

X-Series System Manual Part 2:

General safety notes

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1 Proper use

- ▲ The checkweigher has been designed according to the latest technologies in mechanical and electrical engineering and according to recognized safety rules. Nevertheless, the use of this system may imply danger to life and limb of the user or a third party as well as disturbances or damage of the checkweigher and other assets.
- ▲ The checkweigher must be used as intended and only when it is technically in a perfect order, safety rules as well as the operating instructions must be observed in a safety-conscious manner! Any disturbances or faults – in particular those which may affect the safety – must be eliminated immediately.
- ▲ The checkweigher is exclusively suitable for dynamic weighing, or intermittent/static weighing respectively. It is not intended for any other use than this; in particular its use for the transport of persons is forbidden. The manufacturer/distributor cannot be held liable for any damage or injuries which result from improper use. In such a case the user takes own risk.
- ▲ The intended use also implies that the user proceeds in accordance with the operating manual and follows the instructions for inspection and maintenance.
- ▲ Calibration seals applied by the weight and measures authorities must never be broken as this means a loss of the approval!

2 Organizational measures

- ▲ Keep the system manual near the location where the checkweigher is used so that the system manual is always at hand.
- ▲ In addition to the system manual, observe the general rules for the prevention of accidents and all other binding rules or laws for the prevention of accidents and protection of the environment, and ask other staff to do so!
- ▲ State any further duties which may include supervisory tasks or reporting tasks for the sake of the particular organizational situation – e.g. relating to the organization of work, processes, staff – and extend this system manual by such rules.
- ▲ The person to use the checkweigher or to work on it must have read the system manual first, in particular the safety notes manual part. This is especially important for persons who use the checkweigher only occasionally.
- ▲ The personnel should be supervised regularly to ensure that instructions and accident prevention rules of the system manual are observed.
- ▲ The personnel may not have long hair, wear loosely-fitted clothing or jewelry (including rings). Otherwise the person runs the risk of being caught by moving parts.
- ▲ For the sake of safety, all warning signs and symbols on the weighframe must be kept in good condition (check that no such sign or symbol is missing or illegible).
- ▲ For the sake of safety, all warning signs and symbols on the weighframe must always be observed.




- ▲ If there is a fault or a change in the behavior or performance of the weighframe which may affect the safety, the checkweigher must be stopped immediately and the responsible person/supervisor be informed.
- ▲ Do not modify or redesign the weighframe without the prior consent of the manufacturer / distributor, as alterations may affect the safety. This also applies to the installation or adjustment of safety devices and to welding or drilling on bearing parts.
- ▲ Spare parts must comply with the specifications issued by the manufacturer. To ensure this, we recommend that genuine spare parts be used.
- ▲ Should inspection intervals be indicated in the operating manual or otherwise specified, keep such intervals.
- ▲ Suitable tools and other suitable workshop equipment are required for maintenance.

3 Selecting qualified personnel

- ▲ Only reliable persons must be allowed to use the checkweigher or work on it.
- ▲ Use only trained or instructed personnel.
- ▲ Clearly specify the responsibilities of the personnel for operation, preparation, maintenance and repair.
- ▲ Ensure that no unauthorized person uses the checkweigher or works on it.
- ▲ The responsibility of the machine operator must be clearly determined and the machine operator must be enabled to refuse any instructions by a third party if such instructions affect the safety.
- ▲ Personnel that are to be taught, trained or instructed or who are participating in a general training, may only use the checkweigher under the supervision of an experienced person.
- ▲ Only a qualified electrician may work on the electric components of the checkweigher and must supervise any auxiliary staff. Work has to be carried out in accordance with the electrical engineering rules and regulations.

4 Warning labels and safety devices

4.1 Warning and safety labels at the checkweigher

Symbol	Explanation
	Touching forbidden! Danger of crushing or bruises. → Do not touch the sorting device.
	Do not reach into the product flow! Danger of crushing or bruises. → Always keep sufficient safety distance.
 <p> Vor Öffnen des Gehäuses Netzstecker ziehen. Before opening disconnect mains. Avant d'ouvrir l'appareil retirez la fiche mâle. </p>	Warning against dangerous voltage! → Before opening the housing unplug the power plug.

The warning and safety labels are mounted well visible at potentially dangerous positions of the checkweigher, at the control cabinet or at sorting devices.

- Before commissioning the checkweigher familiarize the operating personnel with the potentially dangerous points of the system and point out the meaning of the warning and safety labels.

