

griptech

MOBILE WEIGHING

based on electronic load cells and hydraulic weighing systems



Mobile weighing | general information

Gripteck has the world's most user-optimized hydraulic weighing systems in the field of in terms of component stability and reproducible weighing results. Through decades of experience in this specific sector and the challenge to meet the demands of and the challenge of meeting the demands of the toughest operators, Gripteck has continuously developed.

Price-performance, reliability, customer requirements and application-related processes have had a significant on the development process. Adapted to your needs, Gripteck offers only the weight with space reduced display in favor of the free view, up to small own ERP systems for the full overview of the weighing data with customized information transfer, with customized programming and special functions.

Around the user and the need of the application, Gripteck puts itself at the service of the customer and the applications and offers a solution for every application. Mobile weighing refers to the integration of weighing systems in industrial trucks, with the aim of. The aim is to be able to weigh the load directly. With the use of mobile weighing technology eliminates the need for stationary scales. This means no additional travel distances, no waiting time at stationary scales, less energy consumption and lower risk of accidents. To determine the right weighing system for your logistics process, it is important to know in advance, to know what you want to weigh and with what accuracy. It is important to bear in mind that with the system accuracy, the deviation can occur both upwards and downwards can occur. The display steps set in the indicator are related to the system accuracy. Gripteck is certified to build its own legal-for-trade systems and has obtained the manufacturer's initial certification for both non-automatic (NAWI) as well as for automatic scales (AWI hydraulic weighing system).

A legal-for-trade weighing system is not necessarily more accurate, but the deviations must meet certain tolerances. A verified system is required, If you sell by weight and the weight is not verifiable. Whether a legal-for-trade weighing system may be required we ask you to consult with the local weights and measures authority.

Weighing systems based on electronic load cells

Gripteck builds and supplies mobile weighing systems based on electronic load cells with integrated strain gauges, which are mounted in the structure and the determined weight is shown on the display by means of an indicator. These systems are very accurate with an accuracy of up to 0.1% of the weighed weight. The load cells are generally but also relatively sensitive to shock forces. The verified systems are available as non-automatic class III scales up to 3000 parts.

Hydraulic weighing systems

Furthermore, Gripteck designs, manufactures and supplies hydraulic weighing systems, which determine the real weight via the hydraulic pressure of the lifting unit. These weighing systems are insensitive, very stable, weigh independently of the load center of gravity, have no influence on the residual capacity and can be used in combination with attachments. They are also suitable for large forklifts and reach stackers up to 100 t capacity.

With hydraulic weighing systems, the accuracy is determined as a percentage of the load capacity of the vehicle. Gripteck builds and supplies the most accurate and also the first calibratable hydraulic weighing system for forklifts in this accuracy class, with a system accuracy up to 0.1%. As a legal-for-trade automatic scale (class Y(a)), the system offers an accuracy of up to 1150 parts. Hydraulic scales always require the load to move up, down or in both directions. These systems are less suitable for order picking.

All hydraulic weighing systems can only be calibrated after installation.



Legal for trade load cells



Calibrated measuring block



Legal for trade seal



Indicator R320 new design





Combination with attachments:

A hydraulic weighing system can always be used in combination with attachments. Griptech offers the possibility to integrate special load cells in different attachments such as fork positioners or rotators.

Indicator and data transfer:

The load cell provides an electrical signal towards the indicator in the cabin (via cable connection or bluetooth). The indicator is a small space computer that converts this signal into the correct weight after calibrating the system.

Griptech develops and builds its own indicators and uses different indicator types depending on the desired functionality. There are also special versions such as ATEX, stainless steel housings or a cold store solution.

For your process the weighing system is a means to determine the weight in the desired accuracy. It is important how this weight is processed in your workflow. There are many options for this that are set up specifically for customers.

The options consist of:

- Print out the weighing data
- Addition of different weighings.
- Piece counting via a reference scale.
- Inserting product codes or, for example, scanning a bar code.
- Smartbox for storing weighing data (alibi memory)
- Sending by cable or wireless (WiFi, 4G etc.)

Installation:

Griptech has a team of service engineers who can install and calibrate on site at customers or at Griptech's workshop. For legal for trade systems, it is preferable to do this internally at a Griptech workshop. Griptech is also allowed to perform the first verification in Europe.

