

# PFREUNDT waste disposal & recycling

## Forward-looking weighing technology



# PFREUNDT – weighing technology for waste disposal & recycling

## Forward-looking weighing technologies for collecting, sorting, preparation and transportation – making weighing easy

Robust, durable and effective – you can rely on the innovative PFREUNDT scales. Because accurate weighing of material flows is playing an increasingly important role in the waste disposal and recycling industry, as invoicing is based on weight and the actual added value is generated by reselling the sorted materials.

Whether check weighing or calibration weighing for legally binding trading: With the economic and sustainable PFREUNDT solutions for all waste disposal and recycling process steps, you are optimally equipped. Easy to operate, flexible in use and designed for future challenges.



**Our waste disposal & recycling product portfolio** Pages 4 - 14

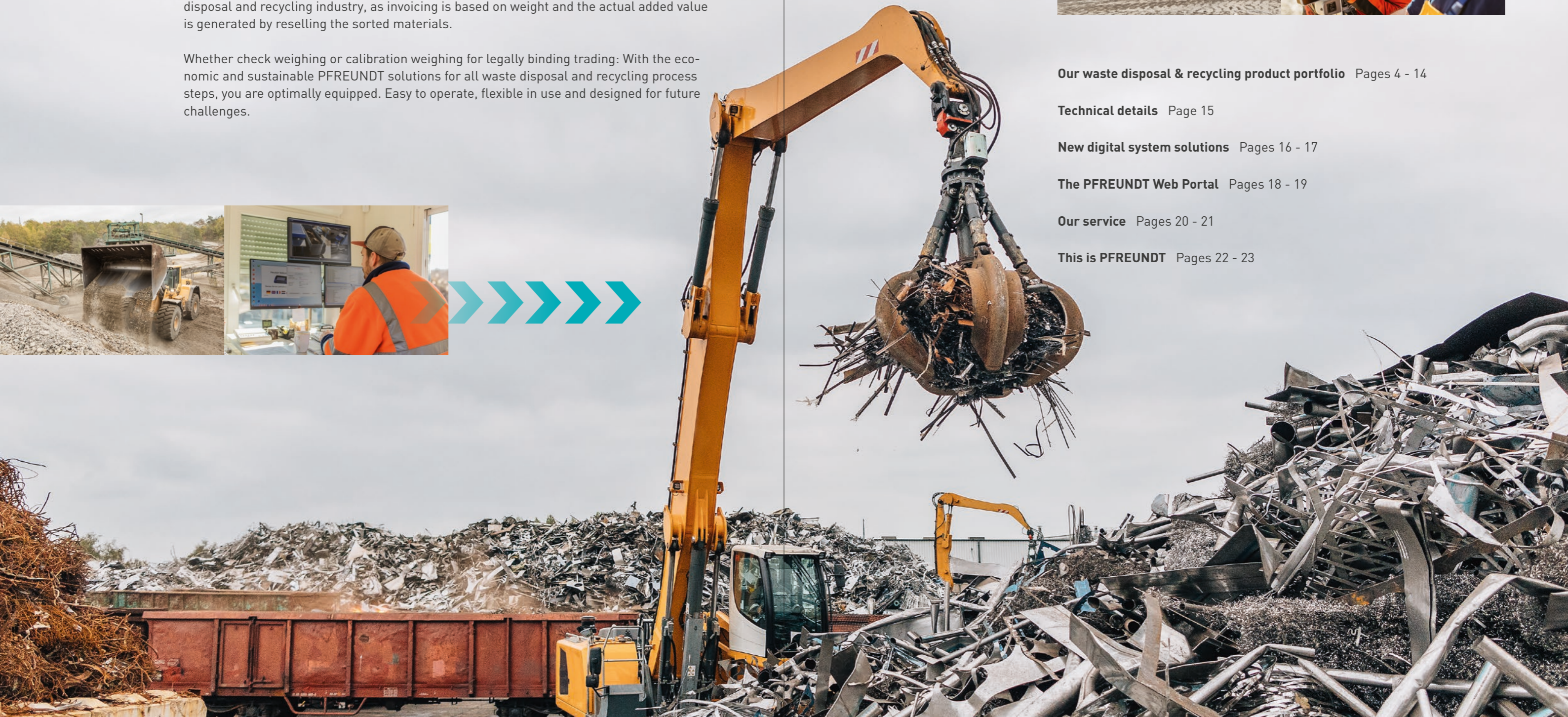
**Technical details** Page 15

**New digital system solutions** Pages 16 - 17

**The PFREUNDT Web Portal** Pages 18 - 19

**Our service** Pages 20 - 21

**This is PFREUNDT** Pages 22 - 23





## PFREUNDT WK60 series

**Flexible, future-proof, manufacturer-independent and calibratable – because your investment should pay off**

For simple, accurate and effective weighing, the WK60 series is available in various versions, such as WK60-XS, WK60-Smart, WK60-S and WK60. All versions already offer a wide range of options in the basic configuration and thanks to the many additional features they can be adapted to special requirements and operating procedures at any time. For the digital processing of your weighing data, all scales of the WK60 series are equipped with WLAN and can be directly connected to the PFREUNDT Web Portal, therefore. The scales can easily be installed or retrofitted in various manufacturer vehicles of your machine park.

