

COMPACTION

COMPACTION TECHNOLOGY

AMMANN TECHNOLOGY PORTFOLIO



OSCILLATION



ADS
SERVICELINK
GPS

AMMANN

COMPACTION GETS SMARTER

Precise, transparent and verifiable compaction processes increasingly are required on construction sites. Ammann took the first steps toward providing these processes in 1998 with the advent of Ammann Compaction Expert (ACE), an automated compaction measurement and control system.

ACE has been continually improved since its introduction and remains the industry leader.

THE TIME FOR INTELLIGENT COMPACTION

The highly demanding situation in the construction industry has increased the need for precise, transparent and verifiable results of the compaction process. The terms for bidding and tendering in road construction are getting stricter, as are the standards for quality results.

The technologies of intelligent compaction, support the road contractor to achieve the requested efficiency, quality and documented results on their jobs.

OVERVIEW OF INTELLIGENT SOLUTIONS:

ACE

Simple relative compaction measuring device, for use with vibratory plates and trench rollers, that indicates compaction progress in real-time.

ACE^{force}

Advanced system that provides absolute compaction measurement for easy correlation with laboratory measurements results.

ACE^{pro}

Sophisticated system that provides absolute compaction measurement and automatic vibration control based on the jobsite conditions and compaction goals.

ADS (Ammann Documentation System)

Documentation system using GPS positioning for precise recording of compaction process data measured by ACE^{force} or ACE^{pro} systems (available for heavy compaction only).

Oscillation

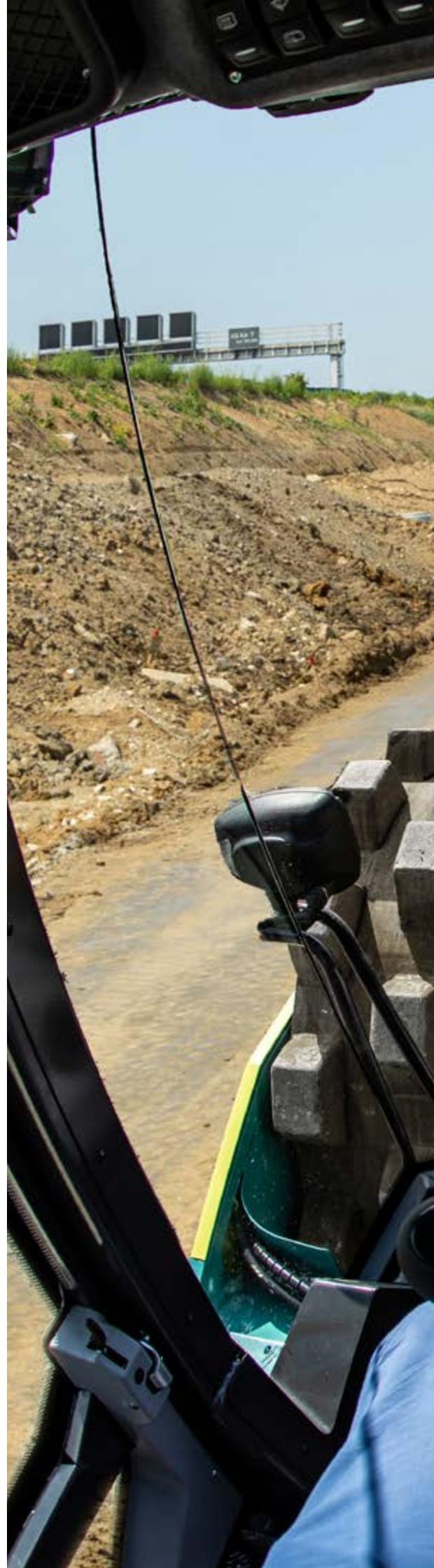
Dynamic compaction method that uses less force but delivers both vertical and horizontal energy, essentially massaging the aggregates into place.

A high-frequency drum

Combines standard circular vibration with high frequencies to enable compaction at higher speeds.

Triple-Shaft Exciter System

The unique system from Ammann balances its compaction forces by using a third exciter shaft. This extra shaft keeps plate movement consistent, which in turn enables smooth travel – even through heavy, cohesive soils – and helps effortlessly overcome steep grades. Plates that utilise the triple-shaft exciter system are impressive climbers and can even do so while backfilling saturated areas – work that can leave competitive products at a standstill.





