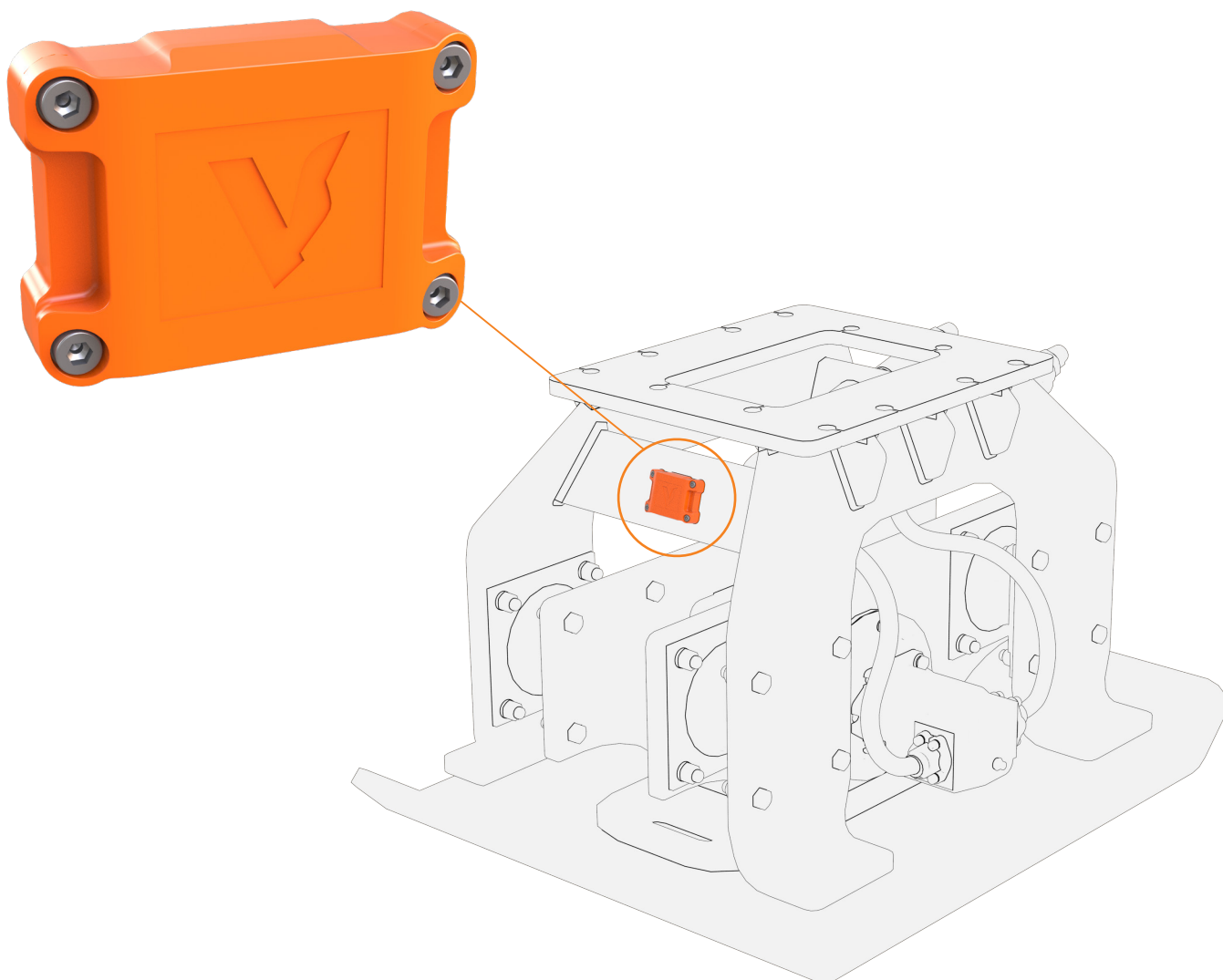




KINSHOFER
crane and excavator attachments

SmartTag Tool Tracker



SmartTag

by Kinshofer & Vemcon

WHAT IS SMARTTAG?

