

# Checkweigher Flexus®

Hygienic design meets flexibility and maximum performance



## ! Advantages

- Highest performance with maximum design flexibility
- Blue HMI for maximum efficiency in production
- Safety and reliability thanks to EMFR weigh cell technology
- The ideal solution every time – configure Flexus® for your application

*The high performance checkweigher Flexus® meets hygienic standards and enables 100% and highly accurate weight control. The new Blue HMI user interface increases efficiency, transparency and safety in production. All models and variants are optionally MID-approved up to 600 pieces/minute and monitor verifiable in accordance with common packaging regulations.*

## The checkweigher Flexus® for product quality and food safety

- ! Flexus® is your solution for ensuring optimum product quality, regardless of whether you want to **check the weight** and/or **integrity of your product** or optimise **your filling processes**.
- ! **Broad connectivity**, e.g. OPC UA, for integration into your processes and SPC@Enterprise Software.
- ! The new HMI of Minebea Intec gives **fast and better insights** into production and can improve efficiency of the line.
- ! The high-resolution **EMFR weigh cell technology** and a **tailored design** guarantee precise weighing results and a high throughput of up to 600 pieces per minute.

## A new checkweigher with Blue HMI



### Operating a checkweigher can be so simple

Whether introducing a new product, fine-tuning line parameters or establishing a batch protocol, the user interface of the new checkweigher is designed to be fast and easy. Bid farewell to time-consuming tasks and extensive staff training. Say hello to streamlined control with the new Minebea Intec Blue HMI by your side.



### Makes your production more safe and efficient

Positioned at the end of the production line a checkweigher can narrate the story of your production. The Blue HMI displays your equipment's efficiency and other statistics based on your recent weighing results. It assists you through audits with several onboard protocol functions. We aim for you to be fully prepared and compliant at every step of the way.



### Keep an eye on your weight

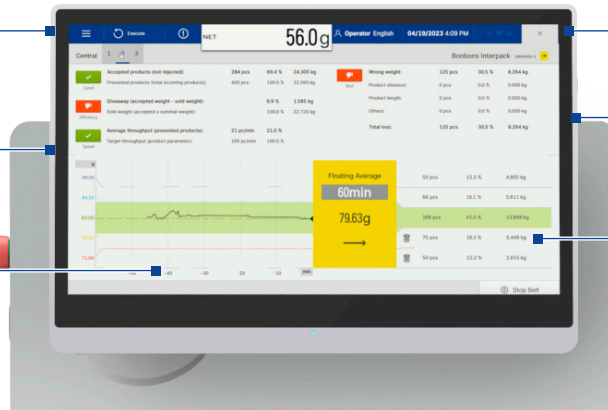
Blue HMI is a web-based cross-platform user interface with multi-user security. With this you are able to see everything your checkweigher does from authorized users within your network while your data is stored locally and securely on the checkweigher.

This allows you to comfortably browse through configurations, weighing statistics or efficiency protocols. Moreover, you may connect to Minebea Intec's SPC@Enterprise, OPC UA clients, ProfiNET or Ethernet/IP gateways.

Flat stainless steel housing

High performance BOX PC

Full HD 15" Touch-Display



Optional tiltable screen

Flexible interfaces prepared for the future

Proven weighing technology

## The new interface of Minebea Intec

As a global leading weighing supplier, we strive to offer reliable and flexible solutions for your production needs. However, flexibility in technical machinery often brings complexity.

Blue HMI serves as a cross-platform Human Machine Interface for all future products of Minebea Intec. Once started to use it, your daily work becomes easier.

## Flexible – hygienic – high-performance

The checkweigher Flexus® has been specially developed to comply with guidelines and standards such as IFS and BRC. It is approved for use in legal metrology for FPV (German Prepackages Act) checks and is MID-compliant in accordance with OIML R51. Thanks to its intelligent, modular construction and hygienic design, the Flexus® can be configured to suit your individual requirements, providing you with the ideal solution for any challenge you face.