### Collecting



Skip-loader scales, hook-lift scales, front-loader scales, lifter scales, crane scales



### Sorting



Telescopic handler scales, excavator scales, wheel loader scales



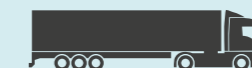
### Preparation



Belt scales, stacker scales, wheel loader scales, telescopic handler scales



### Transportation



Body scales, weighbridges

Discover our complete product portfolio at  
[www.pfreundt.de/en/](http://www.pfreundt.de/en/) – now also with E-Shop!



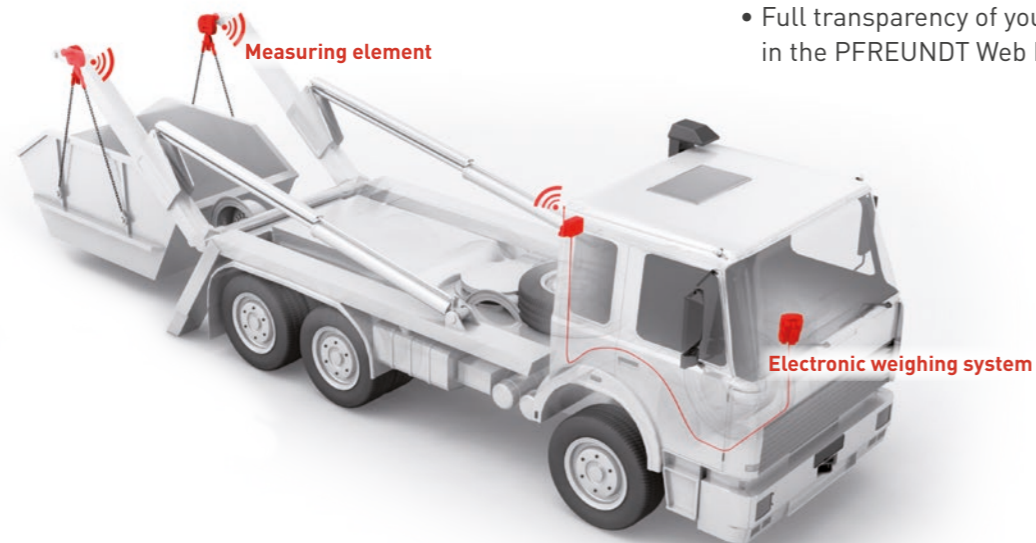
## PFREUNDT skip loader scales

### Weighing possible in any container position

The wireless weighing system can be installed in any skip loader in your fleet – even as a retrofit. The weight is determined directly when raising the container and sent by radio to the weighing electronics. Calibratable and PFREUNDT conformity-assessed, your scales are immediately ready for business use.

#### Advantages for you

- No change in the overall height of your vehicle
- The measuring cell is not loaded while driving
- Due to the low dead weight you can load maximum loads
- Thanks to the radio connection, broken cables are no longer an issue
- Full transparency of your data in the PFREUNDT Web Portal



Further information on equipment and accessories:  
[www.pfreundt.de/en/products/skip-loader-scale/](http://www.pfreundt.de/en/products/skip-loader-scale/)