SmartTag is a microcontrol-based tool with a communication functionality via mobile telephony and internal memory to back up information about operation, failure etc. locally.

The basic version is the SmartTag S.

Additional functions will be available with the SmartTag M which is currently in development.

Also planned is the most comprehensive version: the SmartTag L (functions of SmartTag S & M + flow rate measurement).

The tool itself only measures 15 cm, is waterproof, shock resistant, working from temperatures from -25 up to 80 °C and is equipped with an internal energy supply for approx. 2 years.

SMARTTAG S

- ▶ Location (GPS-tracking)
- ▶ Tool type (type plate, dimensions, etc.)
- ▶ Working hours with timestamp
- ▶ Automatic tool tracking in combination with NOXPROP-control
- ▶ BPM-connection

SMARTTAG M

- ▶ Range of function SmartTag S
- ▶ Acceleration measurement (position and shock)
- ▶ Service interval by amount of load change and operating hours
- ▶ Remote servicing
- ▶ Theft protection
- ▶ Auger assistant via smartphone (pressure, torque and position of auger)
- ▶ Load change determination via pressure (1 pressure sensor max.)
- ▶ Combination sensor

GPS-TRACKING

The function GPS-tracking is used to detect the location of an attachment by entitled persons. Reasons for this function are e.g. the applications planning of an attachment, the detection of a lost tool or fleet management tasks.

DIGITAL TYPE PLATE

The digital type plate provides the identical data as does the mechanical type plate like serial number, name and weight, as well as operating pressure or pressures, oil flow, customer serial number and comments (editable by customer).

The information of the type plate will be sent time-controlled once a month by the SmartTag, including time stamp. Furthermore, every change / amendment, e.g. new comment, will be transferred.

OPERATING HOURS

Here, the actually realized operating hours are provided. This information will be transferred by the SmartTag three times a day, time-controlled and including time stamp.

ACCELERATION MEASUREMENT

This function of the three-axle acceleration sensors is the detection of the attachment's position as well as of shock values. Load changes can be determined precisely via the position when using suitable attachments (e.g. buckets).

A shock is every acceleration event over 10g. All these shocks will be added up and the amount be transferred to the cloud including other values like operating hours or location. In the cloud, a superior evaluation will be realized.

SERVICE INTERVAL

This function is used for issuing a service recommendation in which a preventive service for the respective attachment will be recommended in order to prevent downtimes.

BPM-CONNECTION

The connection of the SmartTags with a fleet management system is provided, whereby this function is not directly pictured in the SmartTag, but filed in the cloud.

REMOTE SERVICING / LIVE CONNECTION

Here an energy-saving near field connection is generated. The user's smartphone is used as transmission medium to the remote servicing computer. That means an app is transferring the data to the cloud.

The live data are shown as trends on the terminal (smartphone). This way it is possible to illustrate e.g. pressure history or acceleration values of the course of time.

THEFT PROTECTION

This function shall be used to allocate an attachment to a certain area of action and alert the owner when the attachments is removed from that area without permission. The SmartTag recognizes manipulations and reports them immediately.

LOAD CHANGE DETERMINATION

This function detects load changes via the pressure sensors. However, this is only possible with suitable attachments like clamshell buckets and similar tools. The transgression of a threshold adjustable by attachment result in the increase of the load change counter. Pressure peaks or overpressure can result in alerts if configured like that.

COMBINATION SENSOR

This function illustrates several physical quantities at the same time via a combination sensor. In the case of the M-version that means pressure and temperature. The flow sensor is integrated, but is only used as generator to charge the battery for the M-version.