Griptech offers weighing systems for the following trucks:

Industrial trucks	Load cells	Hydraulic weighing
Hand pallet truck / high lifter	HPT / HL	
Electric pallet trucks and stackers	EP6 / ST6	TC EVO
Very narrow aisle stacker (mounted on auxiliary)	WG	TC EVO
Reach trucks	WG	TC EVO / TC4000
Counterbalance trucks up to 5 t.	WG / WGT	TC EVO / TC2000 / TC4000/ STD-PRO/ STD
Counterbalance trucks from 5 t. up to 100 t.		TC EVO / TC2000 / TC3000 / TC4000/ STD-PRO/STD
Telescopic forklift	WG / WGT	
Reachstackers		TC3000-RS

R320 - new design



Description: LCD-Display with 20 mm high digits and background lightening. Robust plastic housing.

Functionality: Automatic and manual zero point correction; Tare-function with gross/net weight; optional addition function; optional piece counting function or dosing aid (Setpoint); auto-off, date and time function.

legal for trade:	Yes (TC6244R10)
Software:	K342, K353, K356
RS232 output:	Standard prepared
Dimensions:	166 x 77 mm (w x h in mm)
Supply Voltage:	12-24 Volt (legal for trade 12 or 24 Volt)
Protection Class:	IP 65 (HPT legal for trade: IP 54)

R420



Description: Double LCD display with 20 mm and 15 mm high digits and background lighting. Robust plastic housing. Alphanumeric keyboard for (product)code entry.

Functionality: automatic and manual zero point correction; tare function with gross / net weight, 3 extra programmable function keys; Including addition function various weighing, piece counting function, dosing and printing. Auto-off, date and time function. Customer-specific programming possible for product coding, communication with terminals, data transfer via WiFi, 4G, or Bluetooth.

Legal for trade:	Yes (TC6821)
Software:	K402
RS232 output:	standard prepared
Dimensions:	246 x 212 mm (w x h in mm)
Supply voltage:	12-24 Volt (legal for trade 12 or 24 Volt)
Protection class:	IP 65

X320



Description / Functionality, see R320

Legal for trade:	No
RS232 output:	standard prepared
Dimensions:	253 x 134 mm (w x h in mm)
Supply voltage:	12 -24 volt
Protection class:	IP 69K (suitable for cold storage)

Indicator for our hydraulic weighing systems TC EVO, TC2000, TC3000, TC3000-RS, TC4000



Description: high-quality indicator with digit size of 20 mm and LED background lighting. Robust plastic housing.

Functionality: multifunctional display shows gross, net, tare weight, adding weight and the number of weighings. Manual zeroing, single and group weighing, date and time function. Data transfer via WiFi, Bluetooth or via the Smartbox. The TC3000 and TC4000 are calculating the tilt angle compensation automatically (tilt angle is shown at the indicator).

Legal for trade:	Yes (certificate T10630-5)
RS232 output:	Standard connector plug prepared
Dimensions:	201 x 113 mm (w x h in mm)
Supply voltage:	12-80 volt (legal for trade 12 - 48 volt)
Protection class:	IP 54 (Stainless steel housing IP 65)

Printers

GT Multiprinter HD – The robust direct thermal printer for your weighing systems

The GT Multiprinter HD direct thermal printer is the ideal solution for use with all Griptech weighing systems—except for the weighing hand pallet truck HPT. Its robust housing, vibration-damped mounting plate, and shock-resistant power supply ensure reliable print results, even in demanding work environments. With a print width of 72 mm, it delivers precise and clear printouts. Designed for operation under extreme conditions, the GT Multiprinter HD functions reliably in a temperature range of -18°C to +50°C. With an IP54 protection rating, the printer is also well protected against dust and splashing water.



GT Multiprinter HD:

- ▶ Compatible with all systems (except for the weighing hand pallet truck HPT)
- ▶ Direct thermal printer
- ▶ Resolution: 203 dpi
- ▶ Connection: Serial RS232 and USB (via USB to RS232 cable)
- ▶ Optional: Bluetooth or Wi-Fi
- ▶ Print width: 72 mm
- ▶ Temperature range: -18°C to +50°C
- ▶ Protection class: IP54
- ▶ 10-year thermal paper durability
- ▶ Includes RAM mount C-Ball



GT Thermal Printer

Compact thermal printer with date and time indication.

