

Checkweigher CoSynus®

All in one checkweigher and metal detector



! Advantages

- Perfect solution for all standard applications
- Blue HMI for maximum efficiency in production
- Flexible integration into your infrastructure
- Reliability thanks to EMFR load cell technology

The modular CoSynus® checkweigher series enables highly accurate weight control and metal detection in one frame at the same time. The new Blue HMI user interface increases efficiency, transparency and safety in production. All models and variants are optionally MID-approved and monitor verifiable in accordance with FPV.

CoSynus® is the standard solution for many applications and industries

- ① The new HMI of Minebea Intec gives fast and better insights into production and can improve the efficiency of the line.
- ① Easy to set up combi solution.
- ① Broad connectivity, e.g. OPC-UA, for integration into your processes and SPC@Enterprise Software.
- ① EMFR weighing technology is providing high precise results up to 7 kg and 250 pcs/minute.

A new checkweigher with Blue HMI



Operating a checkweigher can be so simple

Whether you're 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

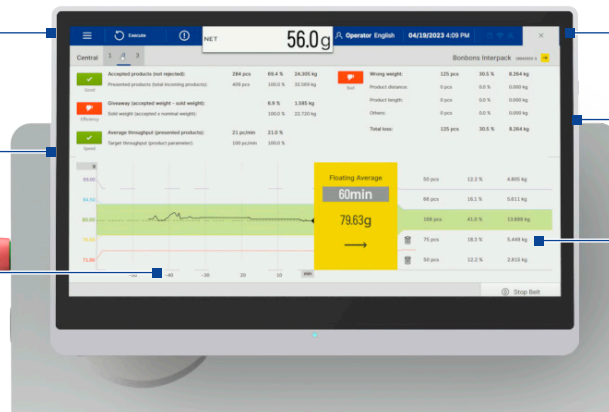
Blue HMI is a web-based cross-platform user interface with multi-user security. With this you are able to see everything your checkweigher does from authorized users within your network while your data is stored locally and securely on the checkweigher.

You can sit down and browse comfortably 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.

Technical data – CoSynus®

Weighing system	WS 1 kg	WS 2 kg	WS 5 kg	WS 7 kg
Gross weighing range [g] (maximum load)	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
Imprecision area (Ua) [mg]	From 100	From 500	From 1,500	From 2,000
Standard deviation attributable to measurement error(s) [mg]	From 17	From 83	From 250	From 333
Throughput [item/min]	Depending on product, throughput and ambient conditions			
	Max. 250	Max. 200	Max. 180	Max. 180
	Depending on product, permitted imprecision and ambient conditions			
Speed ranges [m/s]	0.2 to 1.5	0.2 to 1.2 0.5 to 1.5	0.2 to 1.0 0.5 to 1.4	0.2 to 1.0 0.5 to 1.4
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. 500 V _A			
Operating pressure	Default setting: Pusher: approx. 3 bar Blower: approx. 5 bar			
Feed direction	From right to left or left to right (Please indicate when ordering)			
Working height [mm]	600 to 1100 (adjustable in 50 mm increments), adjustment range of the feet: ± 25 mm			
Ground clearance [mm]	100 (± 25)			
Permissible operating temperature range [°C]	0 to +40 (MID +5 to +40)			
Product temperature [°C]	-10 to +60 (WS 1 kg, belt) -40 to +80 (WS 1 kg, round belt) -30 to +80 (WS 2 to 7 kg, belt)			
Protection class	IP 54 (standard), IP 65 (optional)			
Dimensions	See dimensional drawings			
Checkweigher frame material	Stainless steel 1.4301			
Weight	Approx. 330 kg			
Airborne noise emitted	A-rated sound pressure level emitted < 70 dB(A)			
Inputs	8/16 (optional) digital inputs, 24 V Inputs galvanically isolated via relay or optocoupler depending on use			
Outputs	8/16 (optional) digital outputs, 24 V 2 analogue outputs 0–20 mA, 0–10 V Voltage output: load impedance ≥ 2 kΩ Current output: load impedance ≤ 300 Ω Outputs galvanically isolated via relay or optocoupler depending on use			

The results that can be achieved in practice, e.g. for the standard deviation of the measurement error or the throughput, depend on the respective application and must therefore not be understood as absolute values. The precise design of the supplied machine is defined in the order confirmation.

