GARVENS
Checkweighing

X-Series System Manual Part 3:

Weighframes Size 1

Version with metering device and separate catch bin

METTLER TOLEDO

Version check:

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These are the original English instructions for use.

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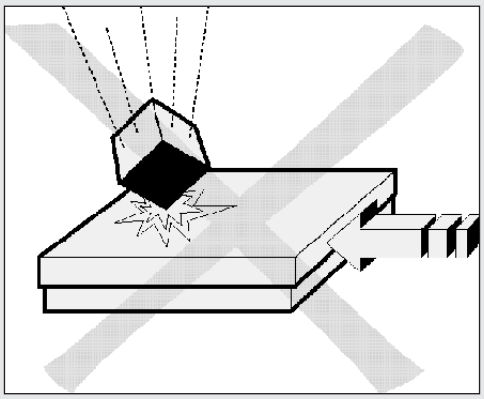
1 Transportation and storage

You should observe the following important points when transporting the weighframe or for storing it.

1.1 The transport of the weighframe

We recommend you not to unpack the weighframe before you reach the location where the weighframe is to be installed, as the crate protects it.

CAUTION RISK OF PROPERTY DAMAGE



▲ The weighing conveyor must not be subject to mechanical impact.

– Avoid bumps to the weighing conveyor!

– Do not let any objects fall on it!

Later transportation

If the crate has already been removed and the weighframe must be transported, hold on to the housing of the weighframe (e.g. the control cabinet) to prevent the weighframe from tilting.

➜ Never hold on to the following parts during transportation:

– weighing conveyor

– infeed and outfeed conveyor

– at the motors

1. Carefully dismount the weighframe for longer transports (see Chapter 3.4 "Abbau der Wägeeinheit" in this part of the system manual).
2. Thoroughly and professionally package the weighframe in order to prevent property damage.

CAUTION

Risk of injury and of damage to property

➜ When the weighframe is transported with an elevating platform truck or a similar cart, the upper portion of the weighframe must be held by one – or better two – persons, to prevent it from tilting.

The weight of a weighframe is considerable, and the center of mass (gravity) varies corresponding to the customized design. We therefore cannot give recommendations for specific lifting points offhand. More detailed information about the center of gravity (i.e. specific to the system ordered) is available in the accompanying papers – in as far as required.

1.2 Transport preparation

1. Switch off the weighframe and have it disconnected from the power supply (mains) by a qualified electrician.
   When the weighframe or weighing system is equipped ex works with an infeed or an outfeed conveyor on separate support frames power is usually supplied to such belt conveyors from electric terminals inside the weighframe's base. To shut off the weighframe in this case, prior to adjusting or relocating an infeed or outfeed conveyor, proceed as follows:

➜ Have the cable connections to the infeed or outfeed conveyor disconnected by a qualified electrician.

CAUTION

The load cell is a sensitive precision measuring instrument; it must not be subject to mechanical impact (shocks etc.). The load cell will be considerably damaged by shocks, irrespective of the direction from where such excessive mechanical impact is exerted on the load cell, or by falling down.

➜ Ensure that any protruding parts such as light barrier holders, etc. are sufficiently protected to avoid them being bent or someone being injured.

➜ Plastic covers should be protected particularly well.

2. Dismount the weighframe as described in Chapter 3.4 "Dismounting the weighframe" and package the weighframe carefully.

1.3 How to store the weighframe, accessories and spare parts

➜ Until the weighframe is to be installed, leave it in its original crate, upright, in a clean and dry room.

➜ Keep all electronic parts that are supplied in anti-static pouches in the latter until they are used. This will protect them best.

2 Overview of the checkweigher

In view of the differing requirements a variety of customer-specific device types are possible, e.g. the start/stop push-buttons for the transport belts and the main power switch can be in a different location as shown below, depending on the weighframe design. Usually those weighframes for lightweight goods are equipped with their own infeed and outfeed conveyors.

The following illustration shows the design of a checkweigher in a simplified manner:

