

Safe profitability
for excavators
between 1.5-33 tons

engcon[®]
INTERNATIONAL



Gen II

Q-Safe™

EC-Oil™

Automatic quick hitch is the new engcon standard

We're taking things one step further by introducing our EC-Oil automatic quick hitch system as standard equipment. This means you'll no longer have to step out of the cab and mess around with obstinate, time-consuming hoses and connections. It also means you now get automatic oil, electric and central lubrication connection without paying extra for it.



“One small step for engcon, one giant leap for the excavator industry”

Thanks to this decision, world-leading engcon will be the only tiltrotator manufacturer to offer this unique system in a complete package as standard equipment.

We asked ourselves: Why should anyone have to pay more to enjoy the latest, safest and most convenient technology when it doesn't cost us a penny extra? We concluded it was high time the customer had everything integrated by us as standard at no extra charge. This is just one small step for engcon, but one giant leap for the excavator industry.

As of 1 May 2018, engcon will begin to offer machine hitches with EC-Oil fully automatic hydraulic connectors at no extra cost. The same thing applies to engcon tiltrotators with DC2 control systems; an EC-Oil connection to the excavator's machine hitch will also be included as standard equipment at no extra charge.

No need to leave the cab

engcon automatic quick hitches allow you to quickly and conveniently connect hydraulics, electrical

power and central lubrication between the excavator and tiltrotator without leaving the cab. EC-Oil provides the highest availability, simplest installation and the safest electrical and oil connections.

Take advantage of the excavator's full power and stability whenever you need it, or use the tiltrotator's flexibility whenever it's called for. EC-Oil means no more compromises.

Our free offer includes one EC-Oil block with two hydraulic connections, a central lubrication connection and an electrical connection – in fact everything you need to connect an engcon tiltrotator and all of its refinements. We will begin with hitches in the S60 size, and introduce the remaining sizes in succession during 2018.

And because we own the entire system, we assume full responsibility – another major advantage for our customers. One contact and one call will provide you with a complete solution.

Stig Engström

Owner and founder of engcon

STANDARD EQUIPMENT

Now you get automatic electrical and oil connection without paying extra for it.



EC-Oil™



engcon Environmental Certification
SS-EN ISO 14001:2004



engcon Quality Certification
SS-EN ISO 9001:2008



engcon is not liable for any printing errors.
Functions and specifications may be changed without prior notice.

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**Save time,
save money!**

With engcon's automatic quick hitches I can connect my hydraulic tools in just

10 seconds

without leaving the cab. It saves time, money and effort!

HOLGER HERZBERG, ALBERT BRECHT

Automatic quick hitches for hydraulic excavators from 6 to 33 tonnes

- + Lets you change hydraulic tools in just 10 seconds without leaving the cab
- + Connects all hydraulic tools automatically to machines from 6-33 tonnes
- + Can be retrofitted to all types of hydraulic tools, regardless of manufacturer *
- + Requires no installation for return oil
- + Extremely durable connectors allow tool connection at full system pressure
- + Non-drip system = environmentally friendly
- + Most economical hydraulic system
- + Eliminates problems with manual hydraulic connections

* Check specifications and flow requirements

EC-Oil™

engcon's
automatic
quick hitches



Combine as required:

Use the quick hitch (1) or directly attached tiltrotator (2) separately to connect to tools, or together (3) to make use of the tiltrotator's flexibility and the ability to quickly disconnect it when maximum breakout force is needed. Efficient and effective!



engcon tools | Hydraulic



engcon tools | Mechanical



EC-oil
bracket

Adapted to fit your
existing tools



Two-year warranty on tiltrotators

Since autumn 2015, engcon has offered an extra year's warranty for customers who register their tiltrotators and follow a scheduled service program. Something we think has benefited all engcon tiltrotator owners. In our opinion, a tiltrotator with a documented service history will retain its value when it reaches the second hand market, much like a car with a documented service history.

However, by popular customer demand, engcon is changing its registration requirement and providing all customers with a two-year warranty on tiltrotators delivered after 1 January 2018, without them having to register.

Nonetheless, we encourage you to continue to register your tiltrotators. Tiltrotator registration not only means you get a documented tiltrotator, you also benefit from faster service as we already have all the information we need about your tiltrotator when you call us for support. This makes things easier for everyone.

engcon's service program continues

We are naturally keeping our service program. End customers who want their tiltrotators serviced under our service program and also register them, will still be able to do so. Documented service improves second-hand value.

See our website – www.engcon.com – for more information about warranties, for continued registration of your tiltrotators and to add information about completed services.



engcon tilts automatically

An excavator guidance system together with an engcon tiltrotator combines the best of both worlds when it comes to making excavators efficient.

In simple terms, an excavator guidance system is a digital, three-dimensional plan of an area for excavation. A plan is shown on a large screen in the excavator upon which the operator can also see bucket position, areas for excavation and the depths and inclines that must be adhered to.

Automated technical functions are becoming ever more common, and as the leading manufacturer of tiltrotators, using our technology to further increase profitability comes naturally to us. With Autotilt, the excavator guidance system handles the tiltrotator tilt function automatically. For maximum safety, the driver is able, if necessary, to override the excavator guidance system and control the tiltrotator manually.

Autotilt is available on the following engcon tiltrotators

Tiltrotator models: EC209, EC214, EC219, EC226 & EC233 with ePS*
Fitted with engcon's DC2 control system
Meet safety requirements under EN 13849-1:2016

Excavator guidance system: Check with your excavator guidance system supplier to see if it is compatible with engcon ePS* and if Autotilt can be provided

* engcon Positioning System is an extra tiltrotator option that may be factory fitted or retrofitted

New tiltrotator for excavators up to **33 tons**

- + Comes ready for ePS
- + 45-degree tilt angle for optimum digging
- + Robust engineering with cast body
- + Tilt cylinders with load-holding check valves
- + Q-Safe quick hitch
- + Comes ready for EC-Oil automatic oil connection system (fully hydraulic hitch)
- + Central lubrication system
- + Latest technology



EC233

In recent years, we've been gradually replacing our old generation tiltrotators, and are now proud to present the EC233* – a brand new, powerful tiltrotator for excavators up to 33 tons. The EC233 is a generation 2 model built using the very latest tiltrotator technology.

Its many features and characteristics include a 45-degree tilt angle for optimum digging, a robust design with cast body, a central lubrication system and heavy-duty tilt axle journals for extended service life; it comes ePS ready – the engcon Positioning System that synchronises with the excavator guidance system for maximum efficiency. Standard equipment also includes tilt cylinders with load-holding check valves and the Q-Safe quick hitch comes ready for EC-Oil for maximum safety and efficiency.

The EC233 is engcon's most powerful tiltrotator. We have great confidence in the model; it was tested hard on machines above its weight class in harsh Swedish winter conditions.

*Series deliveries of the EC233 began in January 2018 in the Nordic market. Series deliveries of the EC233 outside the Nordic market will begin in May 2018.



engcon | Profitable choices

Build your own bespoke system with engcon.



Automatic quick hitch excavator

EC-Oil automatic oil, electrical and central lubrication connection is standard equipment on our automatic quick hitches.* Select now or add ground pressure sensing and slew/boom limitation later.



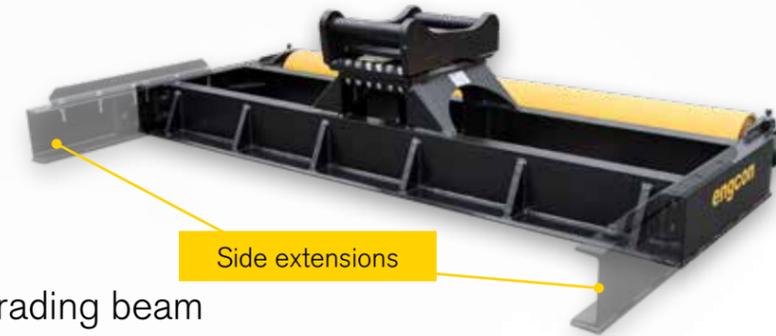
QSC | Standardised locking system

For safe quick hitch handling throughout the excavator fleet



MIG2 | Joystick

High-end ergonomic design with up to three rollers and seven buttons per joystick. *Select now or add later (fits all makes and types of control systems).*



GRB | Grading beam

With engcon's grading beam, you can grade large areas quickly and efficiently. *Add now or select side extensions later.*

GEN2 | Tiltrotator



EC-Oil | Rapid tool changes

EC-Oil automatic oil, electrical & central lubrication connection is standard equipment.*



DC2 | Control system

The safest control system on the market. Fully proportional and even allowing options such track & wheel steering as well as boom slewing. Comes with remote control function via a smartphone app. *Select now or add later.*



ePS | engcon Positioning System

Together with the selected excavation system, ePS reduces the need for a 'conventional' measuring set-up, and the driver can see the exact excavation area via the machine control system's display in the cab. *Select now or add later on EC209, EC214, EC219, EC226 and EC233 models. Independent of the machine's control system.*



Q-Safe-D | Quick hitch

Q-Safe-D quick hitch under the tiltrotator. Perfect for use together with EC-Oil™. *Select a detachable gripper, detachable sweeper and/or ground pressure sensing together with boom slew limitation now or later.*



GRD Detachable gripper



SWD Detachable sweeper



EC-Oil

Bracket | Bolt-on

Bolt-on bracket makes it easy to modify all kinds of existing attachments for engcon quick hitches.