Technical specifications – Checkweigher CoSynus®

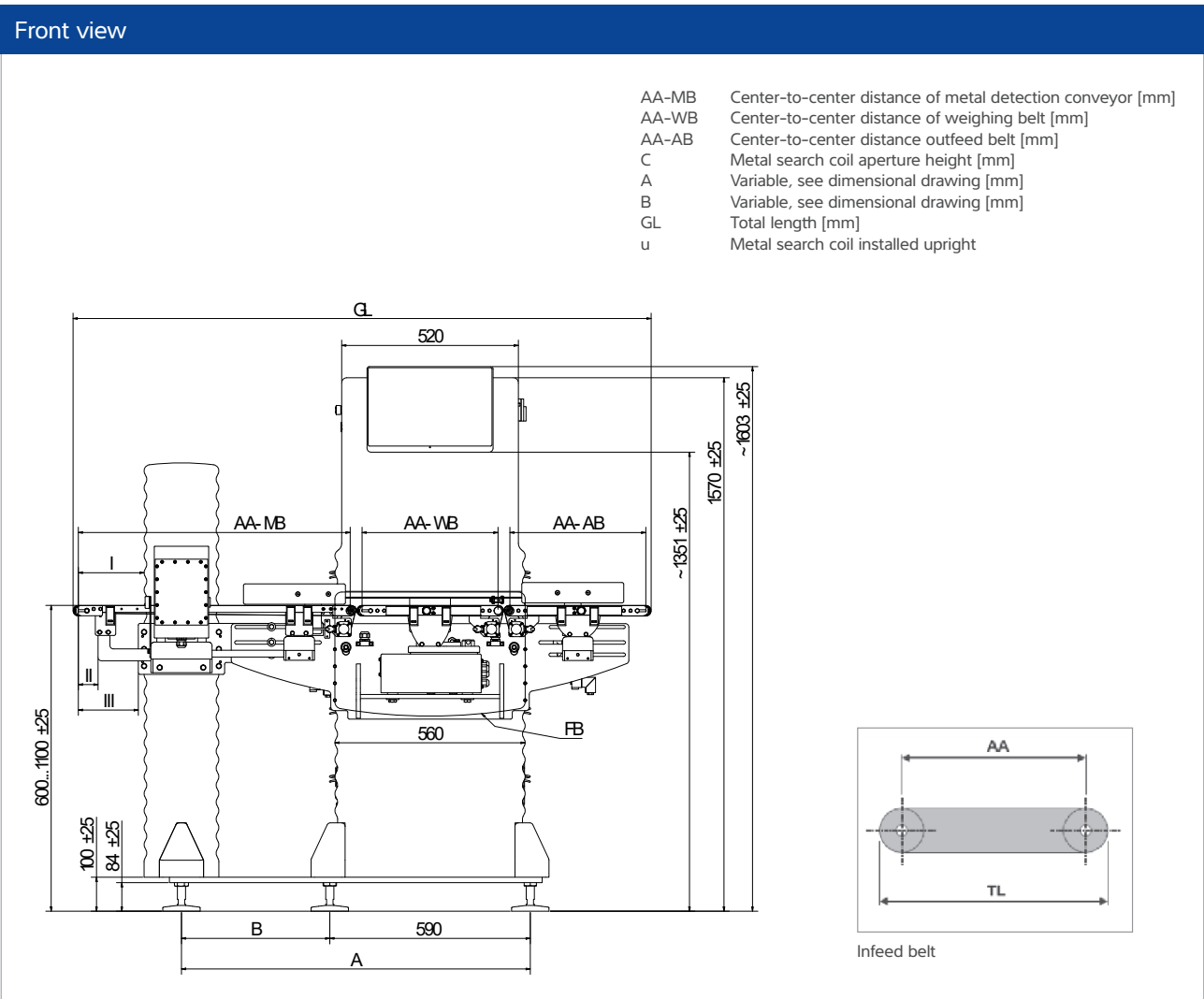
Create your individual checkweigher CoSynus® from a wide range of options and function enhancements. We'd be happy to advise you!