### Technical data – Flexus®

The results achievable in practice, e.g. for the standard deviation attributable to measurement error or the throughput, depend on the relevant application.

| Weighing system  | WS 1 kg*  | WS 2 kg   | WS 5 kg   | WS 7 kg   |
|--|---|---|---|---|
| * The option Stainless Steel Conveyor (SSC) is not available for WS 1 kg |   |   |   |   |
| Gross weighing range [g]   | Up to 1,000   | Up to 2,000   | Up to 5,000   | Up to 7,000   |
| Smallest permissible calibration value [g]                               | 0.1   | 0.2   | 0.5   | 1   |
| Standard deviation attributable to measurement error(s) [mg]             | From 17   | From 83   | From 250  | From 333  |
| Throughput [pcs/min]   | Max. 600  | Max. 550  | Max. 450  | Max. 450  |
| Standard speed ranges [m/s]  | 0.5–2.6 m/s<br>0.2–1.5 m/s (MID is possible)  | 0.5–2.2 m/s<br>0.2–1.0 m/s (MID is possible)<br>0.5–1.5 m/s (MID is possible)<br>(SSC option up to 1.5) | 0.5–1.9 m/s<br>0.2–1.0 m/s (MID is possible)<br>0.5–1.4 m/s (MID is possible)<br>(SSC option up to 1.4) | 0.5–1.9 m/s<br>0.2–1.0 m/s (MID is possible)<br>0.5–1.4 m/s (MID is possible)<br>(SSC option up to 1.4) |
| Centre-to-centre distance of weighing belt [mm]                          | 210/310   | 300/350/400/450/500   |   |   |
| Belt width [mm]  | See 'Versions' table  |   |   |   |
| Weighing belt roller diameter [mm]                                       | 22  | 30  |   |   |
| Drives   | Maintenance-free 24 V EC motors with planetary gear<br>Motor control, short-circuit-proof with temperature monitoring   |   |   |   |
| Supply voltage   | 115/230 V <sub>AC</sub> (+10%/–15%); 50/60 Hz (L1, N, PE) switchable  |   |   |   |
| Power consumption  | Approx. 600 VA  |   |   |   |
| Operating pressure   | Default setting:<br>Pusher: approx. 3 bar<br>Blower: approx. 5 bar  |   |   |   |
| Feed direction   | Right to left or left to right (please indicate when ordering)  |   |   |   |
| Working height** [mm]  | 500 to 1,400 with standard adjustable feet<br>575 to 1,475 with hygienic adjustable feet<br>(adjustable foot range ±25)<br>** Working height below 650 mm results in limited floor clearance when combined with the collection container option   |   |   |   |
| Floor clearance [mm]   | 200 with adjustable foot range ±25 (standard)<br>275 with adjustable foot range ±25 (hygienic adjustable feet)  |   |   |   |
| Permissible operating temperature range [°C]                             | 0 to +40 (MID +5 to +40)  |   |   |   |
| Conveyor system temperature range [°C]                                   | –10 to +100 (WS 1 kg, belt)<br>–30 to +70 (WS 1 kg, round belt)<br>–30 to +80 (WS 2 to 7 kg, belt)  |   |   |   |
| Protection class   | IP 54 (standard), IP 65 (optional)  |   |   |   |
| Dimensions   | See scale drawings  |   |   |   |
| Checkweigher frame material  | Stainless steel 1.4301 (AISI 304)   |   |   |   |
| Transport system material  | Standard: Belt body: aluminium (anodized) and stainless steel; Rollers: Aluminium (heartcoatiert);<br>Bearing holder: Aluminium (anodized).<br>SSC: Belt body: stainless steel; Rollers: Stainless steel; Bearing holder: POM.<br>No additional infeed and outfeed belt possible with SSC Option. |   |   |   |
| Reject bin material  | Plastic (for products up to 500 g); Optional: Stainless steel with plastic door.<br>Option SSC: Reinforced plastic; Optional: Stainless steel with plastic door.  |   |   |   |
| Weight   | 250 kg to 400 kg, depending on version  |   |   |   |
| Airborne noise emitted   | A-weighted sound pressure level emitted < 70 dB(A)  |   |   |   |
| Inputs   | 8/16 (optional) digital inputs, 24 V inputs galvanically isolated with a relay or with optocoupler, depending on use  |   |   |   |
| Outputs  | 8/16 (optional) digital outputs, 24 V outputs galvanically isolated with a relay or with optocoupler, depending on use<br>2 analogue outputs, 0–20 mA, 0–10 V, for analogue trend controller option<br>Voltage output: Load ≥ 2 kΩ<br>Current output: Load ≤ 300 Ω                                |   |   |   |