PP3200 | Compactor

Low flow requirement allows the PP3200 compactor plate to be run directly off the extra connections on the tiltrotator. Perfect for use together with EC-Oil™. *Select now or add trenching blade and width extension kit later.*



*The introduction of EC-Oil as standard equipment will begin with size QS60; other sizes will be introduced gradually during 2018

Tiltrotators | 1.5-33 tons

engcon's tiltrotators can be adapted to most excavator models and backhoe loaders on the market, from 1.5 ton mini diggers right upto 33 tons.

Keeping your options open

engcon's tiltrotators are robustly built to a very high standard, and we provide the customer with many opportunities to select accessories right away or for retrofit. If you choose to retrofit, we've made it easy for you as in most cases it's just a matter of 'bolting on' the accessory later – whether it be one week or one year. For example, all engcon type QSD standard hitches come ready for the GRD detachable gripper and SWD rotating brush. This means you can buy your tiltrotator without a gripper and retrofit one whenever it suits you.

And there's no problem retrofitting your machine with an excavator guidance system; all of our tiltrotators from the EC209 and up come ready for installing the ePS rotation sensor.



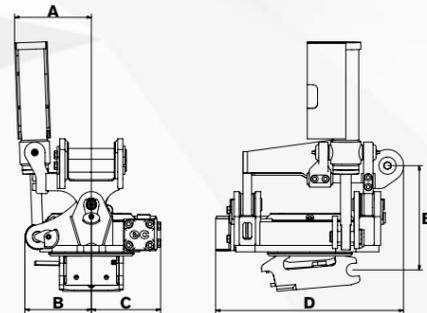
engcon tiltrotators come with the following as standard

- + EC-Oil automatic oil connection system is standard equipment on tiltrotators with QS upper sections and DC2 control systems*
- + Lower quick hitches from QS45 ready for EC-Oil for rapid tool changes
- + Q-Safe quick hitch for maximum safety (From EC206 and up)
- + Comes ready for detachable gripper GRD (QSD45, QSD50, QSD60, QSD70**)
- + Comes ready for the sweeper SWD (QSD45, QSD50, QSD60)
- + Comes ready for the QSC locking system to avoid wrongly connected or dropped buckets
- + Comes ready for a rotation sensor (ePS) for linking to the excavator guidance system (From EC209 and up)
- + Up to ± 45-degree tilt angle for optimum digging
- + Powerful tilting torque for heavy-duty jobs
- + Flows of up to 120 l/min on extra hydraulic outlets (From EC214 and up)
- + Central lubrication
- + Load-holding check valves on tilt cylinders for maximum safety
- + Hardened piston rods

Control

- + Remote control system support*** via a smartphone app*****
- + The ability to run 6 rollers simultaneously****
- + Track/wheel control***
- + TAB boom***
- + Joystick wrist support for maximum comfort and best ergonomics*

* Standard equipment beginning with S60; other sizes introduced gradually during 2018
 ** Coming during 2018
 *** DC2
 **** DC2 in combination with MIG2
 ***** Android



* Applies with selection of QS45-QS80 upper tilt section
 ** Requires ePS and works with Leica Geosystems, Scan laser, Topcon, Trimble, Novatron, MOBA (2017); check compatibility with your excavator guidance system supplier.
 *** Check compatibility with your excavator guidance system supplier
 **** Beginning with S60; other sizes introduced gradually during 2018



GEN2

SPECIFICATIONS

Model	EC02B	EC204	EC206	EC209
Width A: (mm)	from 180	267	286	266
Width B: (mm)	155	161	220	250
Width C: (mm)	160	169	219	273
Length overall D: (mm)	435	463	500	561
Construction height E: (mm)	from 245	from 310	from 380	from 425
Weight: (kg)	from 77	from 116	from 170	from 287
Tilt:	2x40°	2x45°	2x45°	2x45°
Rec hydraulic flow SS5/SS10 (l/min):	25	30	40	60
Rec hydraulic flow SS9 tilt/rotation (l/min):	7/20	10/25	15/30	35/40
Max hydraulic pressure: (MPa)	22	22	22	22
Standard attachments:	S30	S40	S40, QS45, QS50	QS45, QS50
Max bucket width rec by engcon: (mm)	900	1,000	1,200	1,300
Max breakout torque: (kNm)	20	28	45	74
Base machine weight: (t)	1.5-2	2-4	4-6	6-9

SPECIFICATIONS

Model	EC214	EC219	EC226	EC233
Width A: (mm)	320	396	426	501
Width B: (mm)	285	315	340	385
Width C: (mm)	303	310	340	385
Length overall D: (mm)	665	737	760	878
Construction height E: (mm)	from 457	from 480	from 500	from 673
Weight: (kg)	from 385	from 447	from 632	from 812
Tilt:	2x45°	2x45°	2x45°	2x45°
Rec hydraulic flow SS5/SS10 (l/min):	80	120	120	120
Rec hydraulic flow SS9 tilt/rotation (l/min):	35/50	65/70	70/70	70/70
Max hydraulic pressure: (MPa)	22	22	22	25
Standard attachments:	QS45, QS50, QS60	QS60	QS70	QS70, QS80, S2
Max bucket width rec by engcon: (mm)	1,600	1,700	2,000	2,200
Max breakout torque: (kNm)	126	186	270	340
Base machine weight: (t)	9-14	14-19	19-26	24-33

Select **gripper cassette** or **brush** **NOW** or **LATER**

New quick hitch and smart accessories for safety and maximum freedom of choice

Have you ever bought a product and later regretted that you didn't buy that extra feature with its added benefits? Relax; engcon has solved the problem for you by making our Q-Safe quick hitches even smarter. With a Q-Safe-Detachable (QSD) quick hitch on the tiltrotator you can connect or disconnect your retrofittable GRD gripper cassette or SWD rotating brush when it suits you.

The technology involves fitting engcon tiltrotators that have QSD quick hitches with two robust hooks mounted at the front and space for extra hydraulics. This makes it easy to hook up engcon's retrofittable GRD detachable gripper or SWD rotating brush.

Gripper cassette **- Gripper Detachable Quick (GRD-Q)**

The gripper cassette is simply hooked onto the Q-Safe-D quick hitch and locked into place at the same time as the hydraulic connection is made using a single action – a manoeuvre that takes less than a minute.

Gripper cassette **- Gripper Detachable manual (GRD)**

GRD is also available with manual hydraulic connection in a version that bolts on to the QSD quick hitch. This takes a little longer to install and is a more permanent solution for those who do not need to remove the gripper cassette or switch between gripper and rotating brush.

The GRD gripper is angled down 15 degrees which provides for greater gripper reach.

Rotating brushes – Sweeper Detachable (SWD)

Just like with the gripper cassette GRD, the SWD rotating brushes can be retrofitted simply on the

Q-Safe-D quick hitch by being hooked onto the hitch's two mounting hooks. The rotating brushes are then locked and connected to the hydraulics in a single manoeuvre – quick and easy. SWD is only available as a quick version (Q) and is driven by a powerful hydraulic motor and is folded up or down with a hydraulic cylinder. SWD is extremely flexible in its design and its width can be adjusted to handle precisely the work it needs to do.

In its narrowest design, SWD can for example be adapted for cable sweeping, which facilitates excavation of existing cables or pipes – and most importantly, contributes to fewer cables or pipes being broken, since excavation is completed to a safe depth and then the SWD sweeps down the rest. Thanks to our new rotating brushes, the need for manual labour is also minimised, which contributes to a safer work site. Safety is everything for us at engcon.

Choosing SWD's wider version combined with the tiltrotator enables gravel or soil to be swept into the machine's bucket, making it easier to clear services from material that must be cleared away.

Maximum safety

In addition to giving the operator greater freedom of choice, we are also improving safety. The two sturdy hooks provide enhanced safety because they continue to hold the grab cassette or rotating brush in place; even if the lock function should fail, the centre of gravity of the gripper cassette or rotating brush's own weight will press it securely against the quick hitch.

Q-SAFE-D | Quick hitch

Robust attachment and secure locking on Q-Safe-D quick hitch and room for extra hydraulics enable the use of additional hydraulic attachments, such as engcon's new detachable gripper and rotating brushes.



