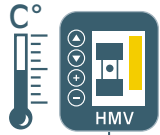


quality in every operation...



HCQ – a system for all applications



HCQ – more



Flexible system

- Modular system
- Machine-independent system components
- Identical components for compactors, tandem rollers and static rollers
- Can be used worldwide
- Extremely simple operation
- Fast assembly
- Exchange of data between multiple machines



High-quality compaction and documentation

- Homogeneous compaction over entire working area
- Prevents over- and under-compaction
- Higher quality based on simple self-monitoring
- Higher efficiency by avoiding unnecessary passes
- Comprehensive compaction documentation
- Simple and secure data archival

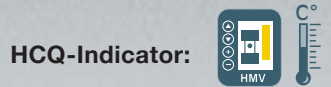
q-2.com



HAMM Compaction Quality
Monitor compaction – Document compaction

HCQ: A system for every roller
The HCQ modules are available for all state-of-the-art tandem rollers and rubber-wheeled rollers. If the roller is prefitted for HCQ, the HCQ components can be mounted and configured nearly instantly.

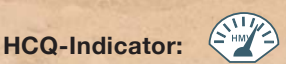
HCQ basic module for asphalt-paving:



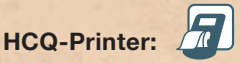
The HCQ Indicator enables monitoring of asphalt compaction. It also measures the asphalt temperature continuously in front of and behind the roller and shows the temperatures on the display.



HCQ basic modules for earth-work:



The HCQ Indicator provides the roller operator with information about the current load-bearing capacity of the ground. The HCQ Indicator enables monitoring of the compaction status during the actual compaction process.



The HCQ Printer is a handy, easy to operate display and documentation system for continuous compaction control (CCC). The HCQ Printer is a very practical addition to the HCQ Indicator, particularly when compacting defined areas. The measurement results can be displayed or printed out directly using a rugged printer unit.



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Focus on the compaction process

During compaction work, the panel PC serves as a display for the operator. The monitor shows the results from the compaction measurement in separate graphics. The operator can watch the progress of the compaction in real time and react accordingly.

For better orientation, guidelines can also be displayed in the system for the operator. In earth-work applications, this can include, for example, the suggested speed, frequency and amplitude or the desired compaction result.

Simple documentation and evaluation

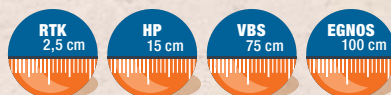
The HCQ software allows convenient data archival and evaluation:

- Logging of diverse data during the compaction process, e.g. DGPS position, compaction value, driving speed, frequency, amplitude, roller type
- Geolines or graphics can be additionally provided in the project for orientation
- Convenient data archival with data transfer via USB interface
- Creation of result logs in digital format or as printouts

The DGPS signal is available in various resolutions.

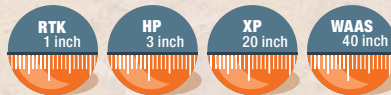
Accuracies:

Scale Europe in cm



(RTK: Ground station required)

Scale USA in inch



(RTK: Ground station required)

The HAMM service team can provide the appropriate licenses to customers worldwide.

A modular system

As of now, new HAMM rollers can be delivered with the HCQ preliminary setup. This applies to soil compactors and asphalt rollers as well as machines with a cabin or ROPS roof. Retrofitting is also possible for many existing machines.

The system is extremely flexible: All of the other HCQ modules can be retrofitted individually and exchanged as required between different machines and construction sites.

2 Panel PC with touchscreen

At the core of the application is an extremely rugged panel PC with a touchscreen and USB interface. This computer provides processing power as well as a monitor and data storage facilities. It is based on military standards, has a fully enclosed metal case, is protected against water and vibrations (IP 65) and has an operating range from -40 to +70°C.

3 DGPS receiver

The DGPS receiver in a heavy-duty version with magnetic feet only takes seconds to mount on the roller. This device receives satellite signals along with a DGPS correction signal. Licenses for these signals are available in different accuracy classes.

The HCQ Navigator retains the GPS signal for up to 16 hours even after the machine is shut down. This eliminates wait time for system initialization when starting work, after breaks, at the start of shifts, etc. When compacting under bridges or in locations with radio shadowing, sensors combine with the intelligent software to bridge over insufficient GPS signals for up to one minute.

1 The HCQ case

The mobile system components are kept in a rugged hard-shell case. This makes it quick and easy to safely stow away this high-performance equipment for transport.

Besides providing space for the equipment, the case includes a charger, USB stick and all relevant documentation.

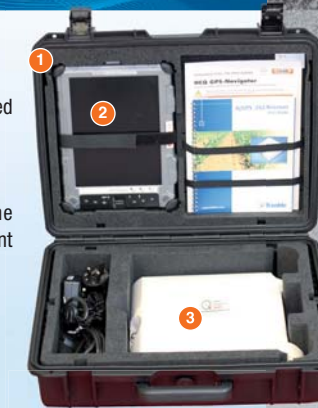
4 Ground station

In applications with very demanding requirements for position accuracy or where there are no (or inadequate) DGPS signals, the system is operated using a ground station. A maximum accuracy of 2.5 cm (1 inch) can be achieved using a ground station.

Equipment from other manufacturers can also be used for the GPS receiver and ground station.

5 WLAN data network

A WLAN data network can be used to interconnect a group of rollers so they can exchange measurement results continuously. Each of the roller operators can watch the current progress of the group's work, e.g. the number of passes by all of the rollers or the temperature.



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