- ▶ Includes RAM mount B-Ball

Compatible with display units R320 and R420.



Data-Logger

The Griptech Data-Logger saves the print data directly as a CSV file. Via the USB slot, the data transfer is started automatically when plugged in. USB stick incl. operating instructions digital is included in delivery.

Only compatible with the R320 and R420 indicator.

Griptech Connect

Bluetooth 5.0 or Wifi



With Griptech Connect, your weighing data can be transmitted via Bluetooth 5.0 or W-LAN to the location that suits you best. We round off the in-house design with a circuit board made in Germany according to our specifications. The high-quality and robust IP65 housing with ESD protection ensures trouble-free use in any environment.

Features:

- ▶ Bluetooth 5.0 or WiFi Data transmission
- ▶ Protection class due to IP 67
- ▶ Shock resistance: 50G
- ▶ Vibration capability: 15G
- ▶ Working temperature: -40° up to +85°
- ▶ Incl. 3 meter cable incl. Plug

The Griptech SmartBox - BLUE, SMART, STRONG



In a time where all our devices are constantly connected, it is ubiquitous that we have access to all our data at any time.

Griptech's SmartBox, in combination with a Griptech weighing system, turns your truck into a connected measuring unit.

Weighing data, scanner information, ID, date, time, gross, net and tare weights as well as commodity groups can be securely exported, edited (Excel) and stored in the standard configuration. Real-time access regardless of location, the show/hide function and free sorting ensure user-friendly list application and editing. The standard memory capacity is 32GB and is capable of archiving over 1.000.000 weighings safely and protected against manipulation. The connection of hand scanners or printers allows direct input and output of data during the handling process.

Even in the basic version, many application possibilities can be realised, but the real strength of the SmartBox lies in the possibility of special programming by our IT specialists. In this way, the SmartBox can be adapted to your application purpose on the software side. There are almost no limits to the possibilities.

Importing your product data and piece counting based on the determined weights are done in no time. Via WLAN or 4G LTE, the data recorded by the stacker can be fed back to your merchandise management system in real time. For example, your system can only release pallets for loading when the corresponding quantities have been picked. With the help of a label printer, the corresponding shipping label is printed only then. In this way, you can ensure accurate goods handling in a fully automatized way. This is just one application example of many. With the SmartBox from Griptech, you turn your forklift into the data collection unit of tomorrow!

Technical Data:

Protection class:	Casing IP67, plug IP65
Casing:	ESD and vibration-protected casing
Operating temperature range:	- 25 up to +70 ° C
Conformity:	1907/2006/CE (REACH), 2015/863/UE (RoHS III)

Standard version:

- ▶ Incl. connection cable to the display unit
- ▶ RGB (LED) (62x15x19 mm) for visual condition monitoring
- ▶ 4G LTE antenna
- ▶ Incl. USB stick for programming the WiFi access file and operating instructions
- ▶ RTC on Board

Options:

- ▶ Bluetooth and / or RS232 Printer
- ▶ Scanner via Bluetooth
- ▶ Data export through Download and USB interface

Mounted protected in the forklift



Connection with tablet possible



RGB (LED) for condition monitoring



Optional with printer GT Multidrucker HD

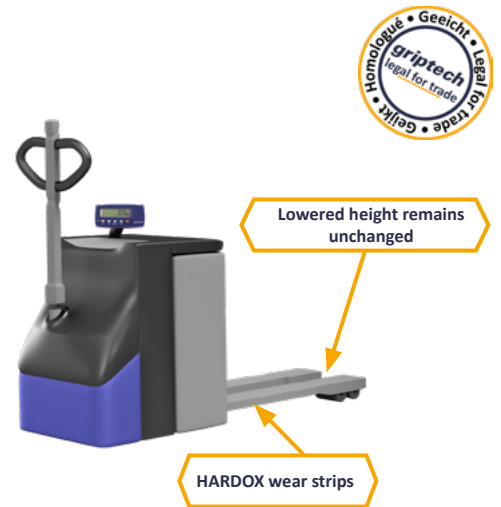


Electric low lift pallet truck EP6

Accuracy $\pm 0.1\%$ of the applied load

Features:

- › Installation of 6 (legal for trade) load cells in the wheel arms
- › Generally lowered height of the wheel arms unchanged
- › Wheel arm construction replaced by Griptech
- › HARDOX wear protection under the fork tip
- › Fork tip optimally bevelled
- › Robust construction designed by Griptech
- › All welding activities certified according to ISO 3834-2
- › Legal for trade version including class III certificate
- › Extended Arms (from 1.600 mm with 8 load cells)
- › Standard supplied with indicator R320



Electric high lift pallet truck ST6

Accuracy $\pm 0.1\%$ of the applied load

Features:

- › Installation of 6 (legal for trade) load cells
- › The total height of the wheel arms increase by approx. 6mm (calibrated high lift truck approx. 8 mm)
- › The wheel arm width increases by approx. 10 mm on both sides
- › The load protrudes by approx. 50 mm (front dimension)
- › Signal transmission via mast cable in the mast to the display unit
- › All welding activities certified according to ISO 3834-2
- › Calibrated version is supplied including certificate according to Class III
- › Standard supplied with indicator R320



Hand pallet truck- new version

Accuracy $\pm 0.1\%$ of the applied load

Features:

- › Standard with climbing roller
- › Robust basic construction
- › 4 load cells in one line for optimal weighing results
- › Own weight 118 kg
- › Protection Class IP54 (load cells IP65)
- › Indicator at ergonomic height
- › Standard polyurethane tandem castors
- › Integrated deep discharge protection
- › Foot pedal for lowering
- › Load cell intake optimized
- › Standard supplied with indicator R320



Weighing forks WG-HD

Accuracy $\pm 0.1\%$ of the applied load

Weighing forks can be attached to any forklift truck with an FEM fork carriage. The weighing accuracy is very high and the system is designed so that the relatively rough forklift use cannot damage the weighing technology. Signal transmission is standard by radio or spiral cable. The legal for trade version is only available with cable connection. Also available in combination with a fork adjustment.

Features/Advantages:

- ▶ Signal transmission by radio, by spiral or by mast cable connection
- ▶ In case of radio transmission, a quick and economical installation (only one battery and transmitter up to 125 hours of operation with one battery charge)
- ▶ Weighing at any lifting height
- ▶ 3 load cells in each fork ensure high accuracy
- ▶ Stable base fork corresponds to a 3-fold safety
- ▶ Calibrated version incl. calibration certificate according to class III and inclination sensor
- ▶ Protection class IP 65
- ▶ Charger with rechargeable battery
- ▶ Standard supplied with indicator R320



Weighing fork carriage WGT

Accuracy $\pm 0.5\%$ of the applied load

The weighing fork carriage is to be attached to the original fork carriage of the forklift truck as a front-mounted device. Alternatively, the weighing fork carriage can be integrated directly into the mast. In this case, the weight and front dimensions of the original fork carriage are saved and the residual load capacity of the forklift truck is more favourable. The advantage of the weighing fork carriage is that standard forks or attachments can be mounted.

Features:

- ▶ Robust construction with optimum visibility
- ▶ Version as mounting device or integral in the mast
- ▶ High weighing accuracy
- ▶ Signal transmission standard via spiral cable (optionally by radio or mast cable)
- ▶ Standard supplied with indicator R320



The R320 indicator is supplied as standard for the weighing forks and the weighing fork carriage.

TC EVO- compatible with a variety of vehicles

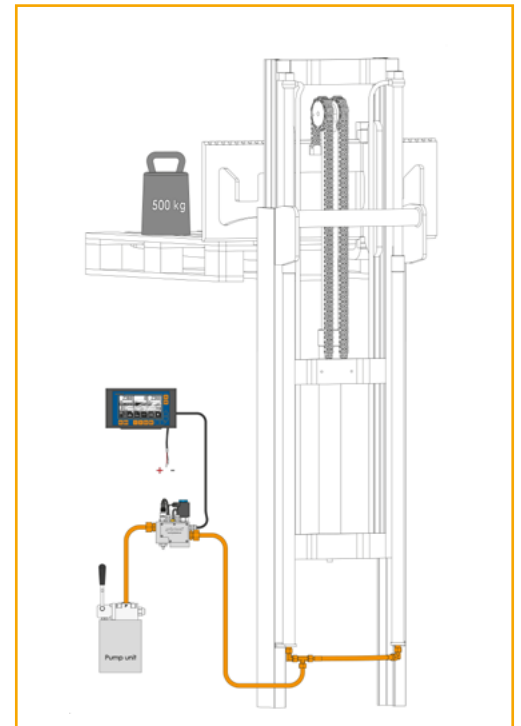
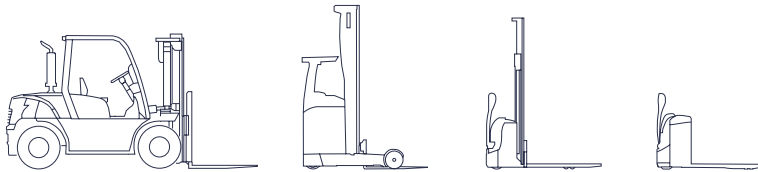
Accuracy $\pm 0.2\%$ of the truck capacity