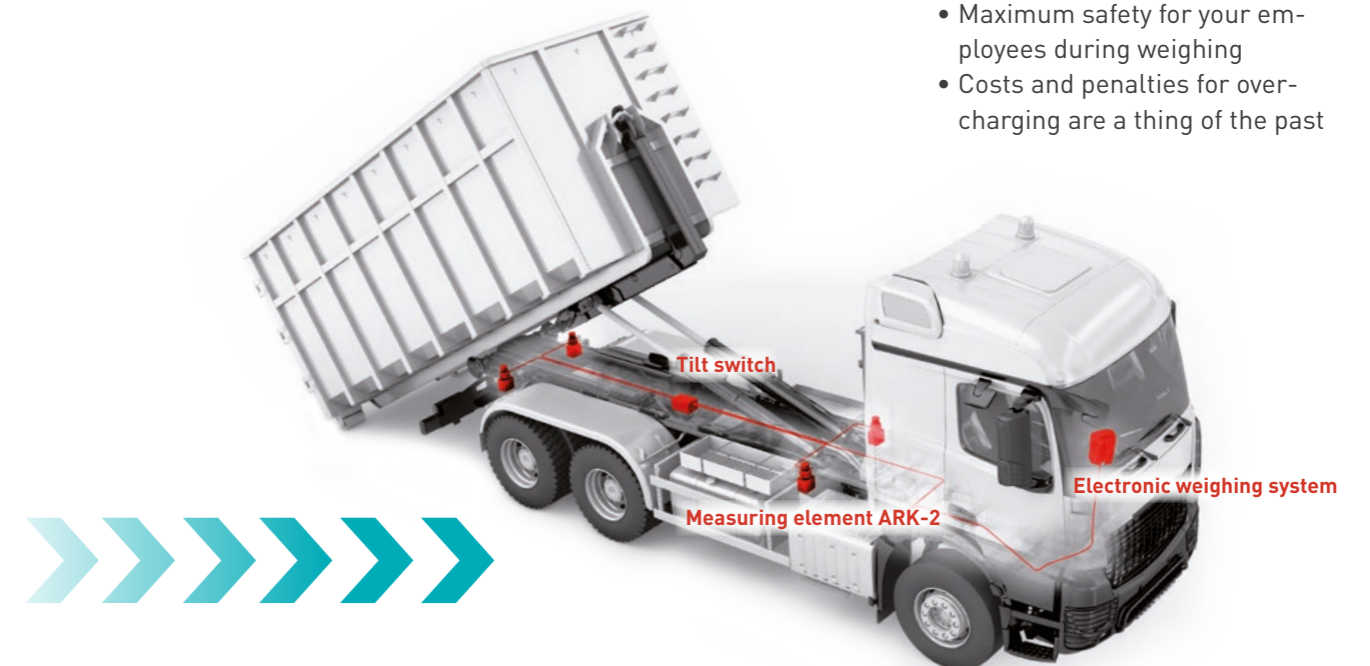
## PFREUNDT hook-lift scales

### Weighing irrespective of the container length

The PFREUNDT weighing systems can be used flexibly – for the most varied types of hook-lift types and containers, such as refuse containers, large-capacity containers or press containers. The measuring elements are only loaded during the weighing process. The data can be printed out directly on a weighing ticket or forwarded to the Web Portal for digital processing.

#### Advantages for you

- The ability to be calibrated and the conformity assessment enable you to use the scale directly in business trading
- Low dead weight for maximum load
- Maximum safety for your employees during weighing
- Costs and penalties for overcharging are a thing of the past



Further information on equipment and accessories:  
[www.pfreundt.de/en/products/hook-lift-scale/](http://www.pfreundt.de/en/products/hook-lift-scale/)

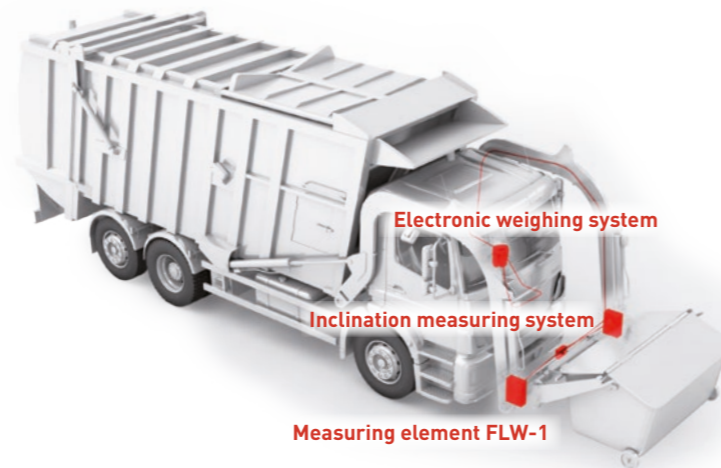
## PFREUNDT front-loader scales

### Always accurate invoicing for all front loader types



Irrespective of front loader type or manufacturer: The PFREUNDT weighing system can be installed in any front loader – even as a retrofit.

- Simple and quick installation
- For all container sizes
- Can be used directly in business trading due to calibration capability and conformity assessment



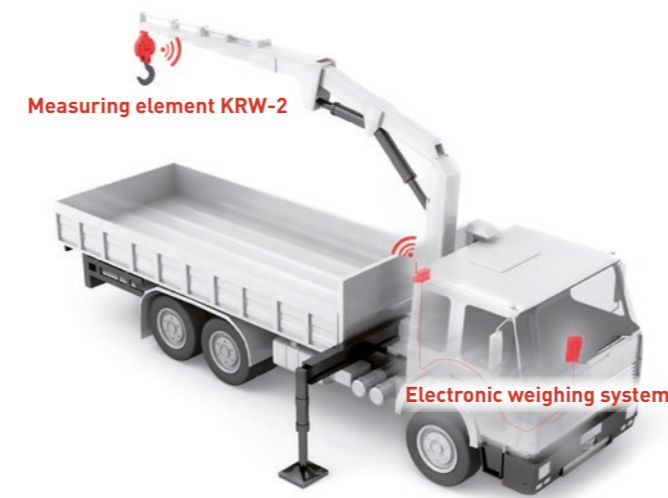
## PFREUNDT crane scales

### Always know how much is on the hook



The PFREUNDT crane scales can be used for many applications, including weight determination for underfloor, semi-underfloor and above-floor containers. The robust and compact weighing block is easily mounted on the crane jib, even as a retrofit. The integrated, powerful rechargeable battery ensures a stable radio connection between the measuring element and the electronics.