## Technical specifications – Checkweigher Flexus®

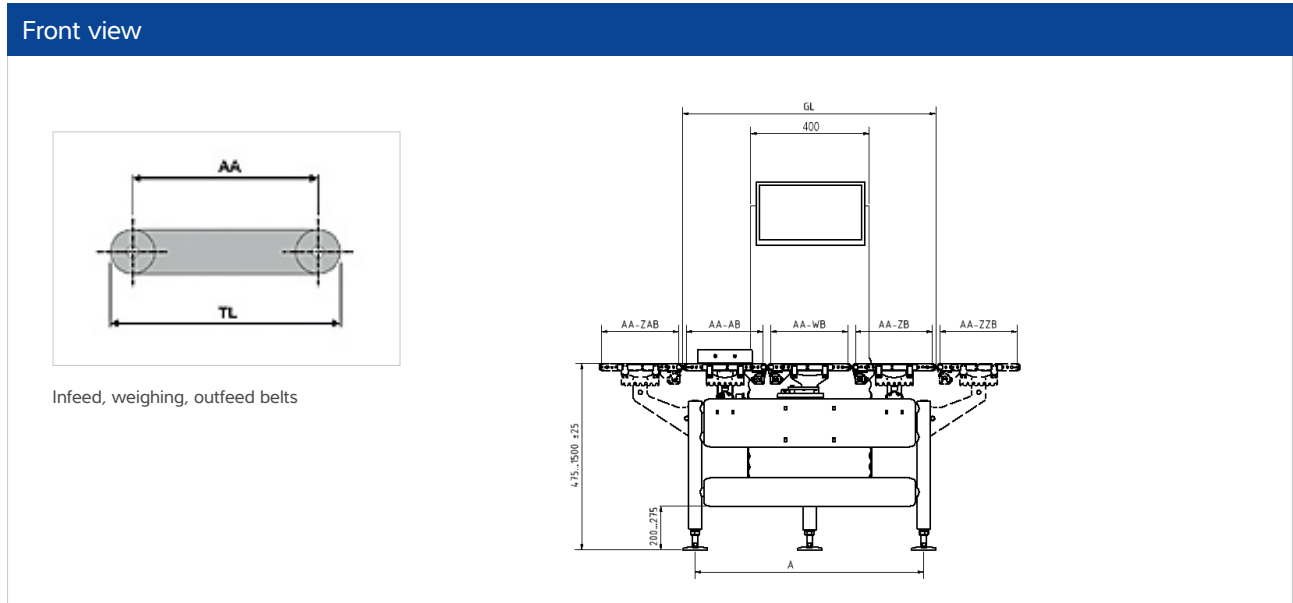
Create your individual Checkweigher Flexus® from a wide range of options and function enhancements. We'd be happy to advise you!

| Checkweigher Flexus® – standard |  |
|---------------------------------|--|
| Dialogue PC                     | Full HD 15" Touch-Display  |
| Operational display             | Choice of distribution, yield, throughput, average value chart, large weight readout, tare weight                  |
| Operating modes                 | AWC weigher<br>Classifying weigher, freely selectable classification limits, x 3/5 sorting                         |
| Digital input                   | Control package, external event or ignore checkweigher, event counter, external fault reset                        |
| Digital output                  | Feeder/batch, 3-way/5-way sorting, total counter, error message output, time-unit-controlled sorting               |
| Separation system               | Standard: One separator including: pusher or blower (depending on product size)<br>Option SSC: no blower available |
| Weighing belt                   | Various lengths and widths; Flat and round belt (for 1 kg system); blue and white (SSC only with blue)             |