GRD | Detachable gripper



SWD | Detachable sweeper



Safety

Non
Accident
Generation

Cost-effective safety

Innovation and safety have always been a priority for engcon. Above all in our product development. Today, we mark all our products with our own security marking Non Accident Generation – a safety guarantee for our customers. This means that as a customer, you know your choice of product adds up to a safer workplace and that the product meets the highest safety standards. Besides, we know that a safe workplace is a profitable workplace.

Welcome to the new and safe generation with engcon.

► **Q-Safe | EC-Oil | ePS | MIG2 | QSC | DC2**



Q-SAFE | Automatic quick hitches with maximum safety

No more dropped buckets

Dropped buckets and incorrectly attached tools due to the human factor are no longer possible. With the Q-Safe™ quick hitch & QSC lock control on the excavator, the risk for unsafe connection has been built out. With Q-Safe & QSC, the bucket or tool must be subject to ground pressure for the hitch to be opened.

In other words, buckets and attachments cannot be removed while raised.

Q-Safe is engcon's standard quick hitch for excavators.

How it works

Q-Safe with QSC* locking system

Removing attachments

Press the QSC 'lock' button and ground the bucket or other attachment***. The hitch can now be opened using the two separate buttons simultaneously. When the Q-Safe hitch loses contact with one of the bucket axles, an alarm sounds and the boom-mounted strobe (QLM**) illuminates, indicating that the hitch is open and the machine's slew function**** is locked. When both bucket axles are entirely disconnected, the slew lock can be lifted.

Connecting attachments

Activate the QSC 'lock' function; hook up the bucket and open the hitch as above. During the process, while only one bucket axle is detected the alarm will activate and the slew is disabled (optional extra). When both axles are detected and the hitch is locked the alarm will stop and machine functionality will be returned.

Both slew function and boom control can be disabled during hitch operation as an optional extra.

Read more about QSC lock control on pages 20-21.

* Read more about QSC on pages 20 & 21

** Read more about QLM below.

*** The ground pressure function requires the bucket/tool to exert pressure on the ground before it is possible to disconnect it. The function is provided in combination with engcon's Quick Hitch Standard Control (QSC) locking system.

QLM warning system with light and audible signals is standard equipment**

The rear pin lock also holds the front pin in its correct position thus eliminating the risk of accidents caused by swinging tools that are only connected to the front pin.

The hook is classified for safety in compliance with:
EN ISO 12100-1/A1:2009 and
EN ISO 12100-2/A1:2009

Double electronic sensors ensure contact with forward and rear axles.

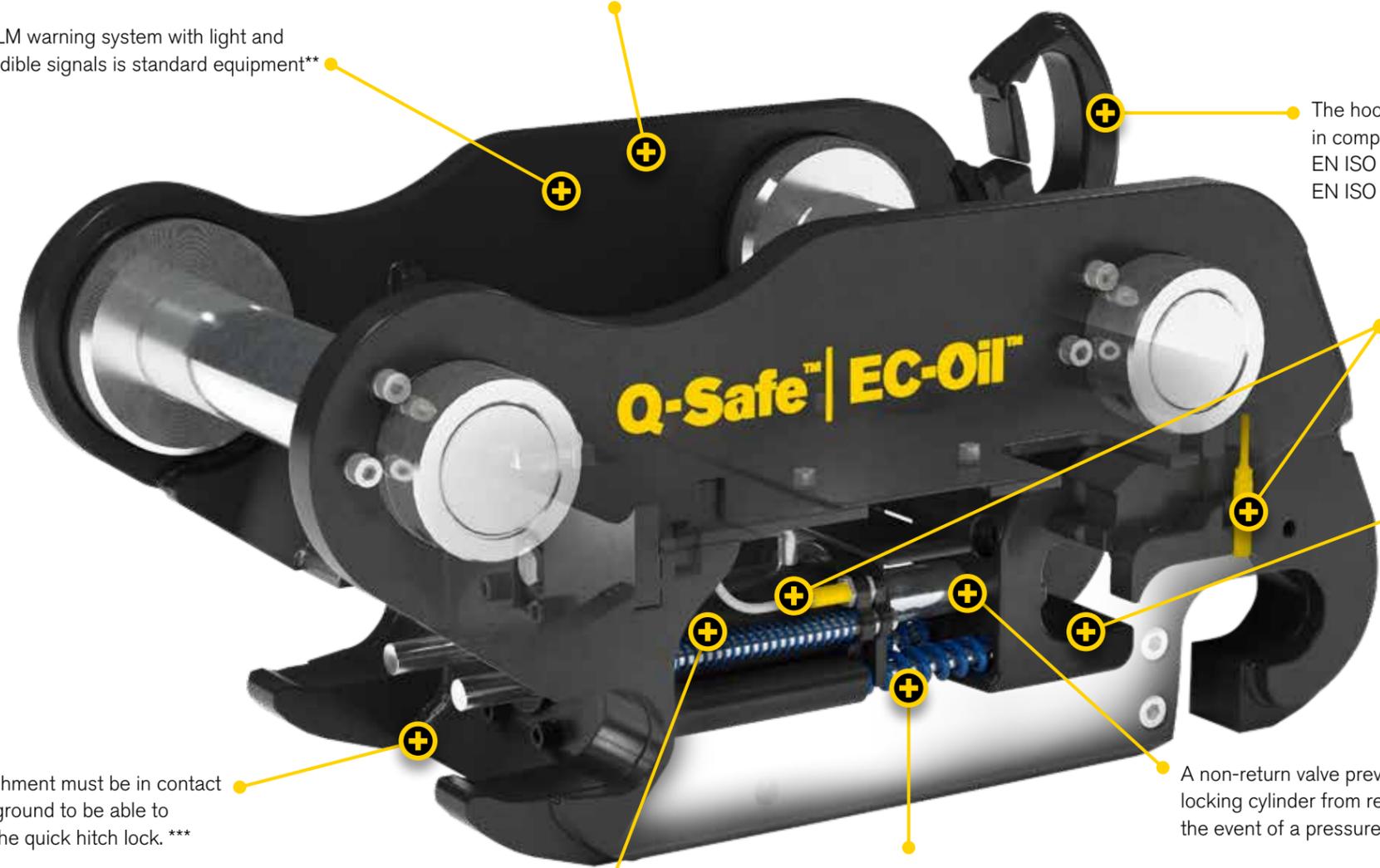
The unique shape of the lock bolt retains the tool in the quick hitch even if other safety functions should fail.

A non-return valve prevents the locking cylinder from returning even in the event of a pressure loss.

Powerful springs maintain the lock even in the case of pressure loss.

Q-Safe™ comes with EC-Oil™, engcon's automatic hydraulic connector system.

The attachment must be in contact with the ground to be able to activate the quick hitch lock. ***



EC-Oil™
STANDARD ON ALL
Q-SAFE QUICK HITCHES



QLM | Q-Safe Light Module

QLM - Q-Safe Light Module is a system used in combination with Q-Safe to provide both a visual and audible warning when either bucket axle is not in its correct position or the hitch is unlocked.

The QLM module is installed on the left side of the excavator's arm and its cabling is integrated into the DC2 cabling.

QLM may be used with other control systems. Boom and slew restriction is available as an optional extra.

Standardised locking system | QSC

Standardised hitch operation improves safety

Today there are around 20 major excavator manufacturers, all of whom have well-functioning systems for operating quick hitches. However, the operation and location of the quick hitch lock buttons differ according to manufacturer and model.

Consequently, in situations where the excavator operator uses different machine types, there is a clear risk of incorrect operation. It's comparable to having different positions for brake and accelerator pedals depending on the make of a car.

engcon's Quick hitch Standard Control (QSC) is a locking system that minimises the risk of activating the wrong button or function. QSC is compatible with most makes of excavators, tiltrotators and quick hitches on the market. Whilst specially designed for so-called twin-hitch arrangements (where the tiltrotator is mounted on a hitch that is permanently attached to the excavator), the system works equally well for direct-mounted arrangements.

Ergonomically-designed, QSC has an intuitive sliding cover which immediately identifies the hitch to be operated – either the top (machine) hitch or the lower (tiltrotator) hitch.

In each case, the hitch operation is the same; with the requirement for two buttons to be pressed simultaneously to open, or close, the hitch. The system also uses a boom ram pressure sensor to detect ground pressure, which in turn establishes the requirement for the attachment to be grounded before the hitch can be opened – thus preventing buckets from being accidentally dropped.

"The first purpose-designed combined quick hitch controller for twin-hitch arrangements."

Together with the Q-Safe quick hitch, the QSC further increases safety by means of an audio visual alert system. If both bucket axles are not in the correct position, the system uses sound and light alarms. It is also possible to specify boom and slew lock when the hitch is in an unsafe state as an optional extra.