AMMANN

5.0 km/h
K₀ (MPS)
40 MN/m²
2.00 min
33 Hz

INTELLIGENT COMPACTION TECHNOLOGIES

Ammann is an industry leader in the development of compaction technology. Each Intelligent Compaction product from Ammann offers unique methodology that makes the most of jobsite conditions and compaction parameters.





ACE

Evaluates when maximum compaction has been achieved



ACE^{force}

Provides absolute compaction measurement in real time



ACE^{pro}

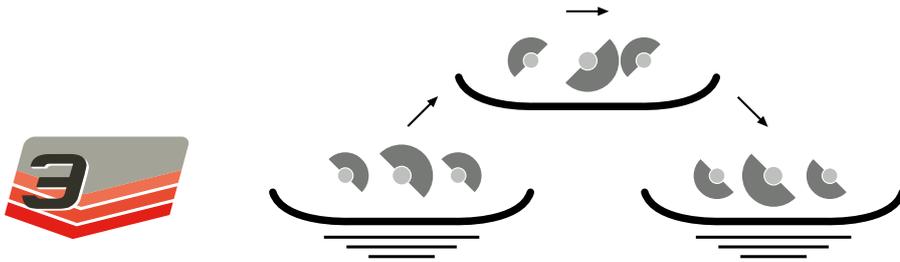
Provides absolute compaction measurement with fully adjustable frequencies and amplitudes that significantly reduce the compaction time



LIGHT COMPACTION

BIG GAINS FOR SMALLER MACHINES

Vibratory plate compactors are often put to work on smaller jobsites. But the efficiencies that can be gained on the smaller sites can have a significant impact on the owner and operator of the plates.



TRIPLE-SHAFT EXCITER SYSTEM

**MARKET LEADING TRIPLE-SHAFT EXCITER SYSTEM
GIVES AMMANN APH VIBRATORY PLATES AN EXTRA EDGE
WHEN CONDITIONS GET TOUGH**

Ammann remains the technological leader in plate compaction with its patented triple-shaft exciter system

This technologically advanced system keeps plate movement consistent, which in turn enables smooth travel – even through heavy, cohesive soils. The system also helps the machines effortlessly overcome steep grades. APH machines are impressive climbers even while backfilling saturated areas – work

that can leave competitive products at a standstill.

The success of the plates starts with the use of the third shaft. With twin-shaft systems, plates can rock back and forth and their leading edge can turn downward and become stuck, particularly in saturated materials.

With the Ammann exciter system, the third shaft prevents that back-and-forth movement by providing another force. This creates more consistent drive of the plates and keeps them even, steady and above the surface – even on saturated jobsites.





APH HYDROSTATIC PLATES **ACE**

BIG TECHNOLOGY IN A SMALL PACKAGE

APH Hydrostatic Vibratory Plates can be equipped with the well known Ammann Compaction Expert (ACE), an automated compaction measurement and control system.

The ACE system on the vibratory plates utilises the well developed technology used in Ammann's heavy compaction machines for years. It provides operators with an accurate indication of soil stiffness and whether desired compaction has been achieved.

HIGHLIGHTS

- Relative compaction measuring device
- Provides continuous information about compaction levels
- Removes guesswork from the compaction and eliminates unnecessary passes
- Evaluates when maximum compaction has been reached

Available on APH 50/75, APH 55/75, APH 60/85, APH 65/85, APH 85/95 and APH 110-95

SMALL BUT PRODUCTIVE

- Relative compaction measuring device that provides continuous information about compaction levels and displays compaction progress in real time
- Evaluates when the maximum compaction has been reached, thereby reducing the number of passes, which increases productivity and delivers savings on fuel, labour and machine wear
- Extends the life of the compacted material and structures by providing homogenous surfaces without weak spots

SIMPLE TO USE

- System is automatically activated after engine is running
- Highly visible display makes it easy for the operator to monitor compaction progress
- Display is located for easy monitoring throughout the work day and during varied weather conditions

ALWAYS UNDER CONTROL

- Solid design maximises machine efficiency and prevents damage to components – as do protective covers
- ACE includes an integrated, autonomous diagnosis process that ensures all components are working properly



ARR TRENCH ROLLER ACE

ELIMINATE PASSES

The Ammann ARR 1575 Articulated Trench Roller can utilise optional ACE technology to increase productivity in trench applications. It's a unique machine – with unique technology.