- Due to the calibration capability of the scale, you can invoice directly on site
- Thanks to the radio connection, broken cables are no longer an issue
- Full transparency of your data in the PFREUNDT Web Portal



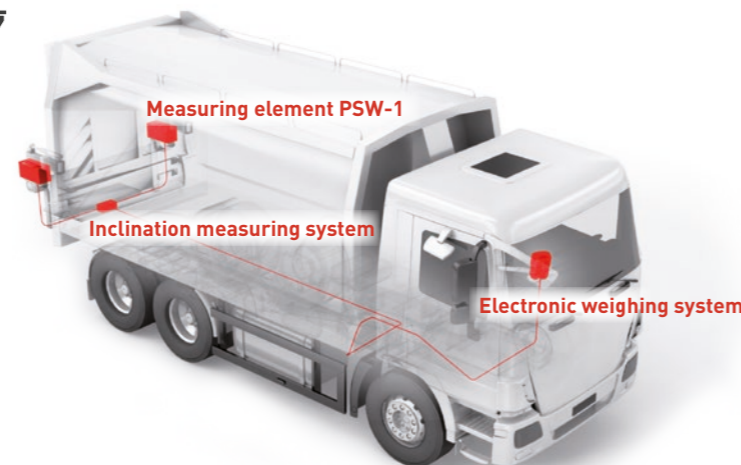
## PFREUNDT lifter scales

### Reliable weight verification during emptying



By weighing directly during the emptying process, the PFREUNDT weighing system for lifter scales allows individual weight verification directly on site.

- Simple installation – even as a retrofit
- Automatic compensation of inclinations up to 10% in two axles
- Individual adjustment to the lifter material handling system
- Calibratable and conformity-assessed



## PFREUNDT telescopic handler scales

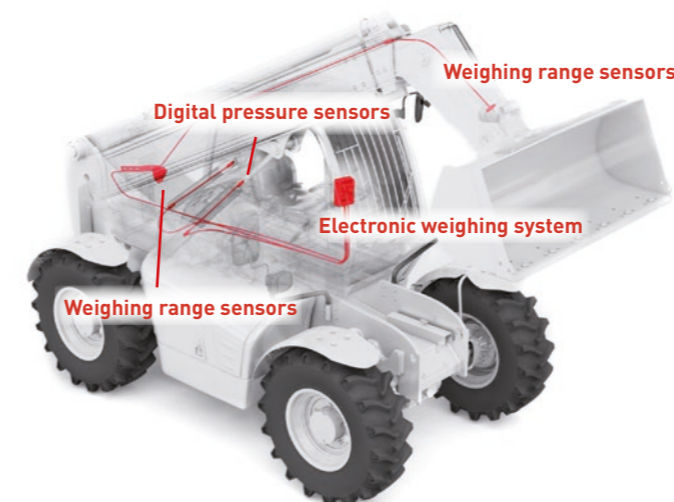
### Dynamic in-process weighing



The calibratable PFREUNDT telescopic handler scales are very easy to operate via the full-touch display. Weighing takes place dynamically during the lifting process and the exact target weight is achieved directly during loading. This saves you costly and time-consuming trips to the weighbridge.

Weigh even faster and easier with Speed Weigh Technology (SWT):

- Digital angle sensors allow an expansion of the previous measuring range
- The weight is already displayed after a short lift



# PFREUNDT excavator scales

## Weighing directly during material handling

The PFREUNDT excavator scale for all freely swinging load can easily be retrofitted to all manufacturer types. A quick release can also be integrated as an option.



### Advantages for you

- Practical hinge arrangement
- Maximum freedom of movement of your machine is fully maintained
- Accurate weighing results even under extreme conditions
- Your weighing data are quickly available even with a high number of short load cycles



Further information on equipment and accessories:  
[www.pfreundt.de/en/products/excavator-scale/](http://www.pfreundt.de/en/products/excavator-scale/)

# PFREUNDT wheel loader scales

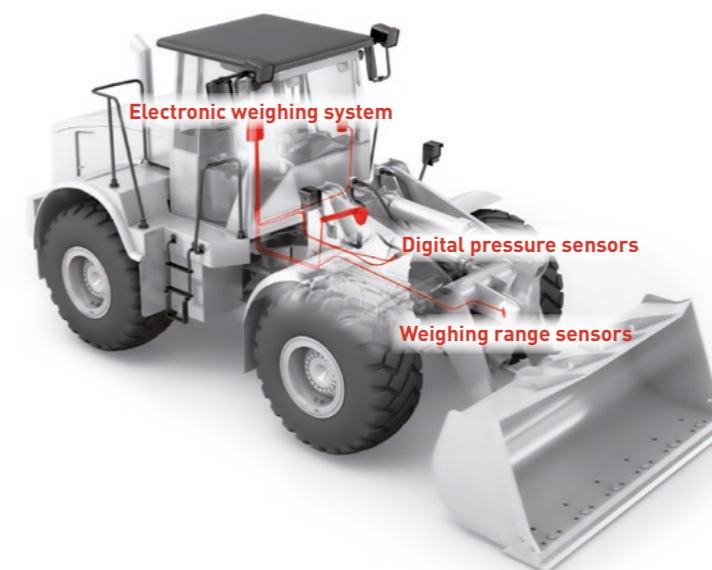
## Profit by the bucket



The PFREUNDT wheel loader scales have been fitted with practical features for faster processing, more efficient loading and maximum capacity.

### Advantages for you

- **Calibratable** and PFREUNDT conformity assessed, your scales are directly ready for business use.
- Comprehensive and customisable **master data and weighing data management** guarantee you easy and fast dispatch.
- Future-proof **data communication** creates full transparency of your weighing data, e.g. in the PFREUNDT Web Portal.