A Q-Safe quick hitch, when combined with QSC and the QLM light module, means engcon delivers one of the world's safest quick hitch operating systems. This means the operator always knows what is happening and when it happens.



Automatic Quick Hitches with maximum safety

QS45-QS80/QS45-ECO-QS80-ECO

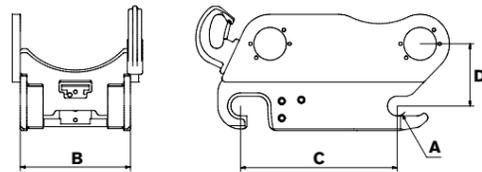


EC-Oil™

STANDARD ON ALL Q-SAFE QUICK HITCHES

Technical data

Model	QS45	QS50	QS60	QS70	QS80
Axle diameter A: (mm)	Ø45	Ø50	Ø60	Ø70	Ø80
Width B: (mm)	290	270	340	450	590
Length C: (mm)	430	430	480	600	670
Construction height D: (mm)	140	140	170	190	270
Weight: (kg)	100	100	180	290	370
Recommended hydraulic pressure open/closed (MPa)	21-25	21-25	21-25	21-25	21-25
Max pressure: (MPa)	22	22	22	22	22
Base machine weight: (t)	6-11	6-11	12-19	16-30	25-33



Q-Safe™

Q-Safe™ The safest quick hitch in the world!
For all excavators in the 6-33 ton weight classes

Advantages of the Q-Safe™

- Designed for tiltrotator digging – the digging forces are distributed through the body of the hitch, not the hitch ram
- EC-Oil automatic oil, electrical and central lubrication connection is standard equipment.
- Hydraulic locking with fourfold safety:
 - Electronic surveillance detects when both attachment axes are correctly located
 - A non-return valve prevents the hydraulic cylinder from opening even if a hose ruptures or there is a pressure drop
 - Powerful, interior springs keep the hitch locked even if the electronics and hydraulics fail.
 - The unique design of the lock bolt provides additional safety as the bucket axle bottoms against the hitch side plates and cannot therefore drop out of position even if all three of the above steps should fail.

- The bucket can only be removed when it is under positive ground pressure (in conjunction with QSC). This eliminates the risk of dropped buckets.
- Front and rear detectors eliminate the risk of accidents caused by swinging tools
- Q-Safe is supplied as standard with external audible and visible warning signals to alert the surrounding area
- Play-free design with double contact surfaces compared to many other hitch systems
- Longer hooks (shark jaws) to make picking up tools safer and easier
- Welded high-strength steel
- Fits all excavators in the specified weight class independent of control system
- The hook is classified for safety in compliance with: EN ISO 12100-1/A1:2009 and EN ISO 12100-2/A1:2009
- Q-Safe is also fitted as standard equipment under engcon tiltrotators with hitch sizes S45-S80.



EC-Oil™ | Connect hydraulic tools without leaving the cab

EC-Oil™ is engcon's system for automatic connection of hydraulics, electronics and central lubrication to any hydraulic tools, and during 2018 it will be successively introduced as standard equipment on all Q-Safe machine hitches and all tiltrotators with a QS upper section and DC2 control system*

Because engcon manufacture and assemble our own systems, we are able to provide total solutions – from control systems, hitches and attachments to the means to connect them all. Use EC-Oil for instant tool changes directly from the cab. By using EC-Oil on the excavator hitch, on the top of the tiltrotator, below the tiltrotator and on the tool itself; it is possible to switch from tiltrotator-mounted hydraulic attachments such as sorting grabs, compactors or tree shears to directly-mounted tools such as a hammer within seconds, at full machine pressure, without having to leave the cab. This allows your excavator to be used to its maximum efficiency, all of the time. It saves weight, resulting in fuel savings and a better total economy. You can use the correct tool for the job, when you want to use it, rather than have to

think about grouping tasks together or losing up to 15 minutes every time you need to change a hydraulic attachment. You will be safer, more efficient and more profitable. EC-Oil is designed for maximum operational reliability in demanding environments. EC-Oil has no hoses or electrical cables that move around when connecting. This reduces the risk of pinch damage, wear and tear. EC-Oil is the market's only fully hydraulic hitch system able to handle the connection of pressurised tools and attachments at full system pressure. The proprietary oil and electrical plugs are engineered to be even more resistant to the often tough working conditions for excavators. The connectors are the most durable on the market - proven through destructive testing at 1600 bar operating pressure and field tests in contaminated environments. With EC-Oil, moreover, you connect to central lubrication automatically.

STANDARD ON ALL Q-SAFE QUICK HITCHES

*The introduction of EC-Oil as standard equipment will begin with size QS60; other sizes will be introduced gradually during 2018

S-Quick hitch | S30-S80

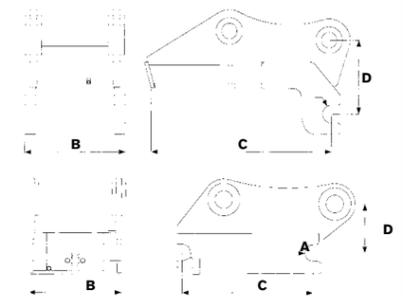
For all excavators in the 1.5-33 ton weight classes

- Designed for tiltrotator digging – the digging forces are distributed through the body of the hitch, not the hitch ram
- Hydraulic locking for speedy attachment and tool changes straight from the cab
- Play-free connection
- Robust, reliable and value-for-money
- Low installation dimensions.
- Low weight
- Welded, high-strength steel
- Type-approved lifting hook (not S30-S40)
- Can be supplied with hydraulic or mechanical locking



Specifications

Model	S30/150	S30/180	S40/200	S40/240	S1	S2/27	S3
Axle diameter A: (mm)	Ø30	Ø30	Ø40	Ø40	Ø70	Ø80	Ø100
Width B: (mm)	150	180	200	240	400	450	620
Length C: (mm)	200	230	300	300	750	810	870
Construction height D: (mm)	110	110	110	110	130	170	230
Weight: (kg)	10	10	25	25	170	215	300
Max pressure: (MPa)	21	21	21	21	21	21	21
Base machine weight: (t)	1-2	1-2.5	2-6	2-6	18-26	22-32	25-33



EC-Oil™ Attachment brackets

GS45-ECO, GS50-ECO, GS60-ECO, GS70-ECO and GS80-ECO

Adapt your hydraulic tools for EC-Oil

- Fits all excavators in the 6-33 ton weight classes
- Bucket/attachment bracket adapted to EC-Oil™ connectors
- Standard bolt pattern that fits engcon hydraulic tools
- Easy to adapt for all types of hydraulic tools
- Robust, reliable and value-for-money
- Welded in high-strength steel



Specifications

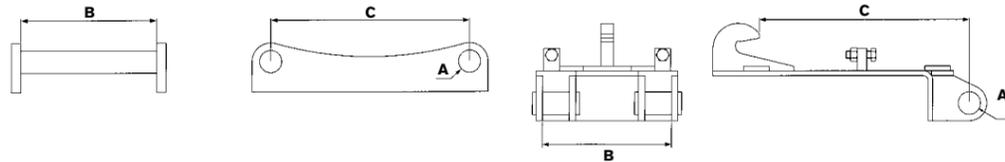
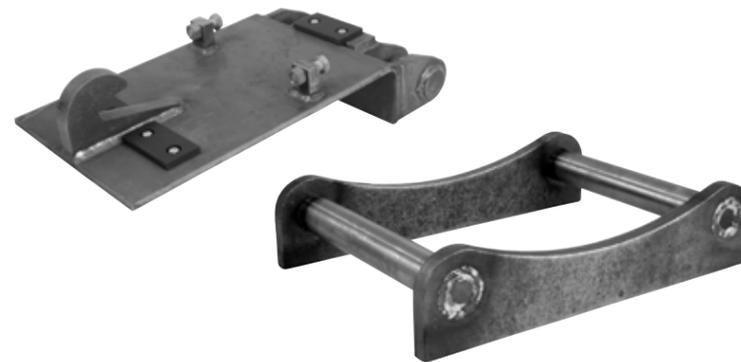
Model	GS45	GS50	GS60	GS70	GS80
Axle diameter A: (mm)	Ø45	Ø50	Ø60	Ø70	Ø80
Width B: (mm)	290	270	340	450	590
Length C: (mm)	430	430	480	600	670
Suitable for engcon RF:	S45 RF12 B12	S50 RF14 KM05	S60 RF16 S6 KM08	S70 RF25 KM09	S80 RF32

Attachment brackets

GS30-GS80

For all excavators in the 1.5-33 ton weight classes

- Easy to modify buckets for engcon hitches
- Robust, reliable and value-for-money
- Welded in high-strength steel



Specifications

Model	GS30/150	GS30/180	GS40/200	GS40/240	GS45	GS50	GS60	GS70	GS80	GS1	GS2/27	GS3
Axle diameter A: (mm)	Ø30	Ø30	Ø40	Ø40	Ø45	Ø50	Ø60	Ø70	Ø80	Ø70	Ø80	Ø100
Width B: (mm)	150	180	200	240	290	270	340	450	590	400	450	620
Length C: (mm)	200	230	300	300	430	430	480	600	670	750	810	870
Suitable for engcon RF:	S30	S30	S40	S40	S45	S50	S60	S70	S80	S1	S2/27	S3

Detachable gripper

GRD10 GRD20



Gripper cassette Gripper Detachable (GRD)

engcon's new detachable gripper cassette is also retrofittable.