| Checkweigher Flexus® – optional for increased requirements |   |  |
|--|---|--|
| Connectivity   | Fieldbus  | Profibus-DP, ProfiNET, Ethernet/IP   |
|  | Factory bus TCP/IP, Ethernet  | SPC@Enterprise, OPC UA, PackML via OPC UA  |
|  | Individual weight value output for external evaluation and connection to customer sys | Serial interface RS 422, RS 232 or current loop (20mA)   |
|  | All interfaces specified here are free from feedback and do not need to be secured    |  |
|  | Browser remote view   | Read-only access to the checkweigher conveniently via the company network  |
|  | USB print   | Created reports can be downloaded on a USB device  |
|  | FTP export  | Created reports are uploaded to a webserver  |
| Software/programs  | Filling spout evaluation  | Statistics for each filling spout and overall statistics possible  |
|  | Calibration approval  | Verifiable in accordance with OIML R 51 – MID  |
|  | Control functions   | Integrity checking/with floating mean value  |
|  | 3-way/5-way classifying display   | 3-way signal light, 5-way signal light, isolated outputs, isolated outputs with 3-way signal light, isolated outputs with 5-way signal light   |
|  | Separation system   | Control of customer sorting/separating equipment   |
|  | <b>Monitoring functions</b>   |  |
|  | Compressed air monitoring   | Isolated output, belt stop   |
|  | Separation monitoring   | Isolated output  |
|  | Goods flow  | Isolated output with belt stop   |
|  | Package length/interval monitoring  | Using additional light barrier   |
|  | Fill level monitoring*  | Isolated output with light   |
|  | Collection container  |  |
|  | Incorrect weight  |  |
|  | Production monitoring   | Monitoring of average value and repetitive rejections  |
| Sorting with path cycle/<br>displacement sensor            |   |  |
| Mechanical designs   | Emergency stop button   | Mounted on the cabinet   |
|  | Incorrect weight collection container   | Made from polycarbonate (for products up to 500 g and a maximum belt width of 200 mm) or stainless steel   |
|  | Separation systems  | Rocker, swivel arm, multi-segment separator  |
|  | Transfer runways<br>(not for SSC option)  | Only for WS 1 kg/2 kg – up to a belt width of 200 mm   |
|  | Options   | Wind protector, covers, LEDs, horn, IP65, guide rail, side-grip belts, stand-alone load cell and weighing belt, separate installation of weighing system and electronics with display and remote terminal, hygienic adjustable feet, additional infeed belt or outfeed belt, pneumatics in stainless steel housing, stainless steel conveyor (SSC) |

\* as well as pro version available, with an additional watchdog for the monitoring sensor

# Scale drawings



|        |   |
|--------|---|
| AA-ZB  | Centre-to-centre distance of infeed belt [mm]   |
| AA-WB  | Centre-to-centre distance of weighing belt [mm]   |
| AA-AB  | Centre-to-centre distance of outfeed belt [mm]  |
| AA-ZZB | Centre-to-centre distance of extra infeed belt [mm]                                       |
| AA-ZAB | Centre-to-centre distance of extra outfeed belt [mm]                                      |
| A      | Total length [mm] (GL – 110 mm)   |
| TL     | Table length AA + roller diameter (30 mm, or 22 mm in the case of the 1 kg weighing belt) |
| GL     | Total length [mm]   |

Dimensions table: WS 1 kg

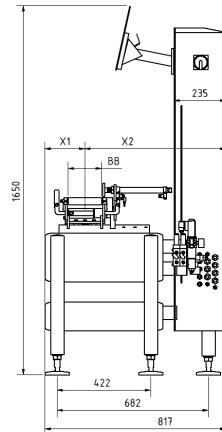
| AA-ZB  | AA-WB | AA-AB               |
|--|-------|---------------------|
| 350/400/450/500                              | 210   | 350/400/450/500     |
| 300/350/400/450/500                          | 310   | 300/350/400/450/500 |
| Total length GL = AA-ZB + AA-WB + AA-AB + 90 |       |                     |