Features:

- ▶ Compact measuring block without return line to the tank
- ▶ High and stable system accuracy ($\pm 0.2\%$ - 0.5% of the load capacity depending on the type of industrial truck)
- ▶ Components are vibration- and shock-resistant
- ▶ Easy installation and calibration
- ▶ No sensors directly on the lifting mast
- ▶ Lowering can always be interrupted
- ▶ No interference with lifting height selection on reach trucks
- ▶ Supply voltage: 12-80 volts
- ▶ Protected against voltage spikes
- ▶ Optional display device with stainless steel housing
- ▶ Optional ATEX version
- ▶ Options such as printer and data transmission

Weighing procedure:

The weighing process is activated via a button press on the indicator. The load is lowered using the control lever for the lifting function (the speed is regulated by the sensor block) until the weight is displayed within approximately 3 seconds.



TC2000

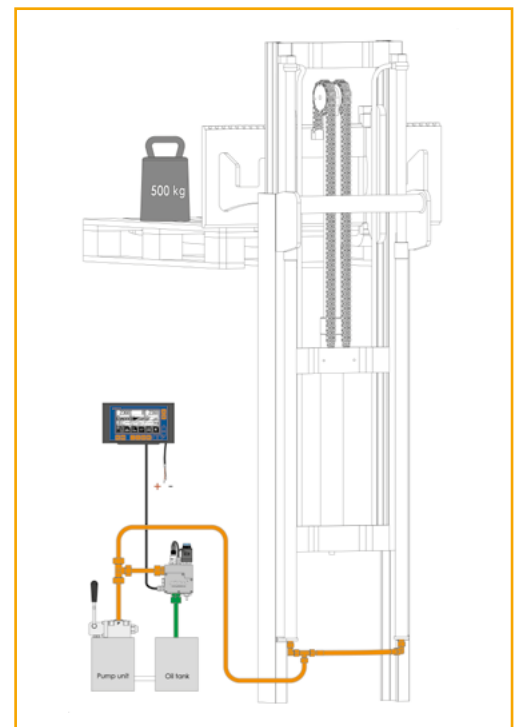
Accuracy $\pm 0.2\%$ of the truck capacity

Features:

- ▶ High and stable system accuracy ($\pm 0.2\%$ - 0.5% of the load capacity of the forklift)
- ▶ For vehicles with load capacity up to 50,000 kg
- ▶ Operator-independent weighing procedure
- ▶ Components vibration and shock resistant
- ▶ Simple mounting and calibration
- ▶ No sensors are directly mounted on the mast
- ▶ Integrated converter for supply voltage 12-80 volts
- ▶ Protected against overvoltage
- ▶ Standard supplied with indicator TC
- ▶ Optional indicator with stainless steel housing
- ▶ Optional ATEX version
- ▶ Options such as printer and data transmission

Weighing procedure:

The weight is raised to a predetermined height. By pressing a button, a solenoid valve on the measuring block is activated and automatically lowers the fork carriage by approx. 150 mm. The weight is determined and displayed within 3-5 seconds.