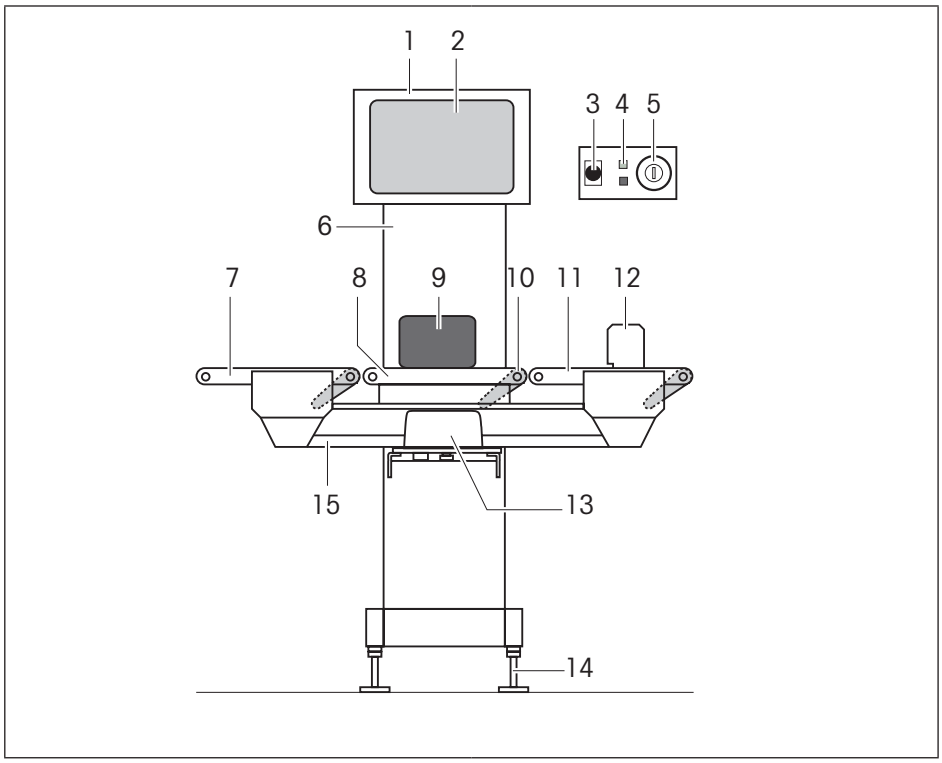


Fig. 1: Schematic design of a checkweigher,
(may deviate from order-specific design)

1 Weighing terminal
2 Display
3 Emergency-stop switch (optional)*
4 Conveyor Start/Stop*
5 Main power switch*
6 Base frame with control cabinet
7 Infeed conveyor
8 Weighing conveyor
9 Product being weighed
10 Motor/drive
11 Outfeed conveyor
12 Sorting device (e.g. pusher)
13 Load cell
14 Footscrew, adjustable
15 Conveyor support

* Depending on device type may be mounted at different positions

Note

Information about the mechanical and electrical installation of weighframes can be found in Chapter 3 "Installation" in this part of the system manual.

The following figure shows a configuration option for weighframes of the X-Series, Size 1:

Fig. 2: Version with 15-inch weighing terminal, optional metering device (left), weighing conveyor cover and optional catch bin on separate frame (right)

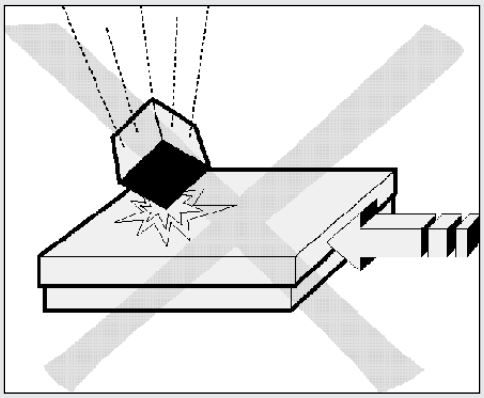
3 Installation

The following points should be observed as they are important when installing or uninstalling the weigher. We recommend that you remove the crate only after the device has reached its final location.

3.1 Mechanical installation of the weighframe

The weighing conveyor has a protective film wrapped around it in the works, for better protection of the weighing mechanism against mechanical impact during transporting.

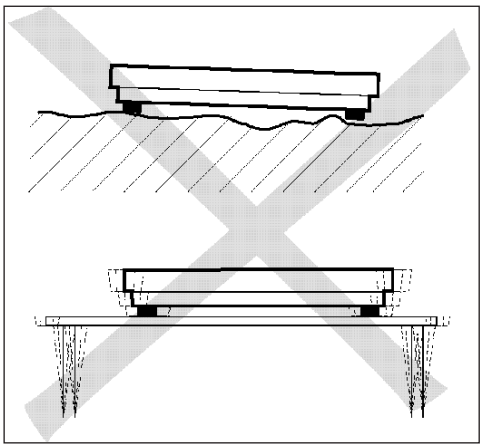
CAUTION RISK OF PROPERTY DAMAGE



- ➜ Do not place any tools onto the weighing conveyor!
- ➜ Do not drop any objects on the weighing conveyor!
- ➜ Do not lift the conveyor support or the weighing conveyor!
- ➜ Force or impacts must be avoided under all circumstances!

3.1.1 Setting up the weighframe

1. Prepare the set up location.



Choose a place where the weighframe is not subject to noticeable vibrations.