Weigh even faster and easier with **Speed Weigh Technology (SWT)**: Digital angle sensors allow an expansion of the previous measuring range. The weight is already displayed after a short lift.



With networked weighing data acquisition across the entire process chain, your company is prepared for the future.

Further information on equipment and accessories:  
[www.pfreundt.de/en/products/wheel-loader-scale/](http://www.pfreundt.de/en/products/wheel-loader-scale/)

## PFREUNDT belt scales

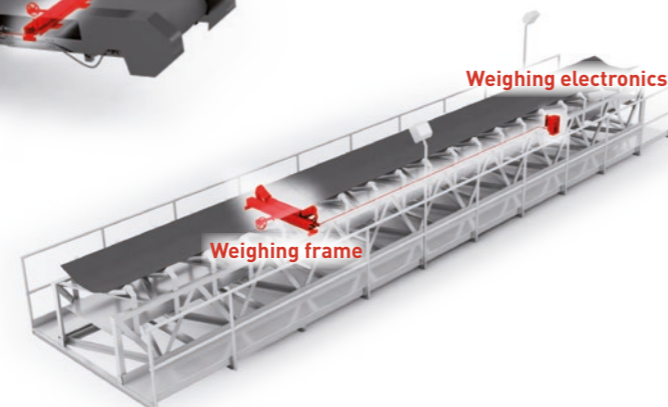
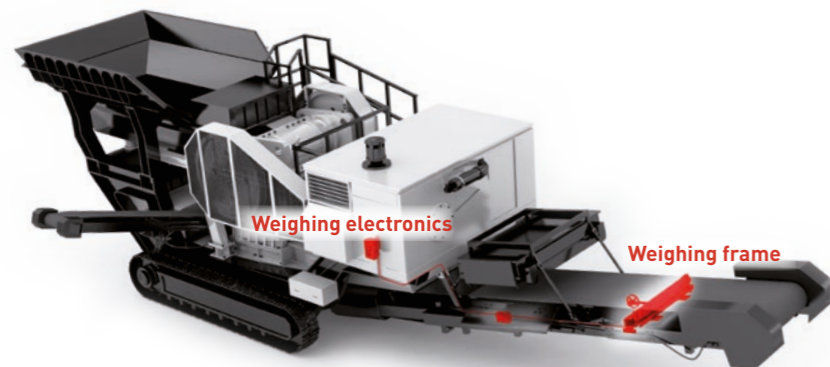
### Precise weighing data in mobile and stationary systems

PFREUNDT offers you belt scales for installation in stationary systems, as well as in mobile screening and crushing plants. Due to the special construction, with a very low installation height, the belt scales can be easily integrated into your existing conveyor belts.



#### Advantages for you

- One electronic assembly for several belts
- Integrated belt speed measurement
- Can be integrated into your plant control system
- Storage, processing and transfer of your master data and weighing data
- Inclination measuring system for correction calculation of changing discharge angles



Technical details and information on the extensive range of accessories for belt scales can be found on our website:  
[www.pfreundt.de/en/products/belt-scale/](http://www.pfreundt.de/en/products/belt-scale/)

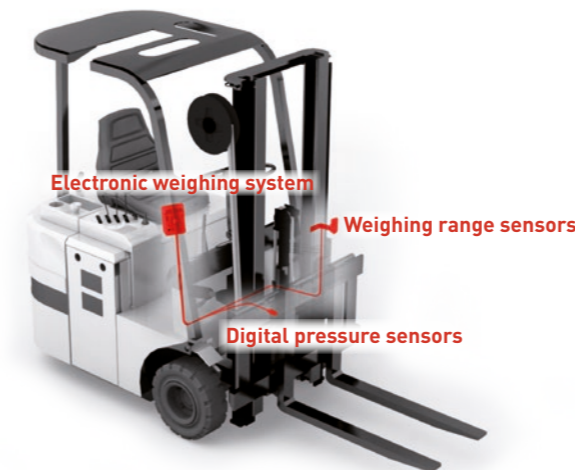
## PFREUNDT stacker scales

### Direct weighing shortens the production process



By upgrading your forklift with the PFREUNDT weighing system, you save working time, as the goods can be weighed directly during unloading and also during transport. There is no need for a stationary scale. We look forward to advising you on the savings potential in your company.

- Simple and quick installation, also as a retrofit
- Can be used directly in business trading due to calibration capability and conformity assessment



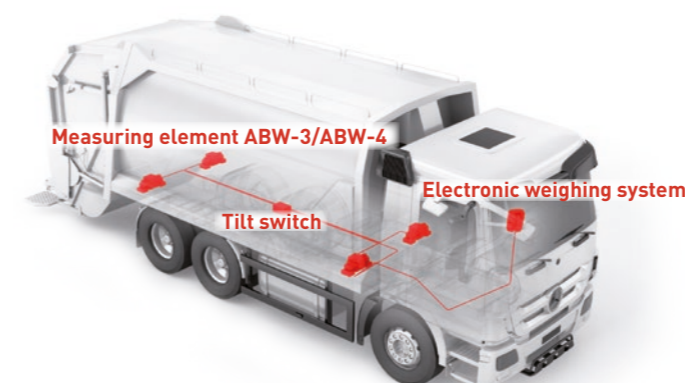
## PFREUNDT body scales

### More cost control for companies and customers



User-pays principle invoicing with the weighing data of the container directly from the vehicle makes economic sense and increases customer confidence. PFREUNDT body scales can be installed easily or retrofitted.