4.2 Emergency-stop switch (optional)

The emergency-stop switch(es) is / are installed at the control cabinet or at the baseframe so that they are easy to reach.

When the emergency-stop switch is pressed in case of danger the system is stopped immediately:

- Moving parts come to a standstill immediately.
- The system is deenergized.
- The compressed-air supply is switched off and the pressure reduced.

Notes about emergency running and restarting see **X-Series System Manual, Part 3, Chapter 6 "Faults/emergency run"**.

4.3 Behavior in an emergency

- ▲ Initiate the first-aid measures appropriate for the injury.
- ▲ Request qualified medical aid as soon as possible.
- ▲ Protect the injured person against further danger and quieten the person.

5 Safety notes on certain operation phases

5.1 Normal operation

- ▲ Never work in an unsafe or improper manner.
- ▲ Take measures to ensure that the checkweigher is used only when it is in a safe condition and trouble-free.
- ▲ Use the checkweigher only when all protective devices and safety equipment e.g. guards, emergency-off devices (optional), noise absorbers are in the intended locations and operative.
- ▲ Carry out a visual check of the checkweigher at least once during a shift to ensure that visible damages or faults can be recognized. Any occurring changes (including changes in the operating performance) must be reported immediately to the responsible authorities/persons. If necessary, stop and secure the checkweigher.
- ▲ In the case of a malfunction stop the checkweigher immediately and secure it. Have the fault eliminated immediately.
- ▲ For starting and stopping processes and the indicator lamps follow the operating manual.
- ▲ Before switching on or putting into operation the checkweigher, make sure that the running weighframe will not be a danger to anyone.

5.2 Special work, maintenance work as well as fault elimination

- ▲ Observe the adjustment, maintenance and inspection activities and intervals specified in the operating manual, including specifications on replacing parts or part assemblies! This work must be carried out by skilled persons only.
- ▲ Before beginning special work and maintenance work, inform the operating personnel. Determine a supervisor.
- ▲ For any work which concerns the weighframe operation, adaptation to production requirements, conversion or adjustment of the weighframe or its safety devices as well as inspection, maintenance and repair, follow the instructions set out in the operating manual for starting and stopping the weighframe as well as for maintenance.
- ▲ As far as necessary, secure a large area around the maintenance work location.
- ▲ When the checkweigher has been switched off completely for maintenance and repair work, it has to be secured against unintentional or unexpected switching on:
 - Main control devices must be locked and the key removed and/or
 - Place a warning sign next to the main power switch.
- ▲ Only experienced persons must be charged with the hoisting of heavy objects or instructing of drivers of cranes, industrial trucks or other transport vehicles! The directing person must have visual or verbal contact with the driver.

- ▲ For overhead working use safety stages and scaffoldings or other safety devices. Never use the machine parts for climbing or standing on! When maintenance or other work must be effected in greater height, use protective means to prevent you from falling down.
- ▲ Keep all devices, steps, banisters, pedestals, stages, scaffoldings and ladders clean.
- ▲ Before cleaning the weighframe with water or another cleaning solution, cover all openings which must be protected against ingress of water/vapor/cleaning solution for the sake of safety or trouble-free operation, or close them with adhesive tape. In particular electric motors and control cabinets must be protected. Observe the protection class.
- ▲ Remove all covers or adhesive tape when you finished cleaning.
- ▲ After cleaning, check all cables, connectors, compressed air hoses or pipes for leakage, loose connections, rub marks and damage. Clear any fault found immediately/ have any fault found cleared immediately.
- ▲ Remember to fasten all screws and bolts which you had to loosen for maintenance or repair.
- ▲ If setting up, maintenance or repair requires the disassembly of safety devices, the safety devices must be fitted back and thoroughly inspected immediately when the preparation, maintenance or repair has been completed.

6 Information on special risks

6.1 Electricity

- ▲ Only a qualified electrician may work on electric systems, components or process materials and must supervise the staff; and the electrical engineering rules and accident prevention regulations must be observed.
- ▲ If required or stated, the machine and system components must be disconnected from the power supply before inspection, maintenance or repair. First check that the disconnected parts are no longer live, then ground and short-circuit them. Ensure that any live parts which are near them are insulated.
- ▲ The electric equipment of a checkweigher has to be inspected regularly. Any faults – e.g. loose connections or charred cables – must be cleared immediately.

6.2 LaserMarker (option)

- ▲ Use the LaserMarker (optional) for the labeling of product surfaces only in compliance with the safety regulations and the operating manual supplied by the manufacturer.