Fig. 3: Weigher location requirements

2. Take the weighframe to the place where it is to be installed.
3. Put the weighframe gently down and carefully remove the protective crate.
4. If an air bubble film has been used, remove it carefully from the weighing conveyor and the load cell.

5. Align the weighframe so that it is level by precisely adjusting the footscrews; use the bubble level located in the framework.

Note
We recommend **not** screwing the feet of the weighframe to the floor, but rather fastening the feet of further units with a separate support frame to the floor using screws. Break-through holes are provided in the footcups for this purpose.

CAUTION RISK OF PROPERTY DAMAGE

A transport belt which does not run straight can be damaged or even destroyed.

➜ Within the first few hours after startup frequently check the straight run of the transport belt.

Note
The weighing conveyor must be completely free to move. It must neither touch the infeed nor the outfeed conveyor.

6. Check that the infeed and outfeed conveyors – if any – that have been precisely aligned in the works still are correctly aligned.
7. Align any infeed and/or outfeed belt conveyors used with an own separate support frame by using the adjustable footscrews to form one level with the weighframe in order to ensure smooth product transportation.
8. Secure the footscrews by tightening the lock nuts.

Note
When installing sorting devices that have a support frame of their own, or when installing sorting devices that have a single stand (pillar), make sure to bolt the footcups or the footplate, respectively, to the floor. This will reduce disturbing vibrations.

9. If necessary, readjust the adjustable footscrews of the weighframe.
10. Connect the compressed air hose of the weigher to the pneumatic system (approx. 6 bar). Check the manometer indication: max. 10 bars!

3.2 Electrical installation

DANGER TO LIFE BY ELECTROCUTION

▲ If the unit does not have a power plug, the weighframe must only be connected by a qualified electrician. Observe the wiring diagrams in the **X-Series System Manual Part 9**.

CAUTION

▲ Before connecting the weighframe to the power mains, check whether the ratings plate of the weighframe corresponds to your power mains. Carry out the connection in accordance with the safety standards and regulations valid in your country (also see **X-Series System Manual Part 2**).

➜ Connect the weighframe to the main power supply.

3.3 Accessories

The mounting of optional equipment e.g. draught cover for the weighing conveyor or catch bin is described in the **X-Series System Manual Part 6: Options**.

3.4 Dismounting the weighframe

DANGER TO LIFE BY ELECTROCUTION

▲ The weighframe must be disconnected from the mains by a qualified electrician only!

CAUTION

▲ Ensure that protruding parts such as light barrier holders and the like are sufficiently protected to avoid bending them or somebody being injured.

▲ Plastic covers should be protected particularly well.

1. Switch off the weighframe and have it disconnected from the power supply (mains) by a qualified electrician.

   When the weighframe or the weighing system is equipped ex works with an infeed or outfeed conveyor on separate support frames power is usually supplied to such belt conveyors from electric terminals inside the weighframe's base:

   ➜ Switch off the weighframe and have the cables of the infeed and outfeed conveyor disconnected from the power supply (mains) by a qualified electrician.

2. Dismantle the weighframe in the reverse order as described in Chapter 3.1 "Mechanical installation of the weighframe".

WARNING

The sensitive measuring system will be damaged if subjected to mechanical impacts (e.g. shocks, lifting).

The load cell is a sensitive measuring system. The load cell will be considerably damaged by shocks, irrespective of the direction from where such excessive mechanical impact is exerted on the load cell, or by falling down.

➜ Ensure that the load cell never is subject to major mechanical strains (shocks etc.).

3. Wrap several layers of air bubble film carefully around the load cell and the weighing conveyor and affix a warning sign "Fragile" that is well visible, e.g. a red label, to the conveyor support in order to avoid knocks or lifting.

4 Cleaning and maintenance

▲ Prior to any cleaning or servicing the weighframe must always be disconnected by a qualified electrician.

The cleaning work and simple maintenance work described below may be carried out by technical personnel having sufficient expertise.

4.1 Visual check and cleaning of the weighframe

Recommended inspection interval	What is to be done?
Daily	➜ General visual check of the weighframe

WARNING

Cleaning the weighframe in a hot frame may cause severe damage.

▲ Only moist clean the weighframe when the weighframe is cold. There are no versions suitable for wet cleaning for this checkweigher!

▲ Wait until the motors have totally cooled down before cleaning.

WARNING

▲ Never use a high-pressure jet for cleaning the weighframe.

▲ For cleaning of the weighframe and the weighing terminal use mild, non-abrasive detergents only. Never use strong solvents, pure alcohol, concentrated acids or bases.

▲ Be particularly careful when cleaning the load cell in order not to damage the load cell and to prevent moisture from penetrating into the load cell.