ACE ELIMINATES UNNECESSARY PASSES

- Relative compaction measuring device that provides continuous information about compaction levels and displays compaction progress in real-time.
- Evaluates when the maximum compaction has been achieved, which reduces the number of passes compactor makes. This leads to increased the machine productivity and delivers savings on fuel, labour and machine wear.
- System is able to quickly react to all changes and prevents under/over compaction – and indicates double-jumping.

UNLIMITED VISIBILITY

- Uniquely placed LED stripes – on both sides of the machine and the top and rear of the hood – ensure the operator maintains visibility, whether working in a deep trench or an open space.
- Lights change color to inform the operator about compaction status and double-jumping.
- System is automatically activated when engine begins running.

ROBUST CONSTRUCTION

- All main components are placed inside the machine for maximum protection.
- The system is maintenance-free.

HIGHLIGHTS

- Continuous compaction measurement system
- Compaction progress simply indicated via LED
- Removes guesswork from the compaction equation and avoid unnecessary passes
- Mounted on the machine with direct visibility
- Can measure compaction at any point on-site



|| COMMUNICATES
IN REAL TIME VIA
LED STRIPES AND
PREVENTS UNDER/
OVER COMPACTION. ||



HEAVY COMPACTION

ELIMINATING PASSES AND THE COSTS THAT GO WITH THEM

Heavy soil and asphalt compactors have become high-technology machines. That technology works quietly behind the scenes. Ammann technology is intuitive and user-friendly, and many operators would be surprised at how often they are utilizing it.

ARX LIGHT **ACE^{force}**

ACE^{force} INTELLIGENT COMPACTION SYSTEM FOR LIGHT TANDEM

SMALL AND PRECISE

- Highly advanced and autonomous compaction measuring system which measure of material stiffness in real time is a key advantage of ACE^{force} system for articulated Light tandems..

EASY TO CONTROL

- Indications of actual compaction process is easily readable via compaction bar on machine central multifunctional display.
- System is fully autonomous without any advanced settings which is highly appreciated.

SOLID DESIGN

- All main components are placed inside the machine and multifunctional display is covering by protective cover.
- System is fully maintenance-free, reduce cost of ownership.

HIGHLIGHTS

- Absolute continues compaction measurement system with evaluation of real material stiffness
- Easily visible actual compaction progress via multifunction display
- System is integrated in multifunctional display
- Measuring on front drum
- Optional IR-thermometer
- System available for double drum and combi versions (ARX 2 / ARX 4 - only)



SOIL COMPACTORS ACE



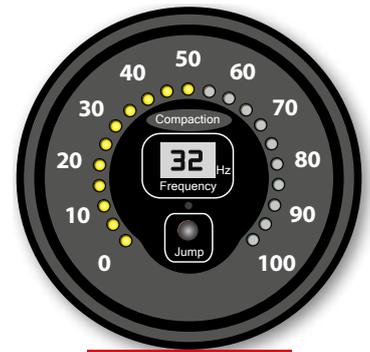
ACE

(System is available for ARS 122 and ASC line)

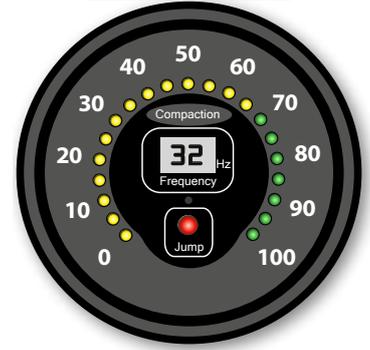
Simply and robust design are a key parts of basic compactor meter which is great for daily usage. For all who are looking for to have just an additional information system without evaluation of information in relative values.