6.3 Pneumatics

- ▲ Only persons having the required knowledge and experience may work on the compressed air system or components thereof.
- ▲ Check all pipes and lines, hoses and screwed joints regularly for leakage and visible damages. Clear any fault immediately/have any fault cleared immediately.
- ▲ Relieve the pressure of compressed air pipes, hoses or system components to be opened for repair or maintenance before working on them.
- ▲ Compressed air pipes and hoses must be laid and fitted properly. The fittings as well as the length and quality of pipes and hoses must meet the required specifications.

6.4 Noise

- ▲ If required by the applicable noise control legislation, the operator has to ensure that all noise-absorbing elements of the checkweigher are present and in proper position for protection during operation of the system.

6.5 Transport of the checkweigher or the weighframe

- ▲ Use only lifting and transporting devices and equipment with a sufficient bearing force for loading or transporting.
- ▲ Determine an experienced directing person for the lifting/hoisting process.
- ▲ Lift machines correctly with lifting devices in accordance with the operating manual (attachment points for load suspension devices).
- ▲ Only use appropriate means of transportation with lifting capacity; secure load safely.
- ▲ Always disconnect the checkweigher from any external power supply even in case of minor relocations. Before restarting, reconnect the checkweigher properly to the power supply and compressed air supply.
- ▲ Observe the operating manual during restarting.

6.6 Usage of non original Mettler-Toledo Garvens spare parts

Mettler-Toledo Garvens GmbH recommends the usage of original Mettler-Toledo Garvens spare parts to ensure a safe usage according to specifications (see Spare Parts List in this manual). In the case of damages resulting indirectly or directly from the usage of non-original spare parts, all warranty claims are void, i.e. Mettler-Toledo Garvens GmbH is not liable.

7 Safety regulations

- ▲ Please check whether the ratings plate of your checkweigher, or weighframe and weighing terminal respectively, corresponds to your power mains before connecting. Some special designs have to be connected to 400 V three-phase current (5-wire network with N and PE).
- ▲ When the weighing terminal is installed away from the weighframe, please check the ratings plate of your weighing terminal. X-series weighing terminals work with a rated voltage of 24 V (DC).



CAUTION

- ▲ To avoid accidents the device may only be opened by qualified persons under observance of the relevant safety regulations.



CAUTION

The use of frequency inverters can cause leakage currents. The sole use of residual-current-operated circuit breakers is not permitted. Protective grounding is compulsory.

The protective grounding has to be configured in accordance with the current load of the connecting cable. Fixed wiring is compulsory in accordance with VDE 0160.

- Install the protective grounding.
- Configure the system fusing in accordance with the current load of the connecting cable.



DANGER TO LIFE BY ELECTROCUTION

- ▲ Always unplug the power plug or deenergize the system before opening the device or starting maintenance work.
- ▲ Take measures against somebody switching the checkweigher or system on by accident; e.g. lock the distribution/fuse box or control cabinet and place a warning sign on it, if the power supply of the weighframe or weighing system is switched on and off from a remote point such as an electrical distribution or fuse box or a control cabinet.
- ▲ When the checkweigher is equipped ex works with an infeed or outfeed conveyor – or if such a belt conveyor was retrofitted – power is usually supplied to such belt conveyors from electric terminals inside the weighframe's base. Therefore the checkweigher must be disconnected from the power mains before shifting or removing an infeed or outfeed conveyor or the entire weighing system. The cables connections to the infeed or outfeed conveyors have to be carried out by a qualified electrician. After shifting or removing the cables must be connected again by a qualified electrician.
- ▲ The checkweigher must only be connected to a properly grounded safety outlet which complies with the electrical safety standards valid in your country.

**WARNING**

In case of improper or inobservant use of the checkweigher there may be a risk of injury due to running belt conveyors or other parts.

- Always keep sufficient distance if you have long hair or wear loose-fitting clothing (e.g. wide sleeves, scarves, shawls, etc.).
- In event of danger, shut off the checkweigher immediately and disconnect the mains power plug.

**WARNING**

Sorting devices such as ejectors or sorting hatches/belts, etc. react and move abruptly and therefore bear the risk of injury (crushing/bruises). Always keep sufficient safety distance.

- Never reach into the area before or in the sorting device.
- Never reach into the running product flow.
- In event of danger, immediately shut off the checkweigher and disconnect it from the power supply or pull the power plug.