➜ Clean weighframe and weighing terminal with a soft cloth, moistened with a mild solution of water and a detergent, e.g. a usual household detergent for glass and plastic.

4.2 Visual check and cleaning of light barriers

Recommended inspection interval	What is to be done?
Weekly	➜ General visual check ➜ If necessary, clean the light barriers

Note
Always keep light barriers (light sensors, photocells, reflectors, if any) clean. Dust, dirt or condensation on the optical parts may cause malfunctions.

➜ If necessary, clean wipe the light barriers with a soft, slightly moist cloth or a cotton swab.

4.3 Visual check of gaskets/seals

Recommended inspection interval	What is to be done?
Monthly	➜ General visual check ➜ If necessary, replace gaskets/seals

➜ Ensure that the seals of covers such as doors and flaps, or gaskets of optional indicator light glasses (caps) are in a good condition.

4.4 Check of the compressed air supply

Compressed air must always be clean and dry; otherwise the function of pneumatic parts (e.g. ejectors or swing gates) may be affected and excessive wear of these parts may be caused.

Recommended inspection interval	What is to be done?
Weekly	➜ General visual check ➜ Check of the compressed air supply

1. Regularly check the compressed air supply.
2. Regularly check the pressure hose leading to the weighframe.
3. Have damaged or worn connecting hoses replaced immediately.
4. Check the manometer for the correct pressure setting:
   6 bar (maximum 10 bar!).

Checking the inspection glass

Regularly check the inspection glass of the water separator on the compressed air inlet of the system.

Recommended inspection interval	What is to be done?
Monthly	➜ General visual check of the inspection glass ➜ Draining the condensate

WARNING

Risk of injury

▲ Turn off the compressed air supply before servicing/working on the pneumatic cylinder(s), solenoid valve(s) or before loosening any pneumatic couplings, connectors and the like.

1. If condensate has accumulated in the inspection glass, turn off the compressed air supply, loosen the drain screw – located at the bottom of the inspection glass – and remove it and let the condensate drain into a container.
2. After draining, put the screw back in and tighten it by hand.

4.5 Check of the belt conveyors

WARNING

Risk of injury

➜ Never loosen or unscrew the fixation screws of the belt conveyors on the columnar baseframe (control cabinet).

The weighing conveyor is usually equipped with elastic belts. Depending on the version these are one or more narrow strap belts or an elastic full belt (flat belt).

Note
Depending on the order-/product-specific version of the weigher it is possible that the infeed and/or outfeed conveyor do not have the described and depicted models and sizes. However, they correspond to a great extent to the weighing conveyor described in this manual.

In such a case the maintenance and cleaning information specified for the weighing conveyor also apply correspondingly for the infeed and/or outfeed conveyor. Infeed and outfeed conveyors can also be equipped with non-elastic belt types.

4.5.1 Cleaning the transport belts and checking the wear

Keep the transport belts and transition plates (if any) clean at all times.

Recommended inspection interval	What is to be done?
Daily	➜ General visual check of the belt conveyors ➜ Replace worn belts immediately

➜ Wipe transport belts (and any transition plates) with a soft, moist cloth using a mild solution of water and a detergent, e.g. a usual household detergent for glass and plastic. This helps keeping the glide plates under the belts clean and smooth.

Note
There are no parts or points on the belt conveyors that require lubrication.

CAUTION

Excessive wear and vibration due to grinding belt conveyors!

➜ Avoid any contact of the belt conveyors and protective devices or transition plates.

➜ Check the transport belts every day for a trouble-free state and straight run.

➜ Regularly check protection devices (if present) to ensure that they fit correctly and are in proper condition.

4.5.2 Checking, centering and replacing elastic belts

As time passes, elastic belts can lose their elasticity and no longer run centered.

Recommended inspection interval	What is to be done?
Weekly	➜ Check the elasticity and set the straight centered run of the transport belts.

Checking the elasticity

Fig. 4: Elastic belt: Example with individual strap belt

Elastic belts cannot be retensioned.

➜ In case of a recognizable loss in elasticity or optical signs of wear replace the elastic belts.

Centering the elastic belts

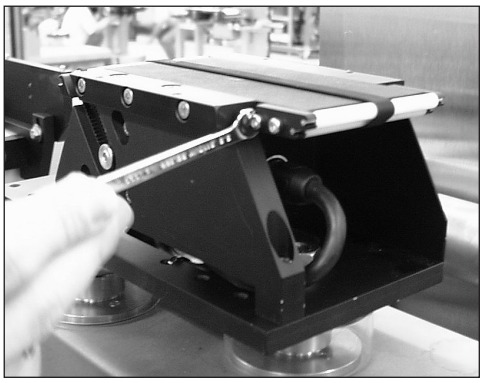


Fig. 5: Lateral adjusting screws

In the case of elastic belts the adjusting screws at the deflection rollers serve to adjust the free movement of the roller and to adjust the straight run of the transport belt.