Mobile weighing | hydraulic weighing system

TC4000

Accuracy $\pm 0.1\%$ of the truck capacity up to 10,000 kg

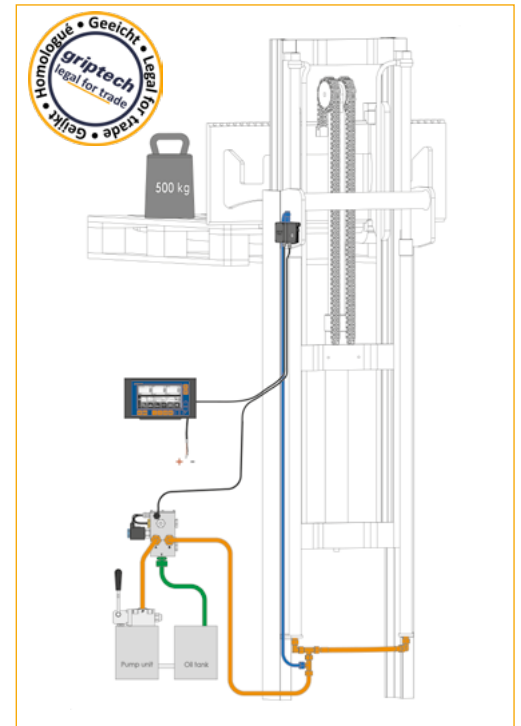
Features:

- Highest weighing accuracy $\pm 0.1\%$ **calibratable**
- Load centre independent
- For vehicles with load capacity up to 10,000 kg
- Components vibration and shock resistant
- Automatic mast tilt compensation
- Integrated converter for supply voltage 12-80 volts (calibrated up to 48 volts)
- Protected against overvoltage
- Optional indicator with stainless steel housing
- Optional ATEX version
- Options such as printer and data transmission

Weighing procedure:

The weighing process is activated on the display unit by pressing a key and the load is lifted once (speed is controlled via the sensor block) and moved down again via the operating lever of the lifting function. This double movement eliminates friction differences.

For optimal calibration or calibrated systems, we recommend a conversion in our workshop:
Drawbar-guided devices are converted exclusively in our workshop in Herzogenrath.



TC3000

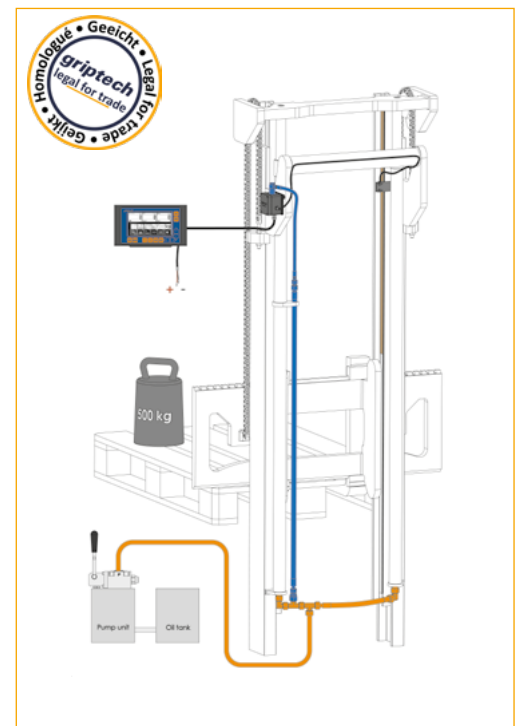
Accuracy $\pm 0.1\%$ of the truck capacity from 10,000 kg

Features:

- Highest weighing accuracy $\pm 0.1\%$ **calibratable**
- Load centre independent
- Robust weighing system also for rough applications
- Protected built-in
- Standard for vehicles without free lift
- Automatic mast lift compensation
- Standard supplied with indicator TC
- Optional indicator with stainless steel housing
- Protected against overvoltage
- Optional ATEX version
- Options such as printer and data transmission

Weighing procedure:

A push of a button initiates the weighing procedure. The load is raised and lowered while monitoring the optimum speed to display the weight within 8-10 seconds. The weight remains stored in the display until the next weighing. Deviation due to the mast inclination as well as a load center shift is automatically compensated without operator intervention.