- ▲ No constructional changes may be carried out at the conveyor body. Screwing on or mounting of additional devices or equipment to the conveyor body bears the risk that the checkweigher or conveyor belt units may tilt. In addition, straight running of the transport belt may be lost, resulting in damage to the transport belt and the conveyor body. Please contact the after-sales service of METTLER TOLEDO Garvens if constructional changes are required.
- ▲ The checkweigher is only intended for proper use – as indicated in our order confirmation – meaning the continuous or intermittent weighing of the articles specified in the order confirmation. Any deviating, improper use, will increase the potential danger and is therefore not permitted.
- ▲ If other or unrelated articles are to be weighed or if the ambient conditions of the checkweigher change, contact us for advice. In most cases the checkweigher can be easily adapted or redesigned according to the requirements.

8 Information for the explosion-protected version (option)



- ▲ This chapter provides general information for a checkweigher that is approved for operation in hazardous areas. Special information as well as important certifications (certifications of conformity, certificates, descriptions) are available in **Part 12** of this system manual.
- ▲ When a checkweigher is used in hazardous areas there is an increased danger potential and risk of damage. Explosion-protected checkweighers fulfill a specific equipment category and are correspondingly approved for operation in hazardous areas. See special identification (explosion-protection approval) on the ratings plate of the checkweigher and the declaration of conformity.
- ▲ Particular diligence is required in case of use in such areas. The owner-operator directive ATEX 137 regulates the duties of the owner-operator, such as the installation of the systems (BS EN 60079:14), selection and training of the employees and the updating of the explosion protection document. Country-specific standards and regulations have to be observed.



DANGER TO LIFE THROUGH EXPLOSION

- ▲ The checkweigher and accessories may only be installed, maintained and repaired by the authorized and specially qualified METTLER TOLEDO Service.
- ▲ Solely parts approved by Mettler-Toledo Garvens GmbH (see manual Part 8 – Spare parts list) may be used. Equipment and components that are not approved form an explosion hazard.

METTLER-TOLEDO safety concept for explosion protection

The safety concept for explosion protection consists of the following components:

- Observance of the manufacturer directive 94/9/EC (ATEX 95)
- Ignition hazard assessment (BS EN 134631-1) non-electrical equipment
- Ignition hazard assessment (BS EN 1127-1) electrical equipment

The design and construction conditions for the individual ignition protection categories are described in the respective standards (BS EN 60079 and BS EN 13463) and have to be observed by the manufacturer. Mettler-Toledo Garvens GmbH always assesses the checkweigher in accordance with the most recent standards and cooperates with renowned test institutes as well as notified bodies.



CAUTION

- ▲ Observe **Part 12** of this system manual with special information and certifications on the topic of checkweigher explosion protection.

9 Important notes concerning the operation

- ▲ The weighcell of the weighframe is a very sensitive precision measuring instrument. It must therefore be handled with care. Shocks, jamming, or objects falling on the weighing belt conveyor (weighing table) must be avoided. Never put tools on the weighing belt conveyor. Never step onto or sit on the weighing conveyor.
- ▲ A regular infeed of the objects to be weighed – i.e. product spacing as regular as possible – is a prerequisite for trouble-free weighing.
- ▲ Observe the information for the following points:
 - Transport preparation (see **X-Series System Manual Part 3: Weighframe**, Chapter 1 "Transportation and storage")
 - Installation (see **X-Series System Manual Part 3: Weighframe**, Chapter 3 "Installation")
 - Cleaning and maintenance (see **X-Series System Manual Part 3: Weighframe**, Chapter 4 "Cleaning and maintenance")
 - Optional equipment (see **X-Series System Manual Part 6: Options**)
- ▲ When the line height of the weighframe is to be changed – for example, because the height of the production line in general is changed – please contact the after-sales service.
- ▲ Please note that the replacement or dismantling of the weighing terminal, weighcell or motors must be done exclusively by after-sales service engineers or qualified personnel authorized by METTLER-TOLEDO Garvens. Contact the after-sales service to this purpose.



WARNING

Danger of possibly serious injuries at weighframes of the Sizes 1, 2 and 3

- Never loosen or unscrew the fastening screws of the conveyor body support on the columnar baseframe (control cabinet)!



WARNING

Danger of possibly serious injuries at weighframes of the Sizes 40 and 100

The control cabinet can tilt over when the belt conveyor is removed.

- Before removing the belt conveyor place a wooden block under it or screw the feet to the flooring.

Disposing of used weighers

The modular design of the checkweigher allows for easy dismantling so that the individual parts can subsequently be forwarded to the appropriate recycling facilities.