Checkweigher CoSynus® – 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	Pusher or blower (depending on product size)
Weighing belt	Various lengths and widths; Flat and round belt (for 1 kg system); blue and white
Metal detector functions	Product effect minimisation, check using parts, test part check, metal accumulation, negative metal detection

Checkweigher CoSynus® – 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
	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	Isolated output
	Goods flow	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)
	Transfer runways	Only for WS 1 kg
	Options	Wind protector, covers, IP65
Metal detection options	Type of metal detector	Vistus®
	Metal detector functions	Product flow monitoring, metal notification with separate acknowledgement, path cycle metal detector, collection container with password protection (digital lock), external inspection request, collection container fill level monitoring, metal amassment

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

Scale drawings



	Metal search coil aperture height [mm]:	Dimension [mm]
I	90/125/150	193
	200/275u/375u	293
II	90/125/150	57,5
	200/275u/375u	
III	90/125/150	167
	200/275u/375u	267

Dimensions table: WS 1 kg

AA-MB	AA-WB	AA-AB	C	A	B	GL
800	310	300	90	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700

Dimensions table: WS 1 kg

AA-MB	AA-WB	AA-AB	C	A	B	GL
800	310	300	125	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700
800	310	300	150	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700
1,000	310	300	200	1077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900
1,000	310	300	275u	1077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900
1,000	310	300	375u	1077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900

Dimensions table: WS 2/5/7 kg

AA-MB	AA-WB	AA-AB	C	A	B	GL
800	300	300	90	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700
800	300	300	125	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700