Mobile weighing | hydraulic weighing system

TC3000-RS (SOLAS)

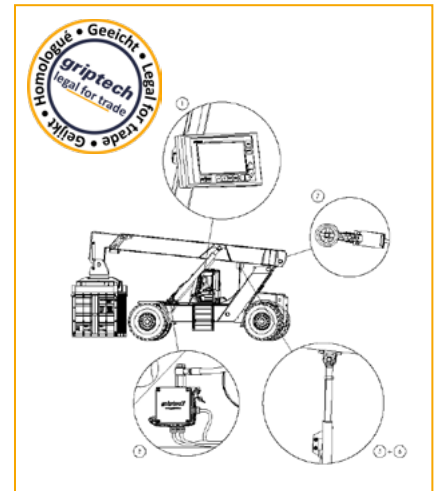
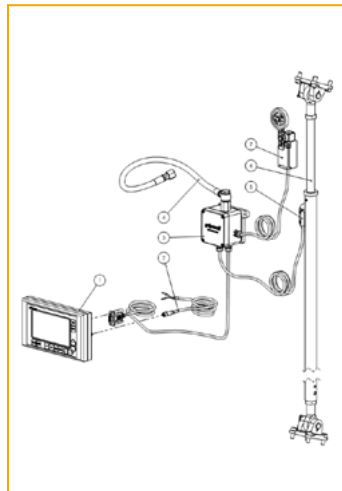
Accuracy $\pm 0.1\%$ of the load capacity of the reachstacker

Features:

- ▶ Highest weighing accuracy $\pm 0.1\%$ **calibratable**
- ▶ Most accurate system in calibrated version
 - 50 kg steps up to 25,000 kg
 - 100 kg steps up to 50,000 kg
- ▶ Robust system with the best accuracy
- ▶ SOLAS compliant method 1
- ▶ Standard supplied with indicator TC
- ▶ Optional indicator with stainless steel housing
- ▶ Protected against overvoltage
- ▶ Options such as printer and data transmission

Weighing procedure:

- A. The highest accuracy is achieved when the container is lifted after pick-up and then lowered. This is how the system is operated even with calibrated systems. Weighing can be started in the lowered state and begins fully automatically at a set height. After approx. 8-10 seconds the weight is shown in the display and stored until the next weighing.
- B. The highest speed is achieved when we set the weighing in one direction. However, the system becomes less accurate, which is still sufficient in many cases. Calibratable weighing is not possible in this way. However, the automatic weighing system can still be used.



STD-PRO

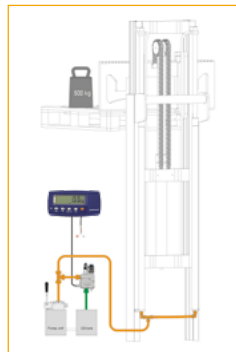
Accuracy $\pm 0.2\% - 0.5\%$ of the truck capacity

Features:

- ▶ High and stable system accuracy
- ▶ Operator-independent weighing procedure
- ▶ Only one cable required for indication
- ▶ Sensor block insulated against overload
- ▶ 12-24 volts without transformer
- ▶ Standard supplied with indicator R320

Weighing procedure:

The weight is raised to a predetermined height, by pressing a button on the display, a solenoid valve on the measuring block is activated and automatically lowers the fork carriage by approx. 150 mm. The weight is determined and displayed.



STD- new version

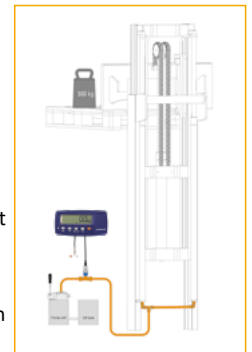
Accuracy $\pm 1.5\%$ of the truck capacity

Features:

- ▶ Simple and quick mounting
- ▶ Sensor is protected against overload
- ▶ Components are vibration and shock resistant
- ▶ Optional with numeric keypad available
- ▶ Supply voltage 12 - 24 volts
- ▶ Options such as printer and data transmission

Weighing procedure:

The weight is lifted to a predetermined height and the weight determination starts automatically. After a short time, the weight is determined and displayed.



TC1000-D to dose

Accuracy 0.5% of the truck capacity

Features:

- ▶ Robust and protected installation, high dosing accuracy
- ▶ Standard supplied with indicator R320

Weighing procedure:

The weighing procedure is initiated by pressing a button. The valve is controlled during the entire weighing process and lowers evenly via the hydraulic block. With a measuring time of 1 minute, the load lowers 15-20 cm.

OLP- Overload protection

Accuracy $\pm 2\%$ of the truck capacity

Features:

- ▶ Audible and visual warning when the maximum load capacity is exceeded
- ▶ Fast installation, calibration and commissioning
- ▶ High safety and long-term reduction of costs due to overload damage
- ▶ Optional with 80DB external signal transmitter incl. LED and key switch for deactivation from signal



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