The gripper cassette simply hooks onto the Q-Safe-D quick hitch and is then locked in place and the hydraulics connected in a single action – a procedure that takes less than a minute.

The gripper is angled at 15 degrees to the plane of rotation, giving a longer reach.

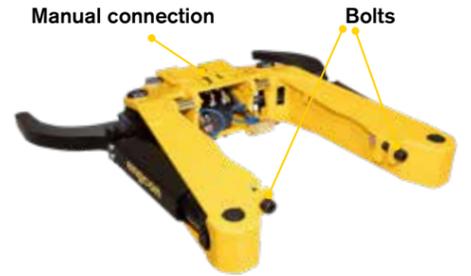
The GRD is currently available in two sizes: GRD10 for QSD45 quick hitches, and GRD20 for QSD60 quick hitches.

engcon's detachable gripper cassette comes in two different versions:

GRD10Q and GRD20Q quick locking & GRD10 and GRD20 manual. Both fit Q-Safe-D quick hitches.



Quick locking



Manual connection

Bolts

GRD10Q and GRD20Q - Q=Quick

The gripper cassette is locked and the hydraulics connected in one action using a 32 mm open-ended spanner. This allows the cassette to be attached or detached in less than a minute.

GRD10 and GRD20 - Manual

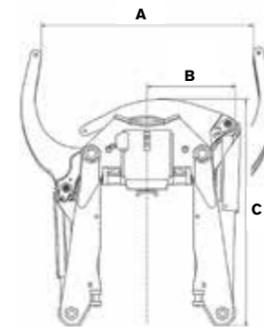
The gripper cassette is fastened to the back section of the quick hitch using nuts & bolts. The hydraulics are connected manually using hose connectors.

**Applies to GRD10Q and GRD20Q*

Specifications

Model	GRD10	GRD20
Fits quick hitch:	QSD45, QSD50	QSD60
Largest grab width A: (mm)	610	820
Width B: (mm)	270	355
Length C: (mm)	720	870
Clamping force (tip to tip) at 21 MPa: (kg)	1,497	2,234
Max load (kg):	1,500	2,000
Weight (kg)*	96	142
Max hydraulic pressure (MPa)	22	22

Table 1. *Depending on mounting



Detachable sweeper

SWD45 SWD60

The Detachable Sweeper (SWD) – engcon's new detachable rotating brush – can also be retrofitted.

Just like with the gripper cassette GRD, the SWD rotating brushes can be retrofitted simply on the Q-Safe-D quick hitch by being hooked onto the hitch's two mounting hooks. The rotating brushes are then locked and connected to the hydraulics in a single action – quick and easy.

SWD is driven by a powerful hydraulic motor and is raised or lowered by a hydraulic ram.

The SWD is flexible and its width can be adjusted for the job in hand, from cable sweeping to sweeping large areas.

This reduces the need for manual labour and makes a safer workplace. SWD is available in several widths and is adapted for the new engcon Q-Safe Detachable quick hitch (Q-Safe-D).

Specifications

Model	SWD45	SWD60
Fits quick hitch:	QSD45, QSD50	QSD60
Width, max: (mm)	1,600	1,600
Width, minimum: (mm)	430	430
Largest brush diameter: (mm)	915	915
Smallest brush diameter: (mm)	600	600
Max weight (kg):	186	210
Oil flow min/max: (l/min)	20/60	20/60



Integrated gripper | GR05-GR30

Integrated gripper for tiltrotators and rotators between 3-33 tons

- The gripper arms are made from high-strength steel for strength and low weight
- Safe lifting with load-holding check valves in each gripper cylinder
- The perfect workmate on the site
- Versatile handling of posts, kerbstones and other objects
- Practical for pipe laying and manhole positioning
- Available for tiltrotators/rotators EC206, EC209, EC214, EC219, EC226 and EC233
- 3 finger claws as standard
- Complies with European safety standards

Features of the GR20B:

- ▶ Gripper width 820-950* mm depending on quick hitch
- ▶ Stronger grab guards
- ▶ Fixed counterhold Improved axle locks

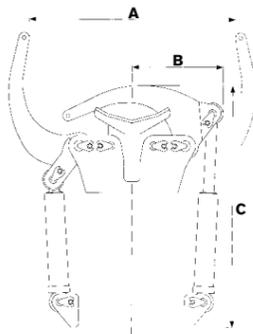
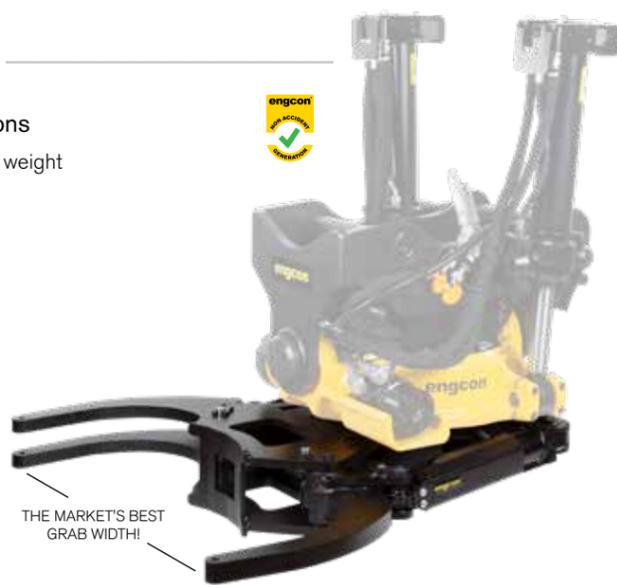
* S60GR20 and QS60GR20: 820 mm
S70GR20 and QS70GR20: 950 mm

Features of the GR30 (S80): ▶ Gripper width up to 1080 mm

Specifications

Model	GR05	GR10	GR20B	GR30**
Largest grab width A: (mm)	350	610	820-950*	1,080
Width B: (mm)	200	270	350	440
Length C: (mm)	585	760	910	980
Weight: (kg)	50	70	85	148
Max hydraulic pressure: (MPa)	22	22	22	22
Clamping force at 21 Mpa: (kg)	1,654	1,497	2,234	1,956

* Depending on hitch. ** GR30 only fits S80 and S3 hitches



Integrated gripper | GR20R2

Integrated gripper for EC214 and EC219*

The new GR20R2 integrated gripper is specially developed for the tough environments that grippers are exposed to on the railway, where a gripper will often be used to pull and lift heavy rails with excavators.

Advantages:

- Robust construction designed for heavy and difficult usage, such as in the railway industry.
- Angled down up to 42 degrees
- Large grab width – 820 mm
- Protected cylinders

* Standard hitch combinations: S45 and S60. Other hitch combinations may be available – please ask.

Specifications

Model	GR20R2
Largest grab width A: (mm)	820
Width B: (mm)	380
Length: (mm)	Depending on the hitch
Weight: (kg)	140
Clamping force at 21 Mpa: (kg)	1,750
Angled at 35-42° depending on the hitch	
Detachable	
Protected cylinders	

Note! GR20R2 cannot be combined with all quick hitches on the market. Contact engcon for further information.



Stone and sorting grab | SK05, SK10, SK15, SK20, SK30

For all excavators in the 3-33 ton weight classes

- The grab's claws are fitted with reversible wear bars
- Load-holding check valve and pressure accumulator retain gripping force in the event of loss of machine pressure
- Complies with European safety standards
- Expander bushings in major joints
- Swedish design for excellent geometry and problem-free operation
- Bolt-on bracket/mounting makes switching brackets easy

Accessories

- Tooth kit
- Closed sides
- EC-Oil automatic hydraulic connector



SK15 with EC-Oil connection



SK20 with teeth (accessory)

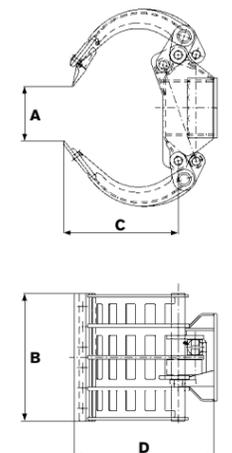


SK20 with closed sides (accessory)

Specifications

Model	SK05	SK10	SK15	SK20	SK30
Grapple width A: (max mm)	1,110	1,660	1,790	1,990	2,575
Grapple width A: (min. mm)	0	0	0	0	0
Cutting width B: (mm)	505	715	860	860	1,170
Jaw length C: (mm)	460	680	790	870	1,180
Height D: (mm)	580	790	960	1,070	1,360
Gripping force: (kN)	8.7	15	19	25	45
Print: (MPa)	21	21	21	21	21
Weight: (kg)	180	325	540	620	1,195
Base machine weight: (t)	3-6	6-12	12-16	16-22	22-33

Supplied with or without upper hitch, or with rotator depending on the customer's requirements.



