suministros LPS®

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 load 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 FPV.

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 load 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

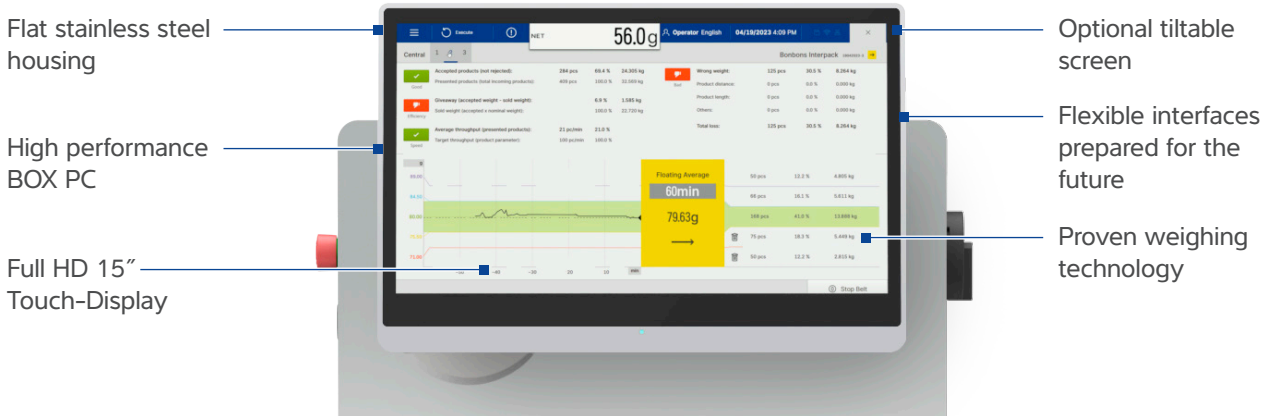
Whether introducing a new product, fine-tuning line parameters or establishing a batch protocol, the user interface of the new checkweigher is designed to be fast and easy. Bid farewell to time-consuming tasks and extensive staff training. Say hello to streamlined control with the new Minebea Intec Blue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



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
	Depends on product, throughput, ambient conditions and area of application			
Throughput [pcs/min]	Max. 600	Max. 550	Max. 450	Max. 450
	Depends on version, product, permissible imprecision, ambient conditions and area of application			
Standard speed ranges [m/s]	0.5 – 2.6 m/s 0.2 – 1.5 m/s (MID is possible)	0.5 – 2.2 m/s 0.2 – 1.0 m/s (MID is possible) 0.5 – 1.5 m/s (MID is possible) (SSC option up to 1.5)	0.5 – 1.9 m/s 0.2 – 1.0 m/s (MID is possible) 0.5 – 1.4 m/s (MID is possible) (SSC option up to 1.4)	0.5 – 1.9 m/s 0.2 – 1.0 m/s (MID is possible) 0.5 – 1.4 m/s (MID is possible) (SSC option up to 1.4)
	Higher speeds available on request, MID verifiable systems up to 3 m/s			
Centre-to-centre distance of weighing belt [mm]	210/310	300/350/400/450/500		
	See scale drawing and 'Versions' table			
Belt width [mm]	See 'Versions' table			
Weighing belt roller diameter [mm]	22	30		
Drives	Maintenance-free 24 V EC motors with planetary gear Motor control, short-circuit-proof with temperature monitoring			
Supply voltage	115/230 V_{AC} (+10%/–15%); 50/60 Hz (L1, N, PE) switchable			
Power consumption	Approx. 600 VA			
Operating pressure	Default setting: Pusher: approx. 3 bar 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 575 to 1,475 with hygienic adjustable feet (adjustable foot range ±25) ** 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) 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) -30 to +70 (WS 1 kg, round belt) -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); Bearing holder: Aluminium (anodized). SSC: Belt body: stainless steel; Rollers: Stainless steel; Bearing holder: POM. 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. 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 2 analogue outputs, 0 – 20 mA, 0 – 10 V, for analogue trend controller option Voltage output: Load ≥ 2 kΩ 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
	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) 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)

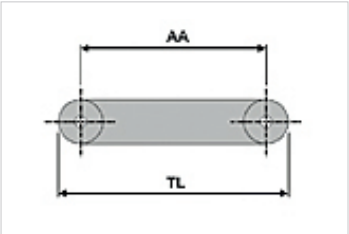
Checkweigher Flexus® – optional for increased requirements