HIGHLIGHTS

- Compaction degree indication by LED
- Measures relative compaction value, meaning the compaction increase between two passes
- Measures and identifies compaction progress and indicates if maximum compaction has been achieved
- Indicates frequency and double-jump mode



ACE FOR ASC LINE



ACE FOR ARS122



SOIL AND ASPHALT COMPACTORS **ACE^{force}**

BRING INTELLIGENT COMPACTION TO THE JOBSITE

Most construction projects require precise, transparent and verifiable compaction results. The terms for roadbuilding bidding and tendering are becoming stricter, as are the standards for quality. Intelligent Compaction technologies – including the proprietary Ammann Compaction Expert (ACE) – provide the needed efficiency, quality and documentation.



ACE^{force}

ALMOST PERFECT!

Latest generation of ACEforce system is just perfect! Newly is system completely integrated into the main machine display where we reduce the number of screens which must have operator under control. Together with simplified controls of whole system is the new generation extremely intuitive to control and operator friendly. It also provides compaction guidance, which is easily readable on the multifunctional display.

Whole compaction progress is well visible and recognise on colored compaction bar to check actual compaction progress.

The innovative ACE^{force} system recognises if the machine is in the double jump effect. The system immediately informs the operator of corrective measures to prevent machine damage. These recommendations are made via messages that appear on an easy-to-read display. An audible warning also alerts the operator to the trouble.

ACE^{force} can be equipped with a GPS system to monitor the machine's location.



HIGHLIGHTS

- Intuitive control so operators of all experience levels can be successful
- A main multi-functional display with all information visible
- Simple adjustment of compaction targets and stiffness settings
- Absolute measurement system with evaluation of real material stiffness
- Communication of optimal machine speed to operators for higher compaction effectiveness
- Easy-to-read bar graph for visualisation of actual soil stiffness (kB)
- Optional GPS Systems with 24/7 remote view
- Precisely measures and evaluates material stiffness in absolute values (MN/m)
- Shows compaction progress through operator guiding function
- Indicates drum jumping and therefore minimizes the risk of over-compaction or material destruction
- Optional is Ammann Documentation System (ADS) for documentation and further compaction data analysis (excluding Light Tandem Rollers)
- Compatible with all major manufacturers' GPS products to provide mapping and operator guidance (excluding Light Tandem Rollers)
- Continuous compaction measurement system
- The asphalt temperature can be monitored by the operator via the main display
- System is available for Soil and Asphalt compactors



SOIL AND ASPHALT COMPACTORS ACE^{pro}

STREET SMART

Most construction projects require precise, transparent and verifiable compaction results. The terms for roadbuilding bidding and tendering are becoming stricter, as are the standards for quality. Intelligent Compaction technologies – including the proprietary Ammann Compaction Expert (ACE) – provide the needed efficiency, quality and documentation.



ACE^{pro}

ACE^{pro} is an automated measurement and regulation system for soil and asphalt compactors. Compacted material is continuously measured, resulting in automatic stepless adjustment of the core parameters of amplitude and frequency.

HIGHLIGHTS

- Provides compaction measurement and automatic frequency and amplitude control, depending on compaction measurements
- Precisely measures and evaluates material stiffness in absolute values (MN/m)
- Delivers the highest compaction efficiency by sending optimal force into the ground
- Eliminates drum jumping and therefore minimises the risk of over-compaction or material destruction
- Optional Ammann Documentation System (ADS) for documentation and further compaction data analysis
- Compatible with all major manufacturers' GPS products to provide mapping and operator guidance
- Continuous Compaction Control system (CCC)
- The asphalt temperature can be monitored by the operator via the main display



DRUM ACE^{pro}



ACE^{pro} DISPLAY

AUTOMATIC MODE

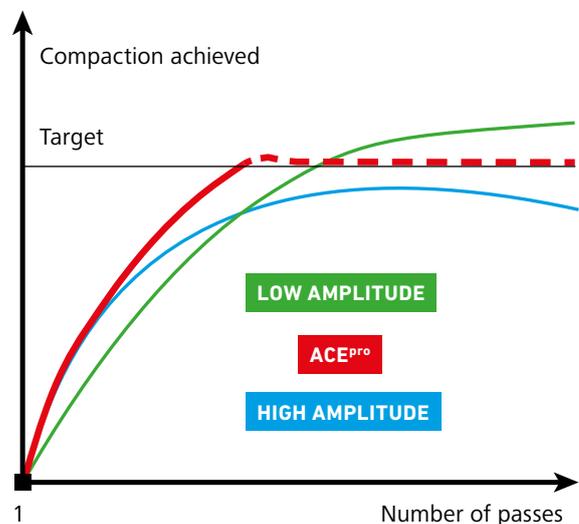
Mode where parameters of vibration (amplitude and frequency) are automatically controlled and adjusted by the machine, based on compaction targets and actual measurements and conditions.