➜ Center the elastic belts.

CAUTION

Damage to the transport belt

➜ Do not bend the transport belt.

➜ Take edges and projecting parts at the conveyor body into account.

➜ Do not overstretch the new belt.

Replacing elastic belts

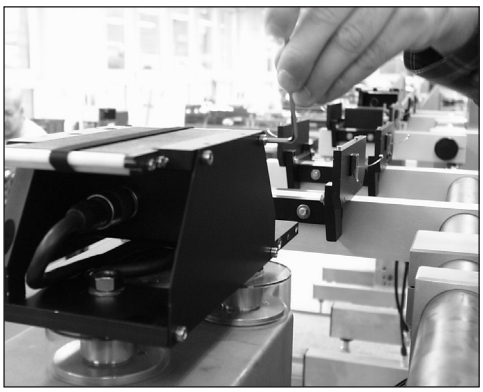


Fig. 6: Screw off the lateral support plate

1. Remove the cover (if any) from the belt conveyor.
2. Screw out the four hexagon screws of the lateral support plate and remove the support plate.

CAUTION

Be sure to avoid any force or impact on the weighing conveyor and load cell.

Fig. 7: Replacing the transport belt

3. First carefully pull off the elastic belt sideways from the drive roller.
4. Then remove the elastic belt from the idle roller.
5. Mount the new elastic belt in the reverse order: First push the elastic belt onto the idle roller, then onto the drive roller.
6. Check that the infeed and outfeed conveyors – if any – that have been precisely aligned in the works still are correctly aligned.

Note

The weighing conveyor must be completely free to move. It must neither touch the infeed nor the outfeed conveyor.

CAUTION RISK OF PROPERTY DAMAGE

A transport belt which does not run straight can be damaged or even destroyed.

➜ Within the first few hours after first startup frequently check the straight run of the transport belt.

7. Check the new elastic belt for correct running and if necessary correct so that it runs straight and centered.

Note

If the belt adjusting screws were adjusted in the past to center the old elastic belt, carry out a test run after the new elastic belt has been pulled on.

4.5.3 Checking the tension of non-elastic transport belts

Most belt types expand a little during use.

Recommended inspection interval	What is to be done?
Weekly	➜ Check the belt conveyors for sufficient belt tension

Belt tensioned sufficiently

Fig. 8: Sufficient belt tension (one-finger rule)

➜ Switch off the belt conveyors.

The following indications can be used to check the belt tension:

➜ Put the tip of a finger under the edge of the belt (at approx. halfway between its rollers). If only the edge of the belt can be lifted off the glide-plate underneath, this means that the belt tension is sufficient.

Belt still tensioned sufficiently

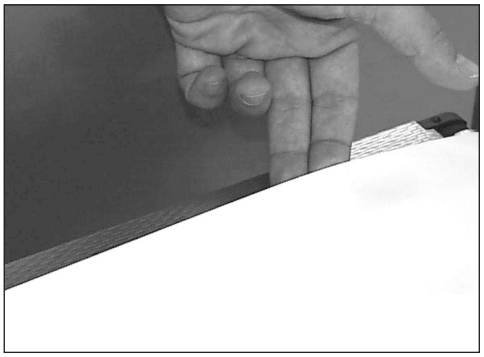


Fig. 9: Belt tension still sufficient (two-fingers rule)

➜ If two fingers can be pushed under the transport belt, this means that the belt tension is still sufficient.

A clear indication for a too slack transport belt is slipping of the running belt at normal loads (i.e. when a typical product is put on the conveyor).

4.5.4 Retensioning non-elastic transport belts

Notes

- Tension the belts with the belt tensioning devices only as much as it is necessary to prevent slip of the transport belt when they are charged with a usual load. Excessive tensioning will cause rapid wear of the belts and at the deflection roller bearings.
- The transport belts have to run centered and straight.
- For retensioning of a transport belt the conveyor body needs **not** to be dismounted.

METTLER-TOLEDO Garvens recommends an annual inspection of the conveyor system – rollers, belts, etc. – by the after sales-service.

A belt tensioning screw for tensioning the transport belt is located at each side of the idle roller (at the conveyor body side section).

Fig. 10: Example: Belt tensioning screw at the infeed conveyor

➜ Turn the two belt tensioning screws to the same extent clockwise (one full turn each initially).

This increases the belt tension as the deflection roller is pulled outward a little further by the tensioning screws. Repeat this step if necessary.

Note

If you fail to retension both sides to the same extent, the belt will not run centered and straight afterwards.

4.5.5 Replacing non-elastic transport belts

In order to replace the transport belt, the belt conveyor has to be removed first.