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 systems	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
	Volume evaluation	Without air buoyancy correction, with air buoyancy correction
	Trend controller with display	3-point controller ± control signal, 3-point controller with pulse packet, integral controller 0 – 20 mA/0 – 10 V
	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
	Monitoring functions	
	Compressed air monitoring	Isolated output, belt stop
	Separation monitoring Goods flow	Isolated output Isolated output with belt stop
	Package length/interval monitoring	Using additional light barrier
	Fill level monitoring* Collection container Incorrect weight	Isolated output with light
	Production monitoring	Monitoring of average value and repetitive rejections
	Sorting with path cycle/ 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 (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)

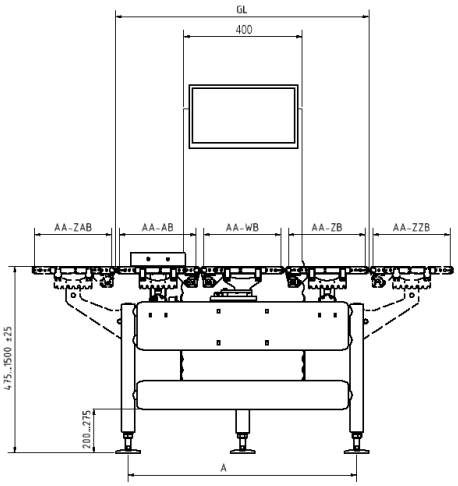
* as well as pro version available, with an additional watchdog for the monitoring sensor

Scale drawings

Front view



Infeed, weighing, outfeed belts



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 lenght 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

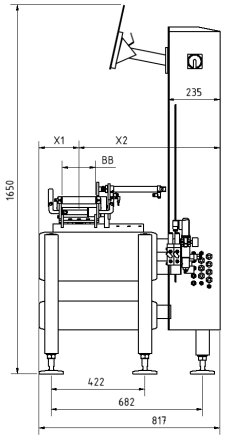
AA-ZB	AA-WB	AA-AB
350/400/450/500	210	350/400/450/500
300/350/400/450/500	310	300/350/400/450/500
Total length GL = AA-ZB + AA-WB + AA-AB + 90		

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

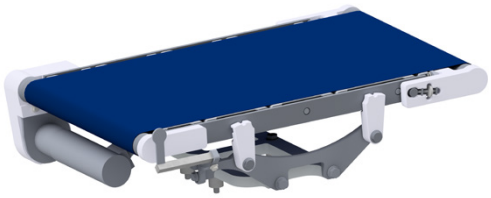


BB	Weighing belt width [mm]
X1	Variable; see dimensional drawing [mm]
X2	Variable; see dimensional drawing [mm]

	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
	200*	**208***	**609***
	250	233	584
	300*	**258***	**559***

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

Stainles 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

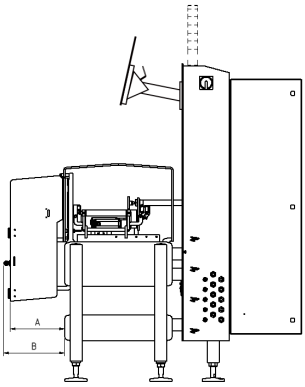
Dimensions table: WS 2/5/7 kg

	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*	**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
	400/450	450	450/500
	500*	**500***	**500***
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
	400*/450/500	**400***	**400***/450/500
	450/500	450	450/500
	500*	**500***	**500***

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

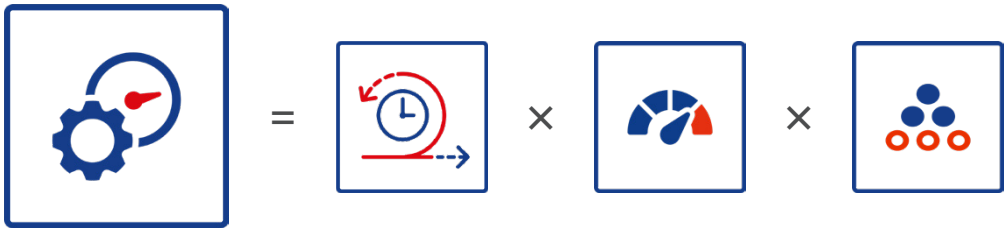
Material	A [mm]	B [mm]
Plastic	272	303
Stainless steel	372	403

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.