MANUAL MODE

Mode where operator can preselect frequency and amplitude.

USER MODE

In this mode, the operator can preselect the performance level of automatic regulation according to known parameters from previous applications.



▶▶ HIGHEST
PRODUCTIVITY
THROUGHOUT
CONSTANT USE OF
OPTIMAL SETTING. ▶▶

ARP PIVOT STEER TANDEM ROLER





OSCILLATION IS A DYNAMIC COMPACTION METHOD THAT HAS SIGNIFICANT ADVANTAGES OVER TRADITIONAL VIBRATORY COMPACTION.

OSCILLATION

QUICKER COMPACTION AND COST SAVINGS

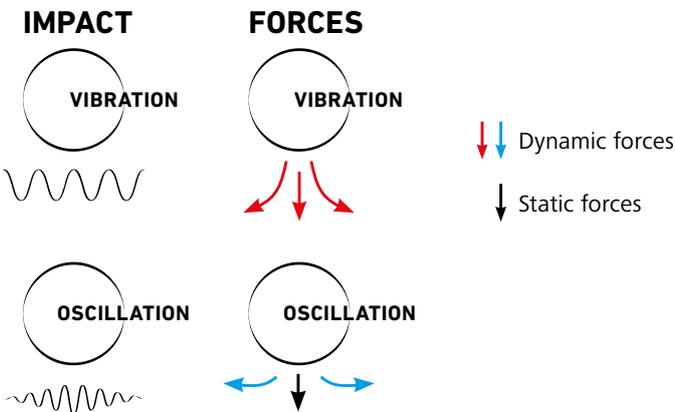
Compaction is the process of moving materials more closely together. Traditional vibration tries to accomplish this through a harder pounding in a mostly vertical direction.

Oscillation delivers less force but uses both vertical and horizontal energy. Compaction occurs more quickly when forces are applied from different directions. Oscillation essentially massages the aggregates into place.

HIGHLIGHTS

- Constant contact throughout compaction
- Vertical and horizontal energy
- For sensitive jobsites
- For mats that are too hot or cold
- Seals joints

- Motion enables the drums to maintain constant contact throughout compaction
- Uses less force but delivers both vertical and horizontal energy, essentially massaging the aggregates into place
- Excels on sensitive jobsites, such as bridges or when working over sewers or utility lines
- Can work on mats that are too hot or cold for traditional compaction methods
- Seals joints without damaging cold mats



How would your business benefit from Oscillation?

Sensitive settings

Because oscillation does more massaging than it does pounding, it is often the method of choice on sensitive jobsites such as bridges, or when working over sewers or utility lines.

High temperatures

Oscillating rollers can work on hot mats. This widens the compaction window for crews and helps them quickly get to work on thin lifts, such as those placed on bridges.

Cool temperatures

The “softer” approach of oscillation prevents damage to cooler mats.

Joint work

Rollers with oscillation are great fits for sealing cold joints. The drum simultaneously can work on the hot and cold mats, so it delivers the best

of both worlds. The massaging approach prevents damage to the cold mat but applies enough energy to compact the hot materials – and seal the joint, too.

Production

Oscillation doesn’t pound like a vibratory roller, but it ultimately delivers more force into the mat because it uses both vertical and horizontal energy. That increased force means quicker compaction and fewer passes. The constant contact with the surface helps too.

Operator friendly

Rollers with oscillation automatically adjust to compaction needs, removing some of the burden from operators. The longer compaction window also gives operators a margin of error as they keep pace with the paver and other rollers.

