	75	Deutz	7.2-7.6	France
	10MCR	74	Deutz	9.4-10.0	France
	15MC	136	Deutz	14.8-15.4	France
Sany	SY75C	58	Isuzu	7.2	China
	SY135C	106	Isuzu	14.9	China
	SY155U	106	Isuzu	16.0	China
	SY215C	165	Cummins	22.8	China
	SY265C	191	Cummins	27.0	China
	SY365C	276	Cummins	36.1	China
	SY500H	402	Cummins	51.5	China
Sunward	SWE60B	35	Yanmar	6.2	China
	SWE80F	62	Yanmar	8.0	China
	SWE90F	62	Yanmar	9.0	China
	SWE150F	127	Isuzu	14.8	China
	SWE210F	174	Isuzu	21.3	China
	SWE215E	168	Isuzu	21.3	China
	SWE235E	189	Isuzu	21.6	China
	SWE335F	300	Cummins	32.2	China
Takeuchi	TB280FR	70	Yanmar	8.5	Japan
	TB290	70	Yanmar	8.7	Japan
	TB2150R	115	Isuzu	16.0	Japan

Source: Company information

Table 14. UK: Crawler excavators available, 2020 (continued)

Manufacturer	Model	HP	Engine Manufacturer	Service weight (tonnes)	Product source
Volvo	ECR58D	50	Volvo	7.0	Korea
	EC60E	60	Volvo	7.0	Germany
	ECR88D	58	Volvo	9.9	Korea
	EC140E	122	Volvo	17.0	Korea
	ECR145E	122	Volvo	16.7	Korea
	EC160E	143	Volvo	20.1	Germany
	EC180E	143	Volvo	19.9	Germany
	EC220E	175	Volvo	25.8	Germany
	ECR235R	175	Volvo	27.8	Korea
	EC250E	218	Volvo	28.9	Germany
	EC300E	245	Volvo	32.7	Korea
	ECR355R	245	Volvo	38.0	Korea
	EC380E	283	Volvo	43.0	Korea
	EC480E	378	Volvo	53.3	Korea
	EC750E	520	Volvo	75.3	Korea
Wacker Neuson	75Z3	59	Yanmar	7.8	Austria
	ET90	74	Deutz	8.9	Austria
	ET145	102	Perkins	15.2	Austria

Source: Company information

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JCB HEAVY PRODUCTS LTD
Waterloo Farm
Beamhurst
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Staffordshire ST14 7FL
Tel: 01889 567577
www.jcb.co.uk

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Birtley
Co Durham DH3 2QX
Tel: 0191 410 3155
www.komatsu.com

IMPORTERS

Importer's Location	Manufacturer's Head Office
BOBCAT	
Direct through independent dealers	Bobcat International 112 North University Drive Fargo North Dakota 58102 USA Tel: +1 701 293 3220 www.bobcat.com
CASE UK	**CNH ITALIA SPA**
First Floor, Barclay Court 2 Heavens Walk Doncaster DN4 5HZ South Yorkshire Tel: +44 (0)1302 308802 www.casece.com	Strada Statale 610 Selice 43/A 40026 Imola (Bo) Italy Tel: +39 0542 669 350 www.casece.com
CATERPILLAR	
Finning Ltd. Watling Street Cannock Staffordshire WS11 3LL Tel: 01543 462551 Fax: 01543 573124 www.Finning.com	Caterpillar Overseas SA PO Box 456 66 Route De Frontenex CH-1211 Geneva 6 Switzerland Tel:+ 41 22 849 4444 www.cat.com
DOOSAN	
Doosan UK Ltd Doosan House Unit 6.3 Nantgarw Park Treforest Industrial Estate Treforest Mid Glamorgan CF4 7QU Tel: 01443 842273 www.doosaninfracore.co.uk	Doosan Heavy Industries Ltd. Daewoo Centre 541-5ga Namdaemun-ro 5-ga Jung-gu, Seoul Korea Tel: +81 (0) 2 72 63 144 www.doosaninfracore.eu
HITACHI	
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HYUNDAI	
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KOBELCO	
Molson Group Ltd Smoke Lane Industrial Estate, Avonmouth Bristol BS11 0YA Tel: 01179 820123 www.molsongroup.co.uk	Kobelco Construction Machinery Europe B.V. Veluwezoom 15, 1327 AE Almere The Netherlands Tel: +31-(0)36-2020-300 www.kobelco-europe.com
KUBOTA	
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LIUGONG	
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SUNWARD	
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TAKEUCHI	
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