COMBINATION WITH NOX TILTROTATOR NOXPROP-CONTROL WITH ROTATION SENSOR

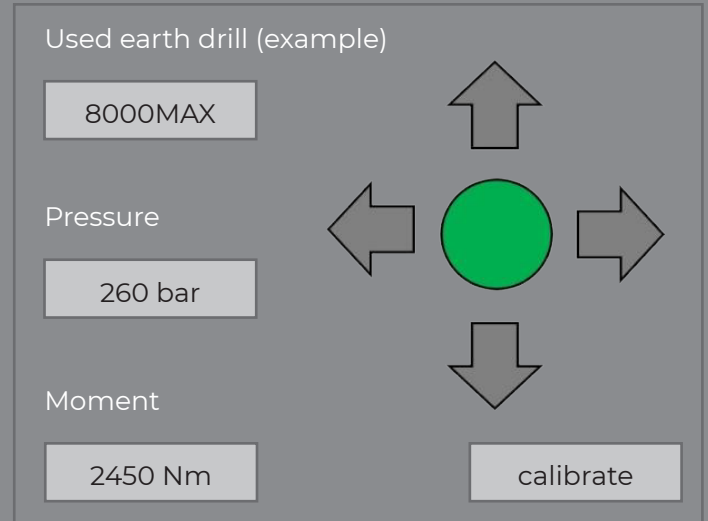
FEATURES:

- ▶ Optimum NOX performance due to a perfectly adapted control
- ▶ Autocalibration
- ▶ Geometry data of the attachment
- ▶ Interface to 2D/3D excavator systems
- ▶ Remote servicing
- ▶ Memory function for working profiles

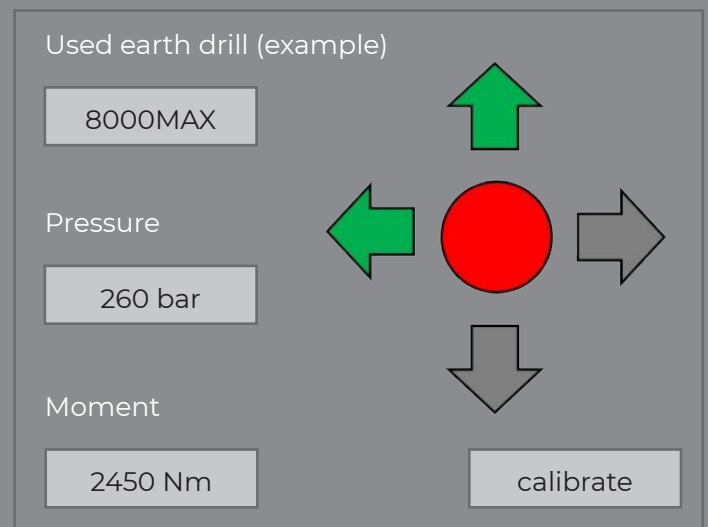
AUGER ASSISTENT

This function supports the user of an earth drill to achieve a proper drilling. An app is used, showing in an easy way with arrows in which direction the position of the earth drill needs to be readjusted. Furthermore, the app provides the option of tool choice and calibration.

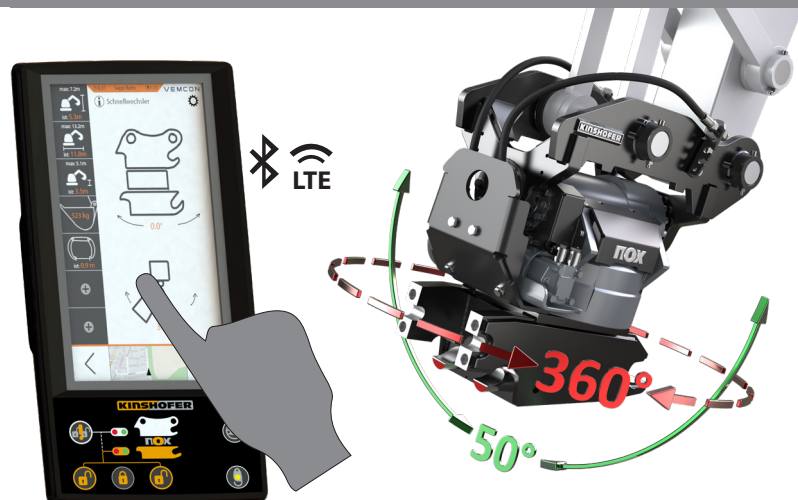
The following pictures shall illustrate the application:



Earth drill readjusted



Earth drill needs to be adjusted forward and to the left.



Touch display

NOX Tiltrotator

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