Smoothness

Vibrating drums can leave “chatter” behind; oscillating rollers do not.

Cost savings

Reducing the number of passes saves on labor, machine wear and fuel. It also helps keeps jobs on track – and customers happy.



HIGH-FREQUENCY DRUM

Technology that combines standard circular vibration with high frequencies to enable compaction at higher speeds (available for heavy asphalt compaction only)

“ THE HIGH-FREQUENCY DRUM UTILISES FREQUENCIES THAT ARE 20% HIGHER THAN ITS STANDARD COUNTERPART. ”



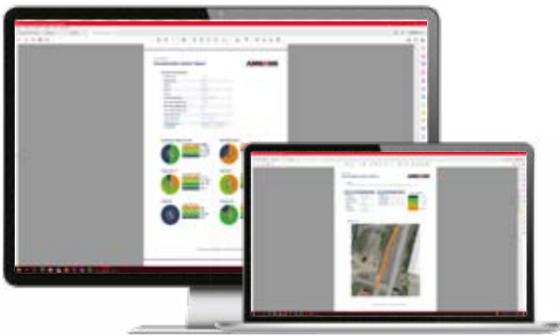
ADS

AMMANN DOCUMENTATION SYSTEM (ADS)

ADS enables documentation of jobsite compaction results measured by ACE^{force} or ACE^{pro} systems. It is installed on Ammann heavy compactors and utilises GPS positioning for precise location*.

Standard Functions/key Features

- Records machine passes and compaction progress with GPS positioning
- Data recording via machine control display (no need for external Android/iOS device)
- Compaction statistics downloadable from machine by Android or iOS device and are transferable via PDF or CSV reports (machine connection via low-energy Bluetooth)
- Jobsite visualization on maps
- Simple and intuitive app



PRODUCT AVAILABILITY

The system is available for machines Soil and Asphalt application on machines with ACE^{force} (excl. Light Tandem Rollers) and ACE^{pro}

*Position accuracy up to 50 cm (20 inch).

HIGHLIGHTS

- Precise jobsite documentation
- Easy quality control
- Increased efficiency (time and fuel economy, reduce re-work costs, extend life, CO₂ reduction)
- No risk of damaged, stolen or lost Android/iOS device during recording

REQUIRED HW

- Ammann machine with ACE^{force}/ACE^{pro} device for Data recording
- Android/iOS device to send reports

ADS STORED DATA

- Project details
- Machine details
- Jobsite details
- Weather conditions
- Load bearing capacity (kB value) in MN/m
- Range of kB values (min. and max.)
- Amplitude
- Frequency
- Number of roller passes
- Roller speed
- Asphalt temperature (if applicable)
- Temperature
- Date and time
- GPS Position with Map

RECORD DATA

- Press "REC" on machine display (no need for app or any other device – is part of machine)

DOWNLOAD & DATA SHARING

- Download and start free Android/iOS app
- Connect to machine via Bluetooth
- Create jobsite report template or use a stored version
- Select data for report
- Send PDF or CSV report



ARS 110 STIV-T4F

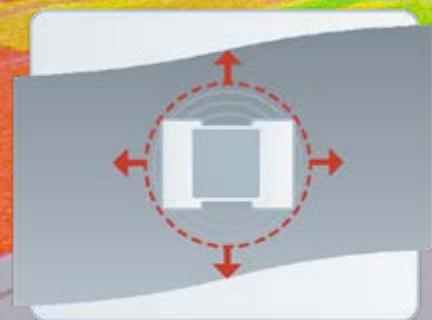
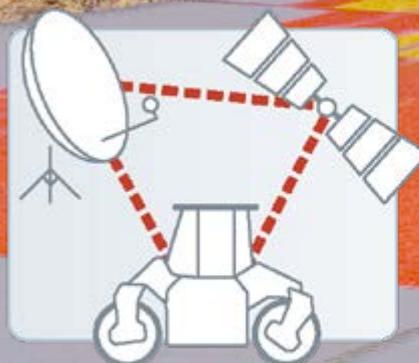
GPS

GPS-BASED COMPACTION

Ammann Compactors equipped with ACEforce and ACEpro systems are compatible with third-party solutions for GPS-based compaction monitoring systems, such as Q-Compaction (from supplier Q-Point).