Removing the belt conveyor

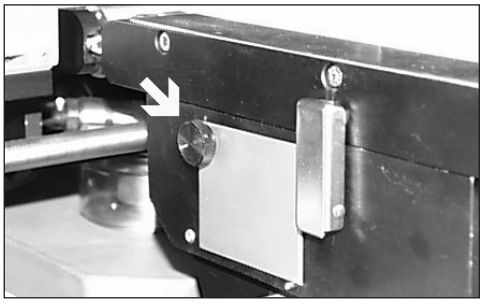


Fig. 11: Knurled screw of the toothed belt cover

1. Remove the cover, if any, from the belt conveyor.
2. If there is a transition plate to the neighboring belt conveyor, unscrew and remove the plate.
3. Loosen and unscrew the knurled screw (arrow) of the cover of the drive pulley and the toothed belt. Remove the cover plate.

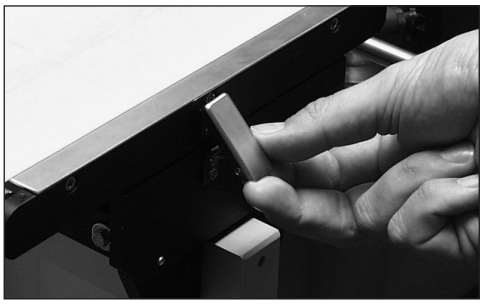


Fig. 12: Quick-release

4. Fold up and hook out the closure clips of the conveyor body quick-release at the operating side and at the conveyor body rear.

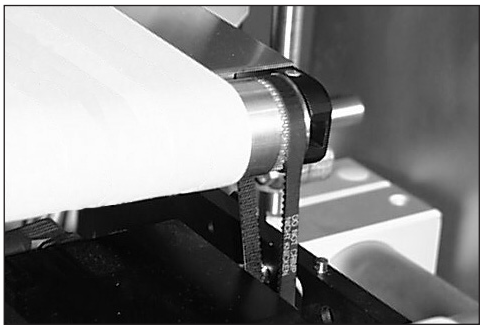


Fig. 13: Removing the belt conveyor

5. Lift the belt conveyor vertically upwards out of the centering pins of the conveyor body support as far as the toothed belt allows.
6. Hold the conveyor body with one hand and move it so that the pulley of the drive roller at the conveyor body is located directly over the pulley of the motor.

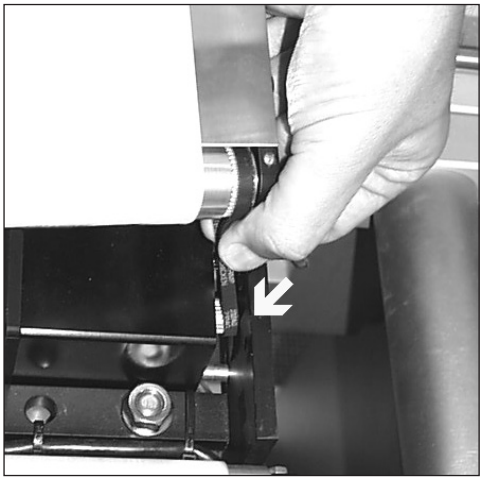


Fig. 14: Removing the toothed belt

CAUTION

Danger of a fabric break of the toothed belt

➜ Do not bend the toothed belt excessively when removing it!

7. Use your free hand to press the toothed belt together at the center (arrow) and remove it from the motor pulley.

Replacing the transport belt

Fig. 15: Belt tensioning screws

1. Lay the conveyor body aside on a scratch-resistant clean surface.
2. Turn the tensioning screws of the tensioning device counterclockwise until the belt relaxes notably.

Fig. 16: Removing the transport belt

CAUTION

Deflection rollers are only positioned loosely in the side parts and can be damaged if they fall out.

➜ Ensure that the deflection rollers do not fall out after removing.

3. Place the conveyor body upright on its drive-end longitudinal side so that the deflection rollers stand vertically.
4. Pull the transport belt carefully out upwards.

5. Mount the new transport belt in the reverse order.
6. Tension the transport belt.
7. Check that the infeed and outfeed conveyors – if any – that have been precisely aligned in the works still are correctly aligned.

Note
The weighing conveyor must be completely free to move. It must neither touch the infeed nor the outfeed conveyor.

CAUTION RISK OF PROPERTY DAMAGE

A transport belt which does not run straight can be damaged or even destroyed.

➜ Within the first few hours after first startup frequently check the straight run of the transport belt.

8. Check whether the transport belt runs correctly and if necessary correct using the belt tensioning screws.

4.6 Checking and replacing the drive rollers and idle rollers

4.6.1 Cleaning the drive rollers and idle rollers and checking for wear

Check the drive and idle rollers of the weighing conveyor as well as those of the infeed and outfeed conveyor.