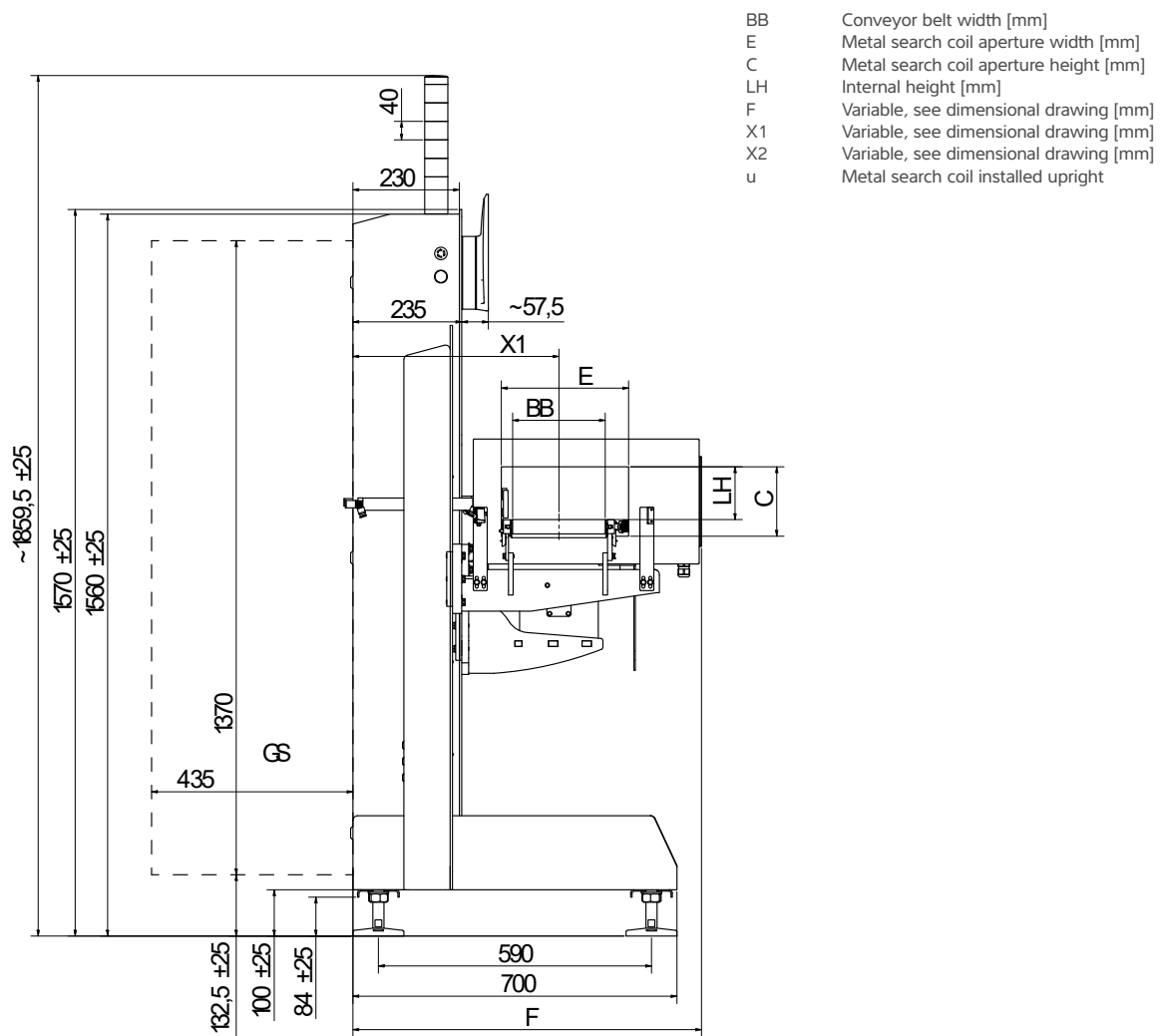
Dimensions table: WS 2/5/7 kg

AA-MB	AA-WB	AA-AB	C	A	B	GL
800	300	300	150	977	387	1,500
		350				1,550
		400				1,600
		450				1,650
		500				1,700
1,000	300	300	200	1,077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900
1,000	300	300	275u	1,077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900
1,000	300	300	375u	1,077	487	1,700
		350				1,750
		400				1,800
		450				1,850
		500				1,900
800	350	350	90	1,002	412	1,600
		400				1,650
		450				1,700
		500				1,750
800	350	350	125	1,002	412	1,600
		400				1,650
		450				1,700
		500				1,750
800	350	350	150	1,002	412	1,600
		400				1,650
		450				1,700
		500				1,750
1,000	350	350	200	1,102	512	1,800
		400				1,850
		450				1,900
		500				1,950
1,000	350	350	275u	1,102	512	1,800
		400				1,850
		450				1,900
		500				1,950

Dimensions table: WS 2/5/7 kg

AA-MB	AA-WB	AA-AB	C	A	B	GL
1,000	350	350	375u	1,102	512	1,800
		400				1,850
		450				1,900
		500				1,950
800	400	400	90	1,027	437	1,700
		450				1,750
		500				1,800
800	400	400	125	1,027	437	1,700
		450				1,750
		500				1,800
800	400	400	150	1,027	437	1,700
		450				1,750
		500				1,800
1,000	400	400	200	1,127	537	1,900
		450				1,950
		500				2,000
1,000	400	400	275u	1,127	537	1,900
		450				1,950
		500				2,000
1,000	400	400	375u	1,127	537	1,900
		450				1,950
		500				2,000
900	450	450	90	1,152	562	1,900
		500				1,950
900	450	450	125	1,152	562	1,900
		500				1,950
900	450	450	150	1,152	562	1,900
		500				1,950
1,100	450	450	200	1,252	662	2,100
		500				2,150
1,100	450	450	275u	1,252	662	2,100
		500				2,150
1,100	450	450	375u	1,252	662	2,100
		500				2,150
900	500	500	90	1,177	587	2,000
			125			2,000
			150			2,000
1100	500	500	200	1,277	687	2,200
			275u			2,200
			375u			2,200

Side view



Dimensions table: WS 1 kg

BB	E	C	LH	F	X1
40	225	90	50	703	420
		125	85		
		150	110		
		200	160	713	
	200	275u	235	610	
		375u	335	610	
80	225	90	50	703	420
		125	85		
		150	110		
		200	160	713	
	200	275u	235	610	
		375u	335	610	