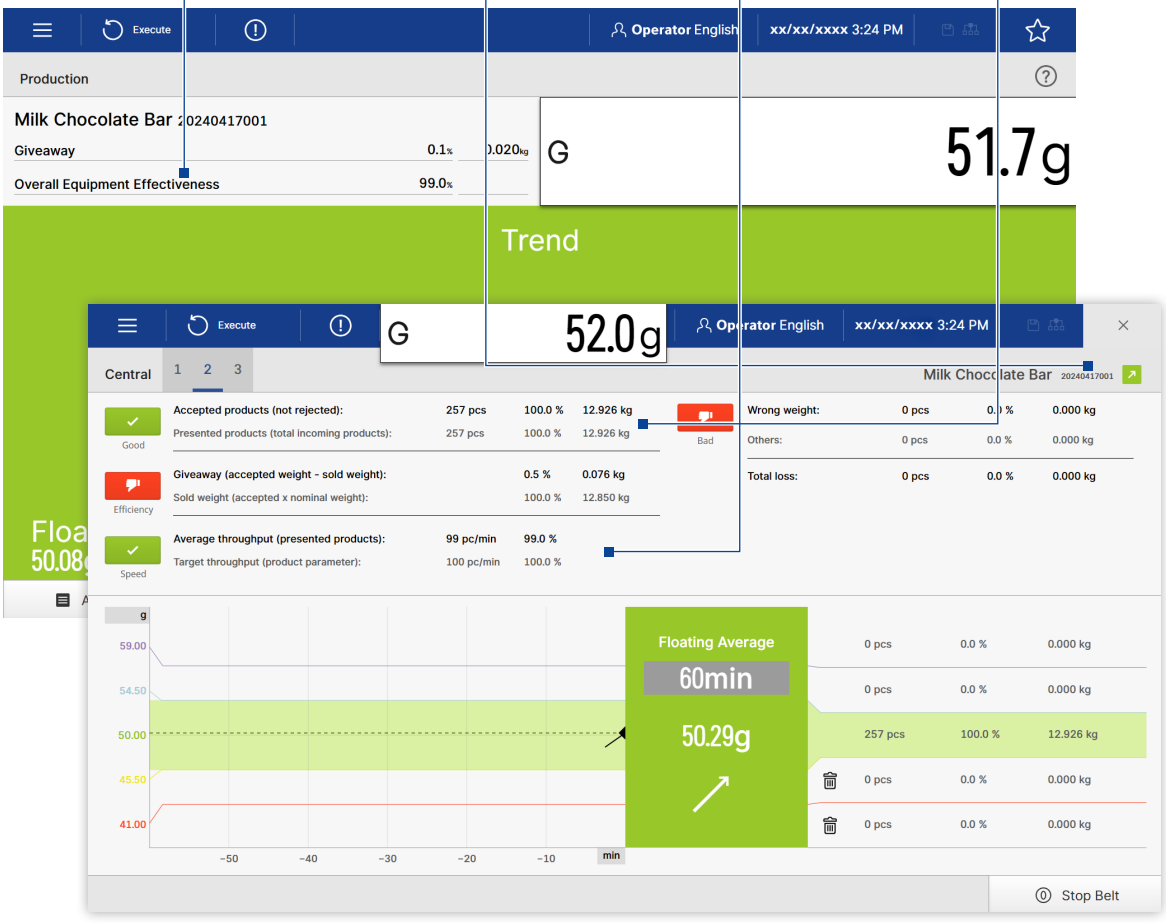


Overall Equipment Effectiveness(OEE)

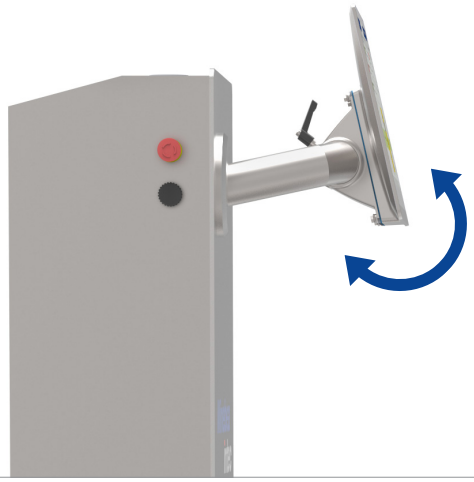
Availability
It measures operational time as a fraction of planned production time, accounting for scheduled breaks like lunch, maintenance and cleaning.

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.

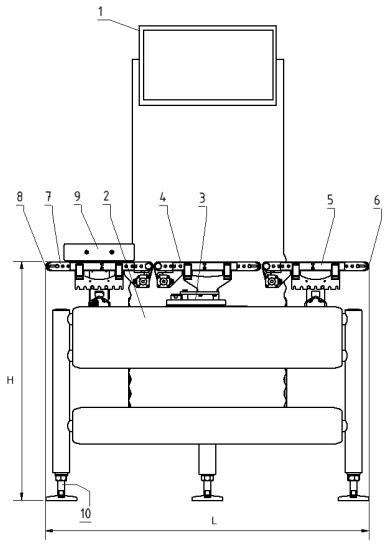
Environmental flexibility
Adaptation to different lighting conditions and environments.

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 Load 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.

Load cell
The load cell (3) is a monolithic, electro-magnetic force compensation load 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:

Rev. 08/2024

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