Recommended inspection interval	What is to be done?
Every 250 operating hours	➜ Check for cleanliness and free movement

Note
The transport belts have a drive roller and two idle rollers. The idle roller lying on the outside is called the "Nose roller", but is identical with the idle roller lying on the inside.

➜ If the pivot bearing of a roller does not run smoothly, replace the corresponding roller.

➜ Clean the drive roller and idle rollers with a soft cloth, moistened with a mild solution of water and a detergent, e.g. a usual household detergent for glass and plastic.

4.6.2 Replacing the drive roller or idle roller at the weighing conveyor

CAUTION

Deflection rollers are only positioned loosely in the side parts and can be damaged if they fall out.

➜ Ensure that the deflection rollers do not fall out after removing.

Replacing the drive roller

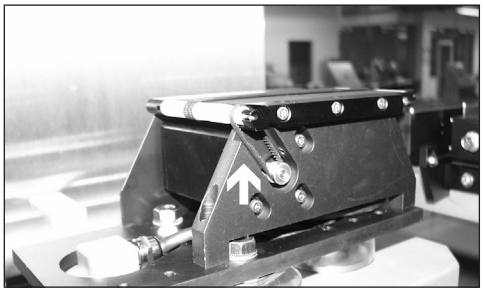


Fig. 17: Toothed belt

1. Remove the transport belt as described in Chapter 4.5.

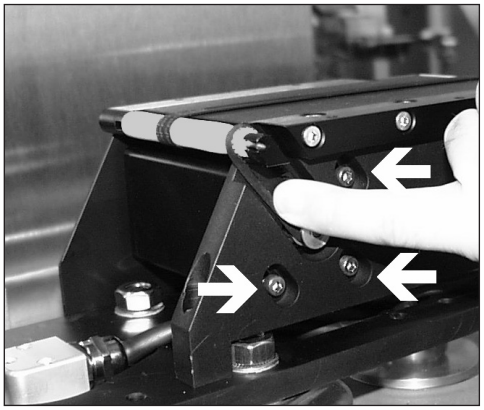


Fig. 18: Hexagon screws of the motor fixation

Remove the toothed belt (arrow) **carefully** as follows:

2. Loosen the three M4 hexagon screws of the motor fixation (arrow) **slightly**.
3. Slide the motor by a few millimeters toward the drive roller until the toothed belt can be removed lightly.
4. Remove the toothed belt.

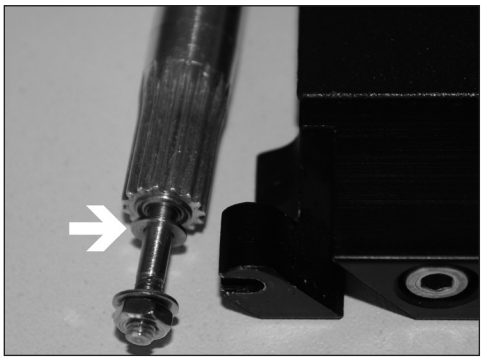


Fig. 19: Hat-shaped spacer

5. Loosen the hexagon nuts at the end of the drive roller axle slightly.
6. Remove the old drive roller.
7. Insert the new drive roller. Ensure the the hat-shaped spacer (arrow) lies tight to the roller when inserted.

8. Tighten the hexagon nut of the new drive roller with the washer slightly. Do not use excessive force.
9. Check whether the drive roller can be turned easily without resistance, otherwise install a new one.
10. Lay on the toothed belt.
11. Tension the toothed belt by shifting the motor aside (away from the drive roller by a few millimeters) until the recommended belt tension is obtained, see Chapter 4.7.
12. Tighten the three M4 hexagon screws of the motor fixation.

Replacing the idle roller

Note

In the case of the version with two idle rollers the procedure is identical for the idle roller lying on the inside and on the outside ("Nose roller").

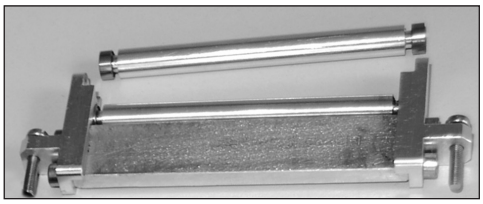
CAUTION
Deflection rollers are only positioned loosely in the side parts and can be damaged if they fall out.

➜ Ensure that the deflection rollers do not fall out after removing.

Fig. 20: Removing the idle roller holder

1. Remove the transport belt as described in Chapter 4.5.
2. Carefully pull out the roller holder out of the conveyor body slots (see Figure 20).
3. Lay the roller holder with the two rollers onto a completely flat and clean working surface.
4. Screw out the belt tensioning screw at one side of the roller holder.