Dimensions table: WS 2/5/7 kg

| AA-ZB   | AA-WB | AA-AB               |
|---|-------|---------------------|
| 300/350/400/450/500                           | 300   | 300/350/400/450/500 |
| 350/400/450/500                               | 350   | 350/400/450/500     |
| 400/450/500                                   | 400   | 400/450/500         |
| 450/500                                       | 450   | 450/500             |
| 500   | 500   | 500                 |
| Total length GL = AA-ZB + AA-WB + AA-AB + 100 |       |                     |

For belt widths BB = 150/200/250/300, additional lengths are available for infeed and outfeed belts with centre-to-centre distance AA = 550/600/650/700. This creates a larger overhang in relation to the base frame (AA-500+95).

## Side view

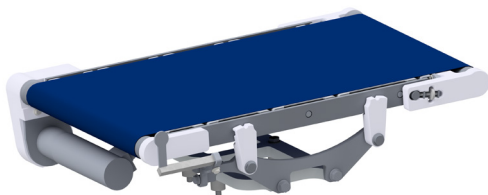


|    |  |
|----|--|
| BB | Weighing belt width [mm]               |
| X1 | Variable; see dimensional drawing [mm] |
| X2 | Variable; see dimensional drawing [mm] |

|             | BB          | X1          | X2          |
|-------------|-------------|-------------|-------------|
| WS 1 kg     | 50          | 183         | 634         |
|             | 100         | 183         | 634         |
|             | 150         | 183         | 634         |
|             | 200         | 208         | 609         |
| WS 2/5/7 kg | 150         | 183         | 634         |
|             | <b>200*</b> | <b>208*</b> | <b>609*</b> |
|             | 250         | 233         | 584         |
|             | <b>300*</b> | <b>258*</b> | <b>559*</b> |

\* Dimensions are available for Flexus® Stainless Steel Conveyor (SSC) option.

## Stainless Steel Conveyor – Features and Benefits



- Resistant to chemical detergents
- Weighing range from 50 g to 7 kg
- Easy belt change and cleaning
- Temperature range MID approved version: 5 °C to 40 °C
- Temperature range non approved version: -10 °C to 40 °C
- IP65 water protection with AISI 304 Stainless Steel

## Versions

|    |   |
|----|---|
| AA | Centre-to-centre distance of infeed belt [mm] |
| BB | Belt width [mm]                               |
| ●  | Round belt or belt design                     |
| ■  | Belt version                                  |

Dimensions table: WS 1 kg

| BB x AA [mm]              |                 |                           |
|---------------------------|-----------------|---------------------------|
| Infeed belt ■             | Weighing belt ● | Outfeed belt ■            |
| 150 × 350/400/450/500     | 50 × 210        | 150 × 350/400/450/500     |
| 150 × 350/400/450/500     | 100 × 210       | 150 × 350/400/450/500     |
| 150 × 350/400/450/500     | 150 × 210       | 150 × 350/400/450/500     |
| 200 × 350/400/450/500     | 200 × 210       | 200 × 350/400/450/500     |
| 150 × 300/350/400/450/500 | 50 × 310        | 150 × 300/350/400/450/500 |
| 150 × 300/350/400/450/500 | 100 × 310       | 150 × 300/350/400/450/500 |
| 150 × 300/350/400/450/500 | 150 × 310       | 150 × 300/350/400/450/500 |
| 200 × 300/350/400/450/500 | 200 × 310       | 200 × 300/350/400/450/500 |