Timber/combi grab | TG25HD-TG55HD

Together with the tiltrotator, engcon's combi Timber Grab Heavy Duty (TGHD) is the ultimate tool for round timber and pipe handling, and light sorting jobs. The grabs, which are reinforced with high-strength steel wear bars with a hardness of 400 Brinell for long life, can be used with a wide variety of hitches.

Advantages:

- Compatible with EC-Oil, allowing automatic connection without the operator having to leave the cab.
- Grab arms in high-strength steel for long life
- Grab tip wear bars with 400 Brinell hardness for best durability
- A non-return valve built into the ram and an direct-mounted accumulator ensure the load is secure should any pressure drop occur.
- Expander bolts in joints prevent unnecessary play
- Bolt-on bracket/mounting makes switching brackets easy



Specifications

Model	TG25HD	TG28HD	TG42HD	TG55HD
Weight: (kg)	195	360	595	1,070
Max load: (kg)	3,000	5,000	6,000	10,000
Max opening: (mm)	1,450	1,540	1,900	2,375
Width: (mm)	460	595	677	802
Grip area: (m ²)	0.25	0.28	0.42	0.55
Recommended machine weight: (tons) (permanent installation) These values apply regardless of the attachment on the grab.	4-9	9-14	12-19	19-26

Pallet fork | GH1000-GHH1200



engcon's pallet fork – A robust and cleverly engineered design for best visibility. Tempered forks guarantee a long service life.

NOTE! Always consult the applicable safety instructions for using the pallet fork on each individual machine. When using the pallet fork together with a tiltrotator, a load-holding valve must be fitted to the tiltrotator. All engcon tiltrotators are fitted with load-holding valves in the tilt cylinders as standard equipment.

GH = mechanical fork widening,

GHH = hydraulic fork widening

Specifications

Model	GH1000	GH1000	GH1200	GH1200	GH1200	GHH1200	GHH1200	GHH1200
Width: (mm)	1,000	1,000	1,200	1,200	1,200	1,200	1,200	1,200
Fork: (mm)	100×40×1,200	100×40×1,200	125×45×1,200	125×45×1,200	125×45×1,200	125×45×1,200	125×45×1,200	125×45×1,200
Weight: (kg)	180	180	280	310	310	310	310	310
Hitch:	S45	S50	S60	S70	S1	S50	S60	S1
TP500	2,9 T	2,9 T	4,7 T					

Compactor plate | PP350, PP600, PP950

For all excavators in the 6-33 ton weight classes

- Compatible with EC-Oil, allowing automatic connection without the operator having to leave the cab.
- Compaction plate in hard-wearing steel
- Side plating for grading filler
- Open short ends allows quick and easy clearing of the top of the plate
- Rubber joint optimise insulation with stiffness for grading
- The vibrator unit and hydraulic parts are well-protected inside the side plates
- Fitted with S-type mounting as standard
- Complete with flow control valve
- Complies with European safety standards
- Not supplied with hoses
- Tandem-connected weights



Specifications

Model	PP350	PP600	PP950
Packing power: (kg)	3,500	6,000	9,500
Weight excl mounting: (kg)	390	620	900
Length A: (mm)	890	1,050	1,270
Width B: (mm)	620	720	900
Height C: (mm)	450	520	600
Pack surface: (m ²)	0.42	0.58	0.90
Hydraulic flow: (lpm)	68	120	120

Best in test!

engcon's PP600 compactor showed the best results in an independant test conducted by geologist Dr. H. Seeliger in Kassel, Germany, giving 103.2% after two passes and 101.6% after six passes.

Compactor plate | PP3200



For all excavators in the 6-16 ton weight classes

- Compatible with EC-Oil, allowing automatic connection without the operator having to leave the cab.
- Low flow requirement (35 litres) allows the PP3200 to be run directly off the extra connections on the tiltrotator
- Variable working width
- Specially adapted pack cushions
- Compaction plate in hard-wearing steel
- Side plating for grading filler
- Open short ends allows quick and easy clearing of the top of the plate
- Rubber joint optimise insulation with stiffness for grading
- The vibrator unit and hydraulic parts are well-protected inside the side plates
- Fitted with S-type mounting as standard
- Complies with European safety standards
- Not supplied with hoses

Specifications

Model	PP3200
Packing power: (kg)	3,200
Weight excl mounting: (kg)	470
Length A: (mm)	1,000
Width B: (mm)	500-700
Height C: (mm)	590
Pack surface: (m ²)	0.4-0.56
Hydraulic flow: (lpm)	34

Accessories: Extension plates, trenching blade, specially adapted compactor pads for e.g. packing in sheet-pilings.

Rotating brush | SR800-2000

Rotating brushes for excavators

engcon's rotating brushes – Make the most of what the excavator has to offer and open up previously undreamed-of possibilities in a wide range of speciality areas. Regardless of whether you're sweeping soil, sand, gravel or snow, the brush will very quickly become a favourite tool you just won't be able to live without. Areas such as road crossings, pedestrian walkways, tramway points, etc can be cleared as well as sweeping road sand and gravel, brushing grassed areas, foundations, rocks and more. The only limit is your imagination. A hydraulic motor provides the power and a chain drive which enables the brush rotation speed to be adjusted. The open design allows unsurpassed, service-friendly access, and the standard polypropylene brushes can be replaced quickly and easily. Compatible with EC-Oil, allowing automatic connection without the operator having to leave the cab.

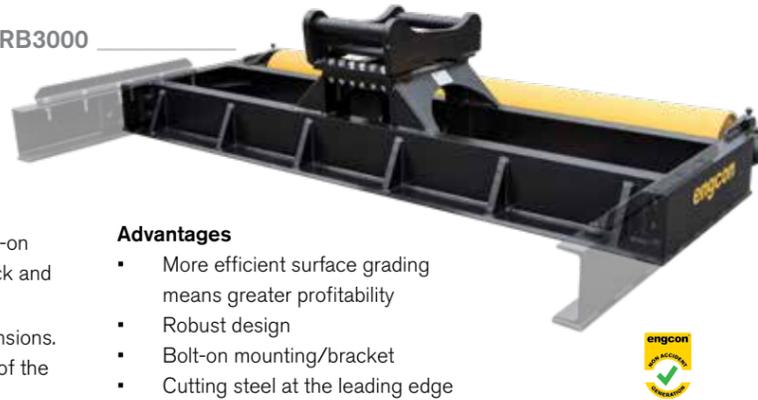


Specifications

Model	SR800	SR1300	SR1600	SR1800	SR2000
Width: (mm)	800	1,300	1,600	1,800	2,000
Weight excl mounting: (kg)	210	240	260	275	290
Oil flow min/max: (l/min)	20/60	20/60	20/60	20/60	20/60

Grading beam | GRB1250-GRB3000

With engcon's grading beam, you can grade large areas quickly and efficiently.



The grading beam is a smart, flexible solution as it has a bolt-on bracket/hitch with the same bolt pattern as other tools (e.g. rock and sorting grabs, compactors and rotating brushes) from engcon.

The side beams can be extended with bolt-on 500 mm extensions. This allows the grading material to be held within the confines of the width of the grading beam.

What's more, engcon's grading beam has cutters on the leading edge and wear bars under the entire structure. This means a long life, making the grading beam even more profitable. The journaled compactor roller can be raised and lowered to achieve the best setting for your particular needs.

engcon's grading beam comes in five different widths according to the size of tiltrotator.

Advantages

- More efficient surface grading means greater profitability
- Robust design
- Bolt-on mounting/bracket
- Cutting steel at the leading edge
- Wear bars under the entire structure
- Extendable side beams
- Journaled compactor roller
- Compactor roller can be raised and lowered

NOTE: engcon's grading beam is even more efficient in combination with a tiltrotator, but it is then important to consider the loads that the tiltrotator will be subjected to. Use the grading beam for the purpose for which it is designed – surface grading. Large quantities of material can be moved quickly and efficiently with engcon's range of buckets.