Dimensions table: WS 1 kg

BB	E	C	LH	F	X1
120	225	90	50	703	420
		125	85		
		150	110		
		200	160	713	
	200	275u	235	610	
		375u	335	610	
160	225	90	50	703	420
		125	85		
		150	110		
		200	160	713	
	200	275u	235	610	
		375u	335	610	

Dimensions table: WS 2/5/7 kg

BB	E	C	LH	F	X1
150	225	90	50	703	420
		125	85		
		150	110		
		200	160	713	
	200	275u	235	610	
		375u	335	610	
200	275	90	50	753	445
		125	85		
		150	110		
		200	160	763	
300	375	90	50	853	495
		125	85		
		150	110		
		200	160	863	

Versions

Dimensions table: WS 1 kg

BB x AA [mm]			C
Metal detection conveyor	Weighing belt	Outfeed belt ■	
150 x 800 ■	40 x 310 ■	150 x 300*/350* /400/450/500	90/125/150
	80 x 310 ●		
	120 x 310 ●		
	160 x 310 ○		
150x100 ■	40 x 310 ■	150 x 300*/350* /400/450/500	200/275u/375u
	80 x 310 ●		
	120 x 310 ●		
	160 x 310 ○		

Dimensions table: WS 2/5/7 kg

AA [mm]				C
BB [mm]	Metal detection conveyor ■	Weighing belt ■	Outfeed belt ■	
150	800	300	300*/350* /400/450/500	90/125/150
		350	350* /400/450	
		350	500	
		400	400/450/500	
	1000	300	300*/350* /400/450/500	200/275u/375u
		350	350* /400/450	200/275u/375u
		350	500	90/125/150
		400	400/450/500	200/275u/375u
	900	450	450/500	90/125/150
		500	500	
	1,100	450	450/500	200/275u/375u
		500	500	
200	800	300	300*/350* /400/450/500	90/125/150
		350	350* /400/450	
		350	500	
		400	400/450/500	
	1,000	300	300*/350* /400/450/500	200
		350	350* /400/450	90/125/150
		350	500	200
		400	400/450/500	200
	900	450	450* /500	90/125/150
		500	500	
	1,100	450	450* /500	200
		500	500	

AA Centre-to-centre distance [mm]

u Metal search coil installed upright

■ Belt version

BB Conveyor belt width [mm]

● Circular belt or belt version

*The reject product receptacle on the outfeed belt is axially longer than the outfeed belt itself.

C Metal search coil aperture height [mm]

○ Circular belt version

Dimensions table: WS 2/5/7 kg

	AA [mm]			C
BB [mm]	Metal detection conveyor ■	Weighing belt ■	Outfeed belt ■	C
300	800	300	350* /400/450	90/125/150
		350	500	
		400	400/450/500	
	1000	300	350* /400/450/500	200
		350	500	
		400	400/450/500	
	900	450	450*/500	90/125/150
		500	500	
	1,100	450	450*/500	200
		500	500	

AA Centre-to-centre distance [mm]

u Metal search coil installed upright

■ Belt version

BB Conveyor belt width [mm]

• Circular belt or belt version

*The reject product receptacle on the outfeed belt is axially longer than the outfeed belt itself.

C Metal search coil aperture height [mm]

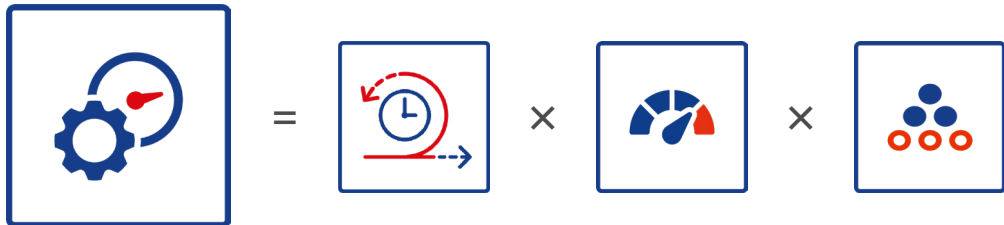
o Circular belt version

The outfeed belt must be at least AA = 400 mm if the machine is ordered in the following version:

- Weighing belt AA = 300, 310 or 350 mm
- Rejection monitoring
- Run-off container incorrect weight

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 identify areas for improvement, reduce downtime, increase productivity and ultimately boost profitability.