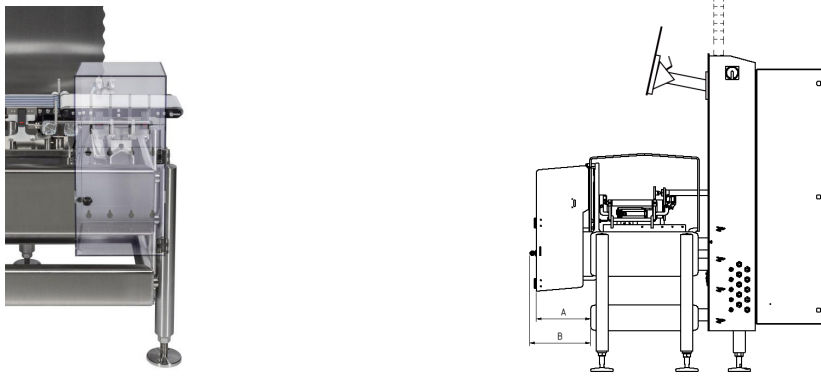
Dimensions table: WS 2/5/7 kg

|      | AA [mm]                      |                 |                              |
|------|------------------------------|-----------------|------------------------------|
| BB   | Infeed belt ■                | Weighing belt ■ | Outfeed belt ■               |
| 150  | 300/350/400/450/500          | 300             | 300/350/400/450/500          |
|      | 350/400/450/500              | 350             | 350/400/450/500              |
|      | 400/450/500                  | 400             | 400/450/500                  |
|      | 450/500                      | 450             | 450/500                      |
|      | 500                          | 500             | 500                          |
| 200* | <b>300*</b> /350/400/450/500 | <b>300*</b>     | <b>300*</b> /350/400/450/500 |
|      | 350/400/450/500              | 350             | 350/400/450/500              |
|      | <b>400*</b> /450/500         | <b>400*</b>     | <b>400*</b> /450/500         |
|      | 400/450                      | 450             | 450/500                      |
|      | <b>500*</b>                  | <b>500*</b>     | <b>500*</b>                  |
| 250  | 300/350/400/450/500          | 300             | 300/350/400/450/500          |
|      | 350/400/450/500              | 350             | 350/400/450/500              |
|      | 400/450/500                  | 400             | 400/450/500                  |
|      | 450/500                      | 450             | 450/500                      |
|      | 500                          | 500             | 500                          |
| 300* | 350/400/450/500              | 350             | 350/400/450/500              |
|      | <b>400*</b> /450/500         | <b>400*</b>     | <b>400*</b> /450/500         |
|      | 450/500                      | 450             | 450/500                      |
|      | <b>500*</b>                  | <b>500*</b>     | <b>500*</b>                  |

Total length = Infeed belt + Weighing belt + Outfeed belt + 100

\* Dimensions are available for Flexus® Stainless Steel Conveyor (SSC) option.

## Collection container



The scale drawing shows Flexus® with a collection container (optional), which is made from plastic (option SSC: the plastic is additional reinforced) or stainless steel – both versions have different dimensions.

A: Minimum depth of the collection container

B: Maximum depth (incl. key) of the collection container

| Material        | A [mm] | B [mm] |
|-----------------|--------|--------|
| Plastic         | 272    | 303    |
| Stainless steel | 372    | 403    |

## OPC UA option

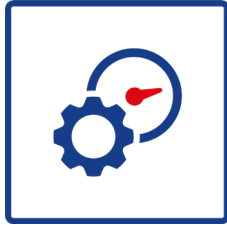


Experience seamless connectivity with OPC UA, based on the Companion Specification for scales. Our smart scales offer precise data integration and simplify your processes. Connect your production effortlessly and maximize efficiency with OPC UA!



## Overall Equipment Effectiveness (OEE)

The OEE helps you to optimize your manufacturing efficiency by providing a simple, comprehensive metric that measures the performance, availability and quality of the end of line. OEE helps to identify areas for improvement, reduce downtime, increase productivity and ultimately boost profitability.



**Overall Equipment Effectiveness(OEE)**

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### Availability

It measures operational time as a fraction of planned production time, accounting for scheduled breaks like lunch, maintenance and cleaning.