Specifications

Model	GRB1250	GRB1500L	GRB1500	GRB 2000	GRB 2500	GRB 3000
Width (mm):	1250	1500	1500	2000	2500	3000
Depth (without extensions) (mm):	962	962	1000	1000	1000	1000
Height (without mounting) (mm):	275	275	387	387	387	387
Diameter, roller (mm)	178	178	245	245	245	245
Weight (kg):	195	233	306	482	563	645



Tools to take on the toughest jobs

engcon offers a wide range of tools and attachments, adapted to your specific needs. The tools and attachments are manufactured in high-quality steel and are designed to provide the greatest flexibility and crack resistance. Wear bars and cutters have a hardness of around 500 Brinell. We also reinforce our tools with Hardox on the most exposed positions to manage an extra tough load.



Buckets

- ▶ We don't fit hooks on our buckets that would facilitate their movement as these would increase the risk of injury caused by a bucket sliding off the carrier bucket and hitting a bystander.

Grading bucket | GB01-GB29

For all excavators in the 1.5-33 ton weight classes

engcon's grading bucket – Optimised together with experienced contractors for use together with the tiltrotator. Chamfered corners all round to avoid collisions with house walls and other objects that can potentially be damaged by the rotating bucket. Conical form for easier filling and an adapted angle of 16 degrees between mounting and bottom for easier bucket rotation without losing material.



Advantages of the engcon grading bucket

- 1 Chamfered corners to avoid collision
- 2 Tiltrotator-adapted ceiling angle
- 3 Hardox-reinforcements on other wear surfaces
- 4 Conical form for easier filling and better release
- 5 Wear and cutting steel - 500 Brinell hardness
- 6 Long floor and cutaway sides to reduce drag when digging

Specifications

Model	GB01	GB02	GB02	GB02	GB03	GB04	GB04	GB05	GB05	GB06	GB06	GB08	GB08	GB08	GB08	GB11	GB11	GB11
Volume: (l)	55	90	130	130	150	200	200	250	250	300	300	370	370	400	400	450	500	500
Width: (mm)	800	900	900	900	1,100	1,000	1,000	1,200	1,200	1,200	1,200	1,300	1,300	1,400	1,400	1,400	1,400	1,400
Weight: (kg)	60	75	80	85	110	135	140	145	155	155	160	260	260	255	265	320	370	370
Attachment:	S30	S30	S30	S40	S40	S40	S45	S40	S45	S40	S45	S45	S50	S40	S50	S45	S45	S50

Model	GB13	GB13	GB14	GB15	GB15	GB17	GB17	GB17	GB20	GB20	GB20	GB20	GB22	GB24	GB24	GB29	GB29	GB29
Volume: (l)	600	600	650	750	750	900	900	900	1,100	1,100	1,100	1,100	1,250	1,400	1,400	1,600	1,600	1,600
Width: (mm)	1,600	1,600	1,600	1,600	1,600	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,900	2,000	2,000	2,000	2,000	2,000
Weight: (kg)	450	490	460	660	690	700	740	730	940	980	970	980	1060	1,150	1,150	1,460	1,490	1,460
Attachment:	S60	S1	S60	S60	S1	S60	S70	S1	S60	S70	S1	S2	S70	S70	S2	S70	S80	S2

Cable bucket | CB01-CB25

For all excavators in the 1.5-33 ton weight classes

engcon's cable bucket – developed for precision excavation with minimal width for e.g. cables or other services requiring narrow trenches. Its deep profile means better accessibility beneath intersecting cables and pipes and also allows deep trenching without the need for the tiltrotator to go below surface level.

engcon's cable buckets are available in two models – Standard and tapered (C)

Standard is the conventional type with parallel side plates for excavating ditches with vertical sides.

The tapered model has a narrower blade than the standard cable bucket but with the same width top, producing a narrower trench bottom with slightly sloping sides.

engcon's cable buckets are made from high-quality steel. As with other engcon buckets, the cutters and other exposed wear surfaces have a hardness of 500 Brinell.



Standard



Conical

A factory-fitted tooth kit is available as an optional extra.



Tooth kit, type Cat

Blade teeth provide smooth ditch bottoms

Specifications

Model	CB01	CB02	CB03	CB03	CB05	CB05	CB05	CB08	CB08	CB08
Volume: (l)	35	60	90	90	130	130	130	155	155	155
Width: (mm)	240	290	290	290	340	340	340	400	400	400
Weight: (kg)	25	35	55	55	70	85	85	83	95	95
Attachment:	S30	S30	S30	S40	S40	S45	S50	S40	S45	S50

Model	CB10	CB10C	CB15	CB15C	CB15	CB15C	CB20	CB20	CB20	CB25	CB25
Volume: (l)	160	130	350	350	350	350	400	400	400	550	550
Width: (mm)	460	300	560	300	560	300	660	660	660	600	600
Weight: (kg)	160	170	290	255	320	285	320	360	360	590	615
Attachment:	S50	S50	S60	S60	S1	S1	S60	S70	S1	S70	S80

Gripper-adapted bucket series

A new gripper-adapted bucket series has been developed in parallel with the GRD, the detachable gripper, where the rear of the bucket is designed with a recess that aligns with the gripper's counterhold and consequently functions as an extended support for the item being gripped, such as a pole or pipe.



Sorting bucket | SB02-SB29

The engcon series of sorting buckets is designed for quick, simple sorting. The sorting buckets require no hydraulics; they are built from the highest quality steel where the cutters and steel ribs have a hardness of 500 Brinell – the same high quality that can be found on every engcon bucket. All for maximum efficiency and a long service life.



Specifications

Designation	SB02	SB02	SB02	SB04	SB06	SB08	SB11	SB14	SB15	SB17	SB20	SB24	SB29
Volume: (l)	90	130	130	200	300	370	500	650	750	900	1100	1400	1600
Width: (mm)	900	900	900	1000	1200	1300	1400	1600	1600	1700	1700	2000	2000
Weight: (kg)	80	86	91	144	166	292	320	442	628	697	920	1,046	1,268

Water/Drainage bucket | TB09-TB21



For all excavators in the 8-21 ton weight classes

engcon's water & sewerage bucket – Specially designed for excavating water and sewerage trenches, and other utilities assignments that call for a deep-digging bucket with a somewhat longer bottom and where a cutter without teeth is required. Like the other buckets in engcon's range, the water & sewerage bucket is reinforced with Hardox at the most exposed points.

Specifications

Model	TB09	TB12	TB12	TB14	TB14	TB14	TB14	TB16	TB16	TB18	TB21
Volume: (l)	350	500	500	600	600	650	650	700	700	900	1,100
Width: (mm)	700	800	800	800	800	830	830	900	900	900	1,100
Weight: (kg)	250	325	340	510	520	525	520	550	550	750	1,075
Attachment:	S50	S50	S60	S60	S1	S60	S1	S60	S70	S70	S70

Deep-digging bucket | DB01-DB32



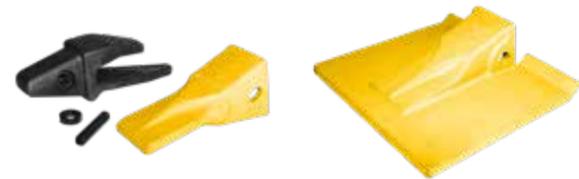
For all excavators in the 1-33 ton weight classes

engcon deep-digging bucket – Robust construction for tough jobs. A favourite for anyone needing to excavate and dig in difficult conditions where fast penetration and easy filling are prioritised, for example in trenching and other mass transfers requiring capacity. Like all engcon buckets, the digging bucket has a long floor and cutaway sides to reduce drag when digging.

The bucket can be fitted with the following accessories on request:

- Tooth kit*
- Tooth cover
- Blade teeth

* When selecting a tooth kit, engcon buckets are fitted with the Cat J system as standard equipment. For other tooth systems, check availability with engcon.



Specifications

Model	DB01	DB02	DB02	DB02	DB03	DB05	DB06	DB06	DB07	DB07	DB09	DB09	DB11	DB11	DB11	DB12	DB12	DB12
Volume: (l)	30	70	90	90	120	160	200	200	250	250	350	350	400	400	400	500	500	500
Width: (mm)	400	450	550	550	550	600	600	600	700	700	700	700	700	700	700	800	800	800
Weight: (kg)	35	50	55	60	75	100	125	140	210	215	230	235	280	285	300	320	320	330
Attachment:	S30	S30	S30	S40	S40	S40	S40	S45	S45	S50	S45	S50	S45	S50	S60	S45	S50	S60

Model	DB13	DB13	DB14	DB14	DB16	DB16	DB18	DB18	DB18	DB21	DB21	DB23	DB23	DB26	DB26	DB26	DB29	DB29	DB32
Volume: (l)	600	600	650	650	750	750	900	900	900	1,100	1,100	1,250	1,250	1,400	1,400	1,400	1,600	1,600	1,800
Width: (mm)	850	850	900	900	1,000	1,000	1,000	1,000	1,000	1,100	1,100	1,200	1,200	1,300	1,300	1,300	1,450	1,450	1,700
Weight: (kg)	500	570	520	590	600	630	680	715	710	940	920	1,150	1,150	1,330	1,350	1,320	1,440	1,450	1,720
Attachment:	S60	S1	S60	S1	S60	S1	S60	S70	S1	S70	S1	S70	S2	S70	S80	S2	S70	S2	S80

Asphalt cutter | TC05-TC20



For all excavators in the 3-33 ton weight classes

engcon's asphalt cutter – a cutter from engcon allows you to make precise cuts and avoid digging up asphalt unnecessarily. Can also be used for precise cuts on grass surfaces and other locations where accuracy is called for.