Overall Equipment Effectiveness(OEE)

Availability

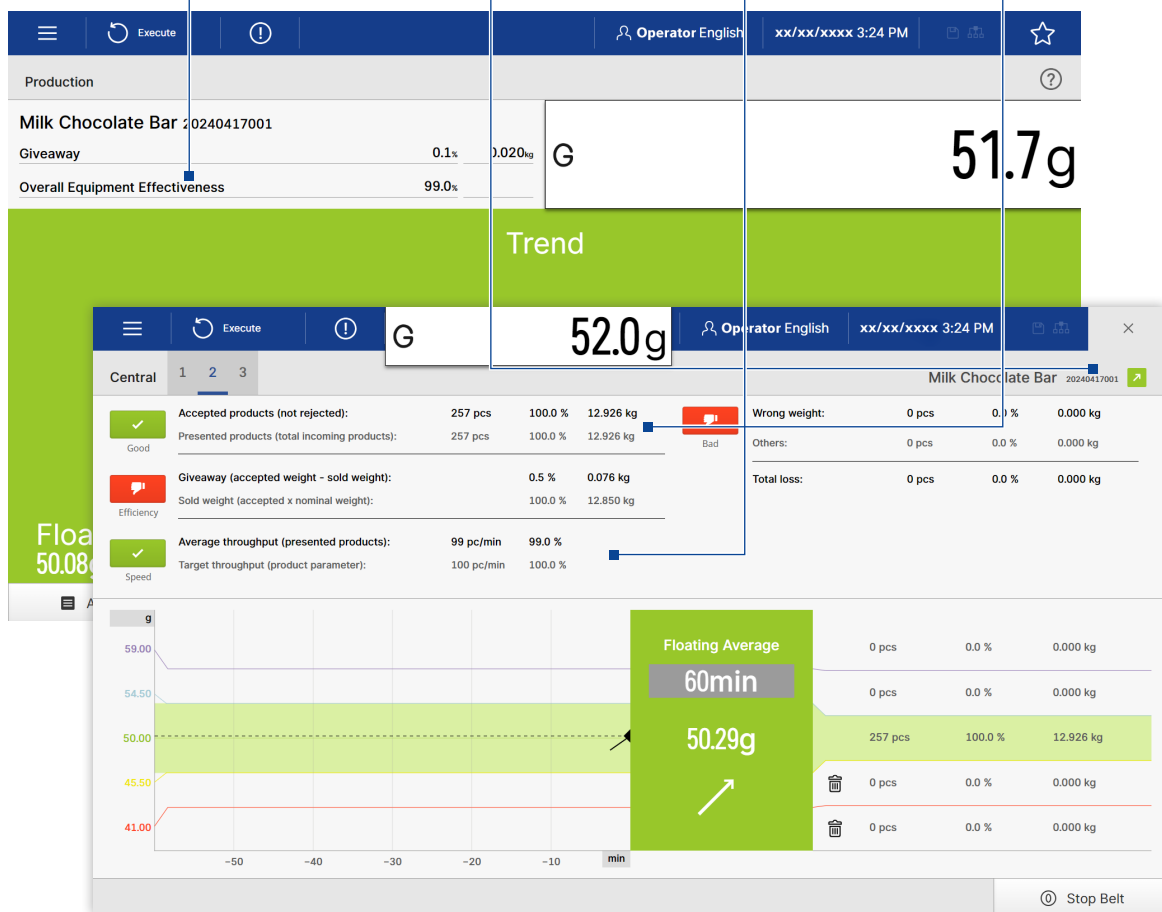
It measures operational time as a fraction of planned production time, accounting for scheduled breaks like lunch, maintenance and cleaning.

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.





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!

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



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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