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### Performance

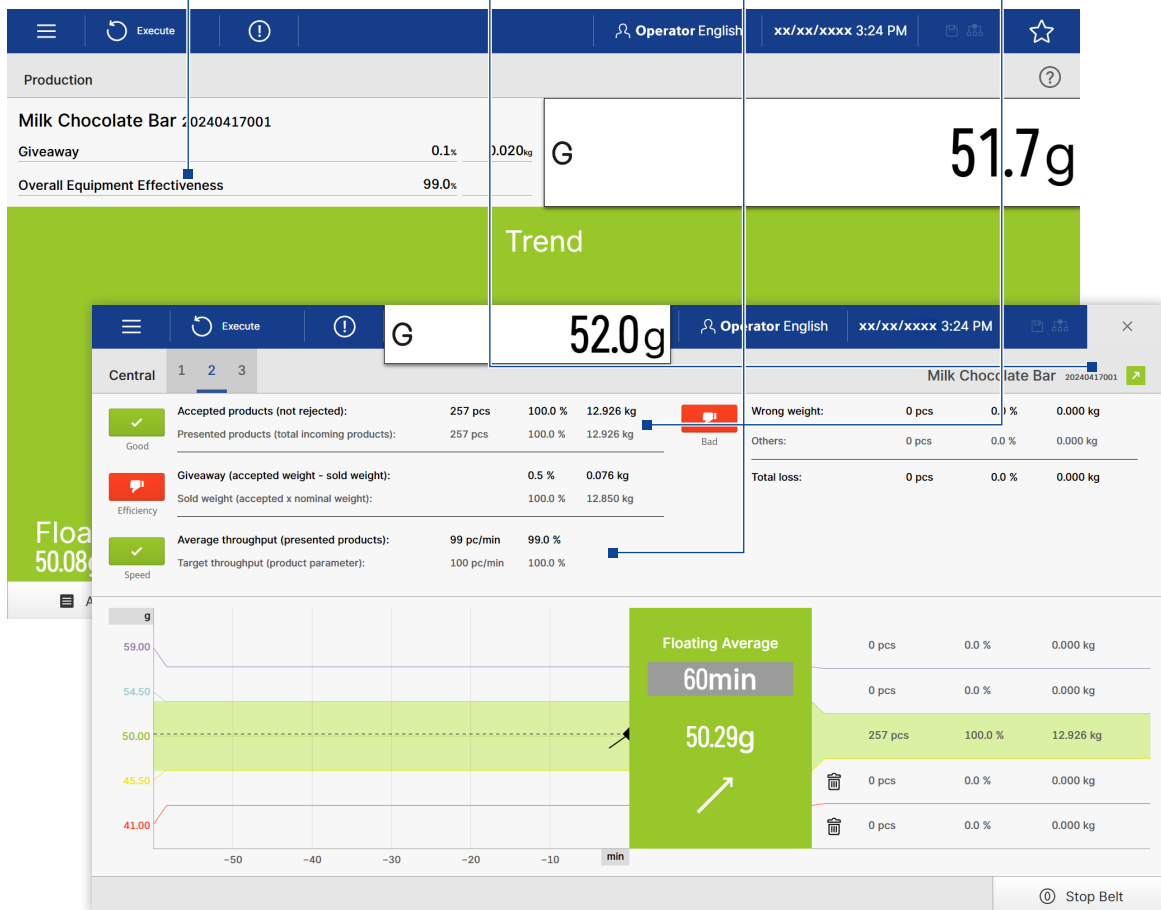
It measures the actual line speed as a fraction of the optimal line speed.

×



### Quality

It measures the number of saleable pieces produced as a fraction of the total produced pieces.



## Display option



### Ergonomic working with Blue HMI

#### Ergonomic adjustment

Tilting display enables optimum positioning for every operator.

#### Environmental flexibility

Adaptation to different lighting conditions and environments.