- Automatic compensation of inclinations up to 10% in two axles
- Can be used directly in business trading due to calibration capability and conformity assessment



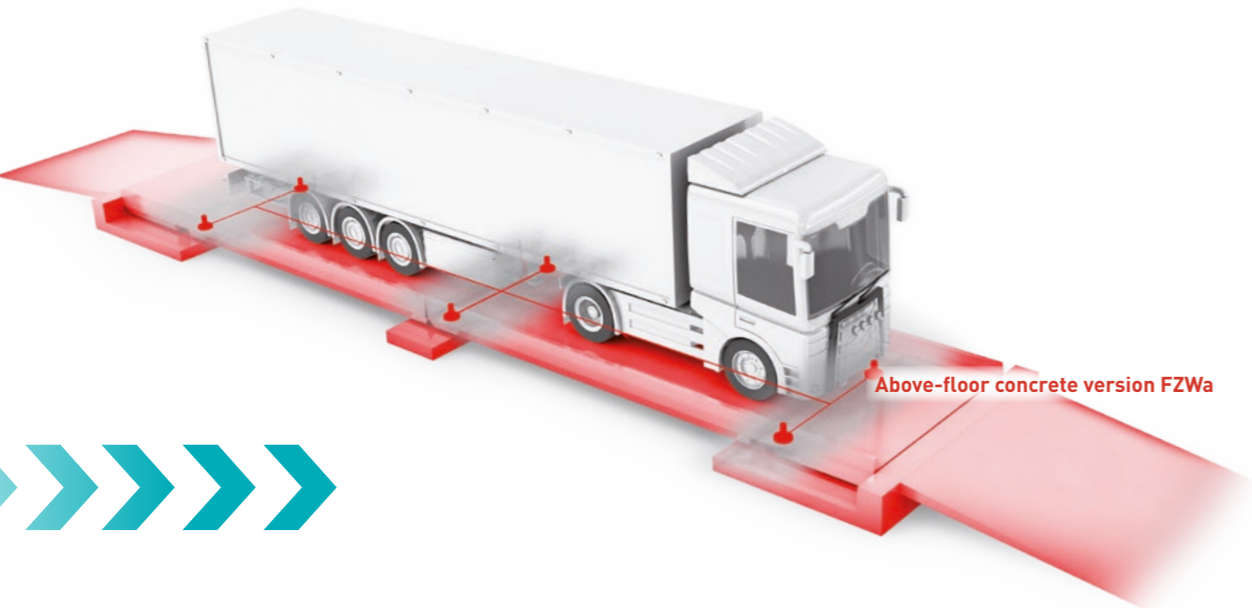
# PFREUNDT weighbridges

## Highest measuring accuracy and perfect service

In addition to complete weighbridges for installation at ground level, PFREUNDT offers you surface-mounted vehicle scales for above-ground installation in various lengths, as well as steel and concrete versions. PFREUNDT develops the ideal solution for your weighbridges according to your requirements and the conditions on site. From advice from assembly to commissioning with conformity assessment and software connection, you get everything from one source.



- Advantages for you**
- Little preparation for installation
  - Quick installation of the complete scale
  - Optimised cleaning and maintenance options



You can order various peripheral devices such as traffic light control, large displays, barrier system or software connection. References for networked weighing data acquisition over the entire work process can be found at:  
[www.pfreundt.de/youtube/](http://www.pfreundt.de/youtube/)

# Technical data



### WK60 | WK60-S | WK60-Smart | WK60-Light | WK60-XS

Supply voltage	9 V to 36 V Printers require 24 V, if necessary use voltage transformer
Nominal voltage	24 V
Power consumption incl. printers	max. 6 A
Protection class according to ISO 20653:2013-02	IP42 / IP5K2
Interfaces	1 x RS 232   2 x CAN (according to ISO11898-2) 2 x USB 2.0   1 x Ethernet (LAN) 3 x proximity switches (N1 to N3) 2 x input/output MIO 1/2 multifunctional: Input (10 kHz), output (1 kHz) 1 x analogue-to-digital converter (ADW) 1 x supply voltage (UB In) 1 x protective circuit (UB out), switchable
Communication interfaces	Bluetooth, WLAN according to IEEE802.11 Mobile network modem
Position determination	GPS
Data storage	All data, incl. adjustment parameters and alibi memory in the mounting tray
Weight incl. holder	approx. 1.8 kg
Environmental conditions	Operating temperature: -10 °C to +40 °C Storage temperature: -20 °C to +70 °C
Display	Colour display: Capacitive 7" touch display, LC display with LED background lighting Viewing area: 154 mm x 93 mm Resolution: 800 x 480 pixels Dimensions: 206 mm x 145 mm x 72 mm Hinge: 1.5"Ø

### Interfaces and antenna connections



# PFREUNDT system solutions



## We prepare you for the future: With the networked recording of weighing data across the entire process chain

From standard solutions through complex system solutions to individual solutions for your entire operational process – everything is possible. Thanks to our many years of experience, we know exactly what matters and make it easy for you. So you can be sure that PFREUNDT will develop the best weighing solution for your company.