GPS

- Combines ACE measurement and control with a navigation system
- Provides an efficient analysis and documentation system for Continuous Compaction Control (CCC)
- Enables live machine-to-machine communication on the jobsite
- Operated and controlled with touch screen
- Satellite navigation system accurately assigns the measured compaction values to the position coordinates and the time
- Graphic display of measurement data relays the on-site compaction work and enables a fast and reliable performance analysis
- Integrates quality control measures in the compaction process
- Other compaction parameters can be measured and documented including kB value stiffness (ground bearing capacity), trend of kB values, temperature, vibration status, roller speed, effective amplitude and frequency, pass count, exact geographical position, date and time of passes





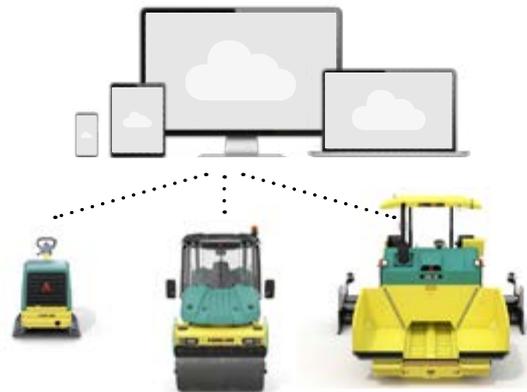
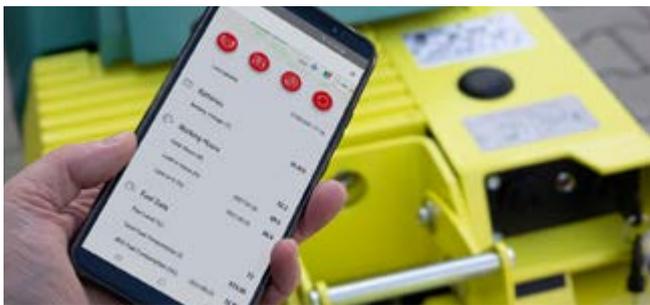


DELIVERING THE DATA THAT MATTERS

SERVICELINK

Ammann ServiceLink is a digital data management tool that provides customers with the information they want the most: machine location, battery status and hours. Data transfer is automatic thanks to new hardware, and access to the information is only a click away.

Manage your equipment – anytime, anywhere – with Ammann ServiceLink. This comprehensive fleet system provides key data for light compaction equipment, heavy compaction machines and asphalt pavers. You can choose which machines to track.



HIGHLIGHTS

- Supplies machine location, operating hours, battery status
- Requires no subscription fees for Light Equipment
- Provides one-click access to data
- Reliably transmits data from machines, no matter where they are
- Streamlines fleet upgrades (retrofit option)
- Easy to install

DOWNLOAD THE MOBILE APP OR USE THE DESKTOP APPLICATION

- ServiceLink Mobile App
Manage your equipment – anytime and anywhere.
- ServiceLink Web Portal
Organize and manage multiple construction sites in the workplace.



App Store



Google Play

Go to [MyAmmann.com](https://www.ammann.com) for Ammann ServiceLink Web Portal



MODELS	ACE	ACE ^{force}	ACE ^{pro}
APH 50/75	✓	x	x
APH 55/75	✓	x	x
APH 60/85	✓	x	x
APH 65/85	✓	x	x
APH 85/95	✓	x	x
APH 110/95	standard	x	x
ARR 1575	✓	x	x
ARX line2	x	✓	x
ARX line4	x	✓	x
ARS 70	x	✓	x
ARS 110	x	✓	✓
ARS 130	x	✓	✓
ARS 150	x	✓	x
ARS 170	x	✓	x
ARS 200	x	✓	x
ARS 220	x	✓	x
ARS 122	✓	x	x
ASC 70	✓	x	x
ASC 110	✓	x	x
ASC 130	✓	x	x
ASC 150	✓	x	x
ASC 170	✓	x	x
ARP 75	x	✓	x
ARP 95	x	✓	✓
ARX 90	x	✓	x
ARX 110	x	✓	x
ARX 140	x	✓	x
ARX 160	x	✓	x



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