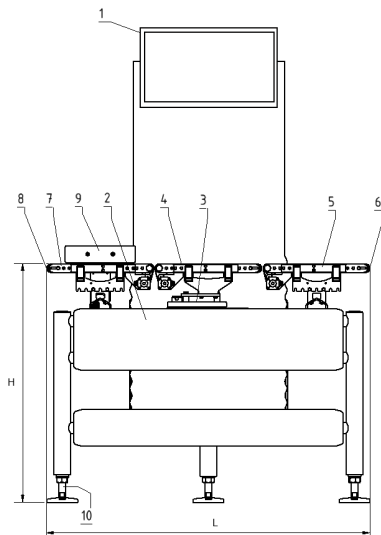
#### Customised comfort

Improved user-friendliness and working comfort for efficient processes.

|                            | Tiltable display | Rigid display |
|----------------------------|------------------|---------------|
| Synus®                     | Optional         | Standard      |
| Flexus®                    | Standard         | Optional      |
| EWK (mounted on frame)*    | Standard         | Optional      |
| EWK (terminal standalone)* | Standard         | Optional      |

\* Additionally limited swivelling and lockable around the vertical axis

## Machine construction



- 1 Operator terminal
- 2 Checkweigher frame
- 3 Weigh cell
- 4 Weighing belt
- 5 Infeed belt
- 6 Connection point for customer's infeed belt
- 7 Outfeed belt
- 8 Connection point for customer outfeed belt
- 9 Rejection device
- 10 Spindle adjustable feet

A three-part conveyor belt system transports the products. All conveyor belts (4, 5, 7) in the system run at the same speed to ensure that products are transferred smoothly onto and off of the weighing belt. The weighing process is carried out dynamically and automatically without intervention by operating personnel. The weight value, including mass unit, is converted and shown on the display.

### Weigher frame with control cabinet

Crossbars are fitted to the checkweigher frame (2). The weighing and transport system is attached to these crossbars. The pillar cabinet with its sinusoidal housing profile is attached to the weigher frame using a clamping device in a form-fitting manner. The working height of the weigher frame is determined by the length of the frame legs. The working height can be adjusted by changing or modifying the frame legs. Small adjustments to the working height can be made via the spindle adjustable feet (10). The display and remote terminal (1) is installed in front of the control cabinet.

### Weigh cell

The weigh cell (3) is a monolithic, electro-magnetic force compensation weigh cell (EMFR). This delivers maximum precision, extremely short settling times, high long-term stability and overload protection in a stainless steel housing.

### Transport system

A conveyor belt is used as the transport medium (weighing belt WS 1 kg also available with round belt). The belt frame is equipped with a belt quick-clamping device and a hinged, removable transport system. This allows the conveyor belts to be removed/fitted and replaced without tools. The infeed, weighing and outfeed belts are each driven by an EC geared motor. Power is transmitted via toothed belt.

- The infeed belt (5) takes products from the upstream machine and transports them to the weighing belt.
- The weighing belt (4) takes the products from the infeed belt. As the products travel along the weighing belt, they are weighed while they move.
- The outfeed belt (7) takes the products and moves them on.

### Control electronics

The display and remote terminal for the weighing function is based on an industrial PC with a powerful 32-bit multitasking operating system with data storage on an internal wear-free compact flash memory card. The housing is made from polished stainless steel. The control cabinet is opened using a continuous cabinet door opening to the rear with fasteners. The connection terminals for the power supply, the components of the evaluation and display electronics and the power supply unit with motor control are housed in the control cabinet. The main switch is installed in the control cabinet. The start/stop button for the transport system is located on the front of the display and remote terminal (1), which can be swivelled for ergonomic operation.

### Rejection device

Two compressed air nozzles (standard WS 1 kg) or a pneumatic pusher (standard WS 2–7 kg) are fitted on the outfeed conveyor to ensure the reliable rejection of products with different weights. A filter pressure control valve is included.



Extend your checkweigher with our Software SPC@Enterprise to ensure your product quality, food safety and efficiency.

Get your first impressions about **SPC@Enterprise Software!**

The products and solutions presented in this data sheet make major contributions in the following sectors:



The technical data given serves as a product description only and should not be understood as guaranteed properties in the legal sense.

Specifications subject to change without notice.  
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