### Your advantages

- Faster dispatch means more sold quantity per day for you
- Digital processes ensure fast invoicing
- Fewer manual activities lower your operating costs
- Full transparency of your weighing data gives you more planning security
- Sustainable management reduces your CO<sub>2</sub> emissions

### Process flow reference project at our customer RBS in the field of waste disposal



**Check-in and incoming weighing**  
On entry, the loaded vehicle is weighed and the load checked. These data are stored on an RFID card.



**Processing on the premises**  
The data on the RFID card are retrieved via a mobile app, viewed and assigned to the unloading point.



**Unloading**  
The load is unloaded at a pre-determined position on the site.



**Initial weighing**  
After unloading, the empty vehicle is weighed and the weighing data stored on the RFID card.



**Check-out**  
The RFID card is read out in the self-service terminal before the exit, and the driver signs the weighing data and prints the delivery note.

100%  
transparency



### Our services

#### Need

Together with you, we take the current processes and procedures in your company into account and develop the appropriate concept for your weighing solution.

#### Implementation

We install all components and put your weighing system solution into operation.

#### Support

We will ensure that your plant operates trouble-free at all times.

Get free advice now: +49 (0) 2862 9807-0  
More references: [www.pfreundt.de/youtube/](http://www.pfreundt.de/youtube/)

# PFREUNDT Web Portal



## Digital weighing data – available in real time

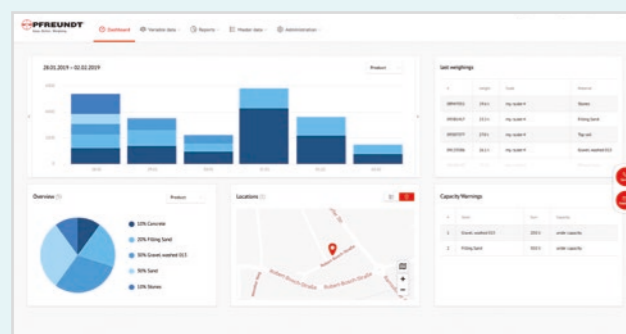
The PFREUNDT Web Portal makes it easy for you to manage your weighing data, optimises your load management and thus increases your efficiency:

- Minimises costs
- Optimises processes
- Recognises potentials
- Increases quality
- Increases productivity
- Secures sustainability

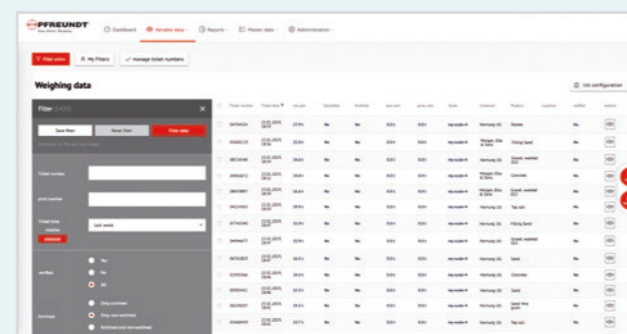
The digitisation of your weighing data and processes is advisable for the following reasons:

- All production and sales figures at a glance and always up-to-date
- A multitude of functionalities to control your flow of goods
- Individual evaluation options as a basis for decision-making – including automated email dispatch of generated reports
- Latest technology for creating delivery notes and documents in your system
- Highest data security through encrypted data exchange and state-of-the-art server technology in accordance with corresponding data protection guidelines

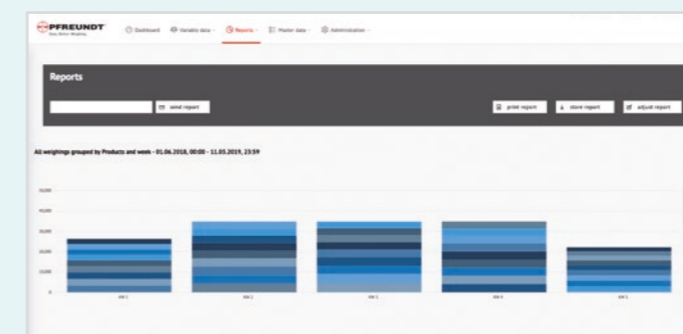
Make your day-to-day business easier and increase your planning security



**Dashboard:**  
All data and information at a glance



**Weighing data:**  
With the filter function you have all data under control



**Reports:**  
Individual creation of reports and evaluations



Try our Web Portal now for 3 months free of charge!  
Get free advice now: +49 (0) 2862 9807-0



Weigh better with our  
service professionals

**25,363** service  
hours  
in 2018  
over 40,000 systems in use

## PFREUNDT service

### We are at your disposal

PFREUNDT stands for top performance – not only in products, but also in service. Our comprehensive service network with our own assembly teams ensures installation and retrofitting, as well as smooth and uninterrupted operation of your weighing systems.