Specifications

Model	TC05	TC10	TC10	TC15	TC20	TC20	TC20
Diameter: (mm)	Ø370	Ø470	Ø470	Ø470	Ø470	Ø470	Ø470
Cutting depth: (mm)	100	150	150	150	150	150	150
Weight: (kg)	40	55	60	70	90	110	200
Attachment:	S40	S45	S50	S60	S70	S80	S1

Ripper | R5-R30



For all excavators in the 1.5-33 ton weight classes

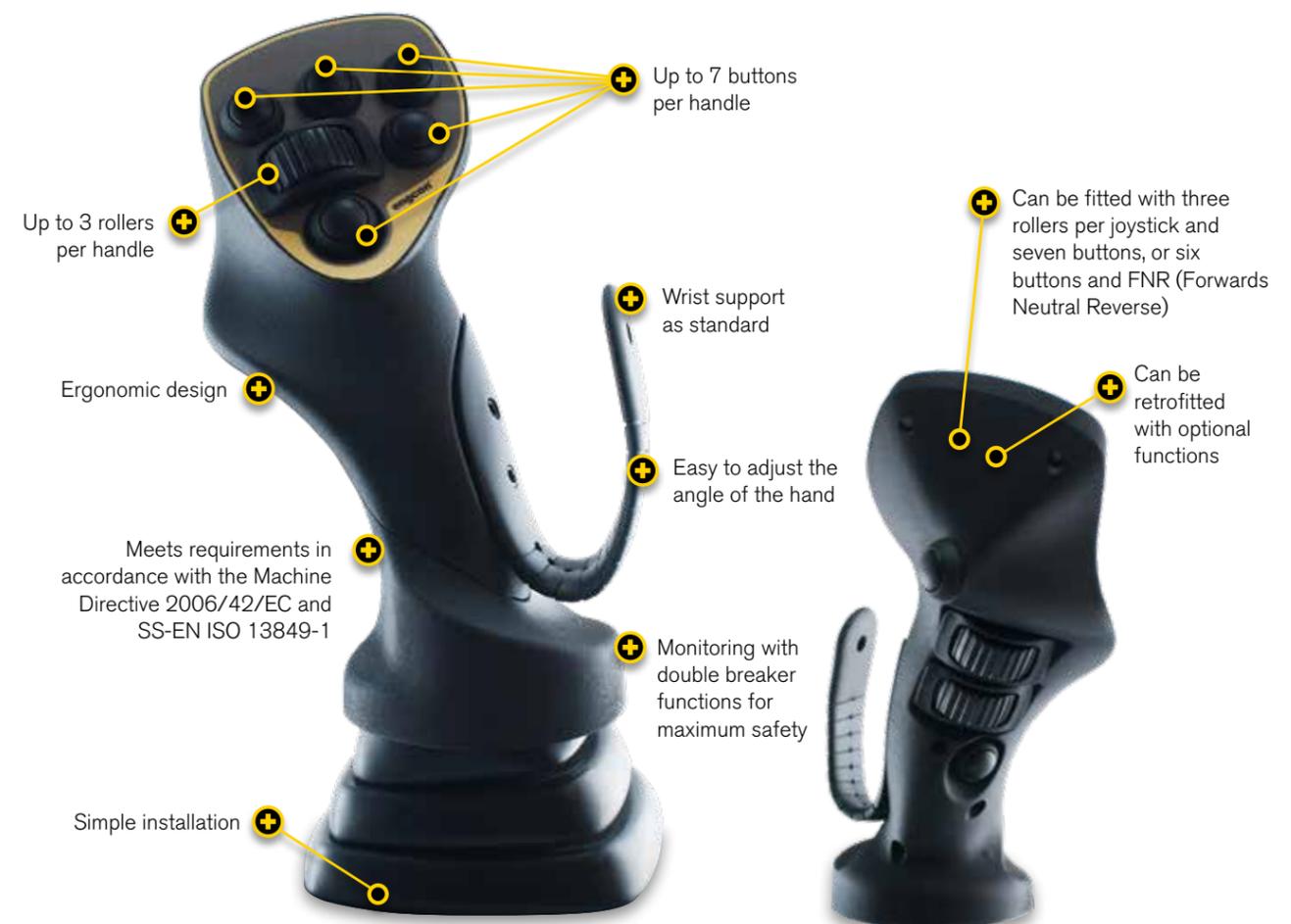
engcon's ripper – With engcon's ripper you'll find no problem in penetrating hard ground. The ripper is optimised for the best ripping ability and breakout force in hard material.

Specifications

Model	R5	R5	R10	R10	R15	R20	R20	R20	R30	R30	R30
Height: (mm)	600	600	700	700	900	1,200	1,200	1,200	1,400	1,400	1,400
Weight: (kg)	50	65	110	110	170	370	410	390	680	720	690
Attachment:	S30	S40	S45	S50	S60	S60	S70	S1	S70	S80	S2

MIG2

Enjoy your work with maximum ergonomics and functionality



Optional extra
for a more comfortable working day

engcon's MIG2 joystick for excavators combines ergonomic design with functionality. The joystick was developed for maximum comfort, without compromising on requirements for increased safety and additional control functions.

Designed in collaboration with contractors, each joystick can be fitted with three rollers and seven buttons – an FNR switch is also available where joystick steering on wheeled excavators is required.

The joystick has an integrated hand support for the wrist to rest on without affecting the excavator movements. The hand support is flexible and can be adapted to different hand sizes.

MIG2 also provides the operator new methods of operation. The joystick's rollers are intended for use by the thumb, index and middle fingers – something that's unique to engcon.

In this way the operator can operate six proportional tiltrotator and excavator functions simultaneously when necessary.

DC2

Proportional control system with remote support

Our DC2 control system meets the high standards demanded of all components such as hydraulics, electronics and software.

Together with engcon tiltrotators and Q-Safe, the DC2 creates a safer working environment. DC2 offers the option of track control, wheel steering and boom slew as well as other excavator functions.

A smartphone app allows remote support as a complement to PC and USB cable connection.

The product meets the ISO 13849-1 safety standard.



Advantages:

- DC2 complies with the new international machine safety standard SS-EN ISO 13849-1
- Fitted with an automatic basic calibration function for quick starts
- Automatically backs up operator settings
- Option of track control, wheel steering, boom slew and other excavator functions
- Function settings and tools can be adjusted using an android phone/tablet with the Microprop App via Bluetooth for up to four different operators
- Controls up to six proportional functions and a further 14 on/off functions with MIG2 joysticks
- Suitable for most machines on the market
- Ability to create adapted tool programmes

The DC2 control system meets all current and known future safety requirements.



ePS

engcon Positioning System



engcon is now taking one step further into the future by adapting its products to the latest technology with excavator guidance systems/machine sensors.

ePS is optimised for engcon's smart DC2 control systems where the cabling for the ePS is integrated with the cabling for DC2 but is also "open", which means the ePS also works together with engcon's other control systems and those of other makes.

Conditions

The technology is based on signals from the ePS to the excavator guidance system used by the customer on his excavator. The aim is to enable as many manufacturers' excavator guidance systems as possible to be able to communicate with the ePS.

Advantages

Together with the selected excavator guidance system, ePS reduces the need for a 'conventional'

setup, and the driver can see the exact excavation area via the machine control system's display in the cab. This control, ensuring that exactly the right quantity of material is excavated, provides many benefits:

- + **Reduced project time**
- + **Reduced fuel consumption**
- + **Reduced machine and attachment wear**
- + **Exact digging, reducing overdigging and cartaway**
- + **Optimised to the DC2 control system**
- + **Can be ordered with, or retrofitted, to all generation 2 tiltrotators from EC209 upwards***

engcon supplies the rotation sensor and the excavator guidance system supplier supplies the tilt sensor.



New functions for the excavator – new jobs for the company

Do you want to work more efficiently and identify new business opportunities?
The tiltrotators and tools produced by the world's leading manufacturer turn
excavation into a fine art.

With System engcon and EC-Oil you will be able to change tasks quickly and
increase both the utilisation and profitability of your excavator or backhoe loader.
System engcon products are compatible with one another and turn your excavator
into a multitool that can do all kinds of things.

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