#### Hotline support

Friendly, competent, solution-oriented – real experts. PFREUNDT support staff are very familiar with all scales and accessories, allowing them to provide you with expert advice over the phone.

#### Calibration service

All appointments with you and the calibration office are planned and coordinated by our staff of the calibration service. The PFREUNDT calibration vehicle comes to you with calibration weights and hoists. Experienced service technicians carry out the readjustments and calibrations directly on site.

#### Application advice

Our application consultants ensure that you always work with the most efficient solution. Material, quantity and equipment determine the optimal equipment for your needs.



“We are proud to be the only company in this industry that offers service on this scale!”

**25,363\***  
service hours in operation

**1,823\***  
calibrations

**563\***  
conformity assessments

**1,181,852\***  
kilometres driven

**917\***  
new assemblies

\*Figures from 2018 in Germany

# PFREUNDT

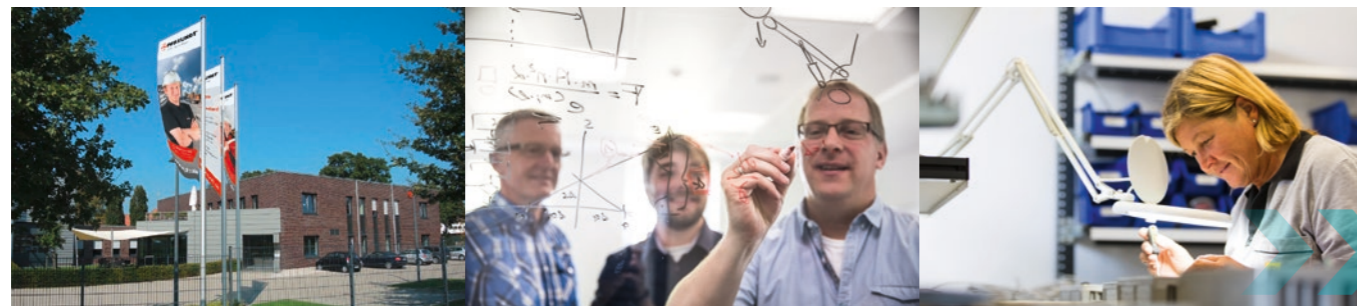
The pioneers of mobile weighing technology

## Innovative technology – now and in the future

For 40 years, everything at PFREUNDT has revolved around optimum weight determination. We have always aimed to simplify the elaborated, time-consuming processes involved in weight determination and to make the processes simpler, more precise and more transparent. We think ahead for you – and already develop today the solutions for tomorrow's needs. PFREUNDT innovations are pioneering in the industry.

### Our milestones in the industry

- 1984** WK25 – first calibration approval for a mobile scale in a wheel loader
- 1994** First belt scale for mobile crushing plants with inclination compensation
- 1998** WK50 – first mobile scale with patented dot-matrix printer for printing a multi-line weighing card
- 2010** pSeries – first mobile scale with rotary wheel operation and camera monitor
- 2015** WK60 – first mobile scale with touch display and connection to the PFREUNDT Web Portal



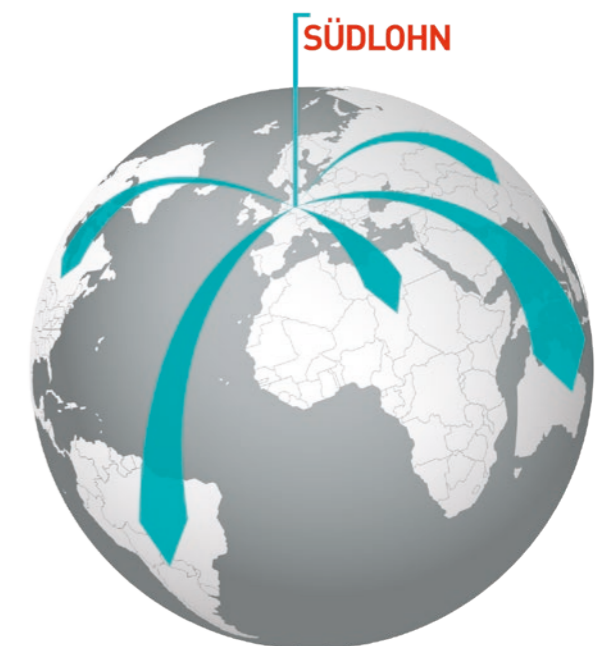
## Weighing system solutions “Made in Germany”

Our high quality standards are implemented from the incoming goods inspection through to production. In addition, we hire employees with many years of experience, train junior staff and continuously invest in qualification measures. Marking and documentation of all scales is just as obvious for us as strict quality controls. This ensures that all information is transparent to you at all times.



## We are at your disposal – worldwide

Personal service is guaranteed by PFREUNDT. With our worldwide service and sales network, you always have a competent contact person on site. For all service, consulting or sales questions.



## The PFREUNDT E-Shop

Order your weighing system conveniently and securely in the PFREUNDT E-Shop.

[shop.pfreundt.de/en/](https://shop.pfreundt.de/en/)



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