The two hexagon screws lying behind become accessible.



5. Screw out the hexagon screws.
6. Remove the side part of the roller holder.
7. Remove the idle roller lying on the inside and/or outside ("Nose roller").

Fig. 21: Metal strip between the left- and right-hand side part

Note

Do not hold the roller holder or its components in your hand during mounting because the side part of the roller holder has to lie exactly at the metal strip, see Figures 21 to 23.

8. Insert the new idle roller.

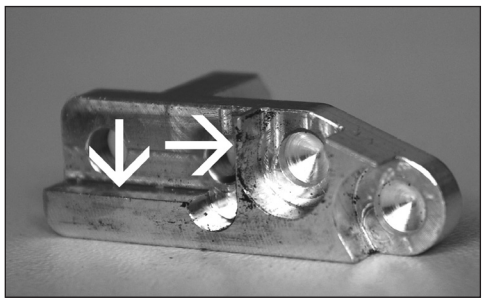


Fig. 22: Contact surfaces for side surface and bottom of the metal strip

CAUTION

Increased wear, disturbing vibrations and weighing imprecisions through imprecise assembly of the precision module.

➜ Ensure torsion-free assembly.

9. Lay the top of the roller holder (side part) downwards onto a completely flat and clean working surface.

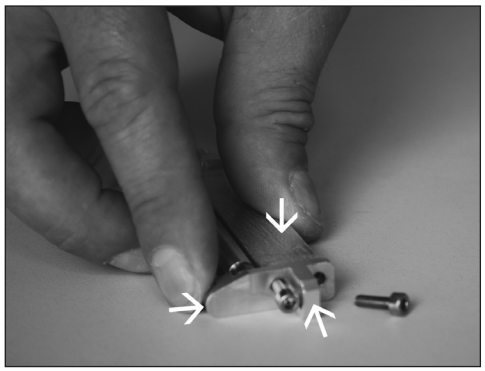


Fig. 23: Assemble and mount hexagon screws

10. Press the side part against the front end of the metal strip and at the same time press the metal strip down from above.
11. Screw in the two hexagon screws.
12. Screw in the belt tensioning screw at the side of the roller holder.
13. Insert the roller holder in the slot of the conveyor body.
14. Pull on the transport belt.
15. Attach the lateral support plate at the weighing conveyor.
16. Tighten the hexagon screws carefully and without force.
17. Check the alignment of the infeed and outfeed conveyors – if any.

Note

The weighing conveyor must be completely free to move. It must neither touch the infeed nor the outfeed conveyor.

CAUTION RISK OF PROPERTY DAMAGE

A transport belt which does not run straight can be damaged or even destroyed.

➜ Within the first few hours after first startup frequently check the straight run of the transport belt.

18. Check whether the transport belt runs correctly and if necessary correct using the belt tensioning screws.

4.6.3 Replacing the roller at the infeed or outfeed conveyor

Fig. 24: Replacing a roller

1. Remove the transport belt as described in Chapter 4.5 and take off the roller.
2. Insert the new roller into the side parts of the conveyor body and mount the belt conveyor in the reverse order.
3. Tension transport belt, see Chapter 4.5.4, and check for straight, centered run.

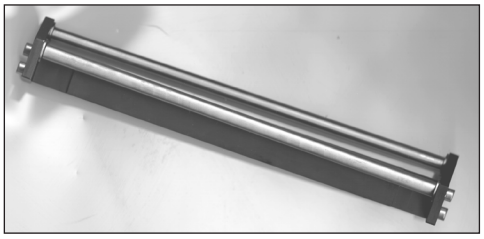


Fig. 25: Idle roller as a "Nose roller" unit

Note

If the idle roller is designed as a "Nose roller" unit, the complete unit can be pulled out of the conveyor body and replaced (see Figure 25).

➜ After mounting tension the belt, see Chapter 4.5.4, and check for straight, centered run.

CAUTION RISK OF PROPERTY DAMAGE

A transport belt which does not run straight can be damaged or even destroyed.

➜ Within the first few hours after first startup frequently check the straight run of the transport belt.

4.7 Checking and maintenance of the toothed belt

4.7.1 Inspection interval

Recommended inspection interval	What is to be done?
Monthly or after a maximum of 250 hours of operation	➜ Check the tension of the toothed belt of all belt conveyors of the weigher. ➜ Inspect any existing protective covers. ➜ Replace worn toothed belts immediately

4.7.2 Checking, retensioning and replacing the toothed belt at the weighing conveyor

CAUTION

Increased wear, disturbing vibrations and weighing imprecisions through defective toothed belt

➜ Ensure that the toothed belt does not rub against anything and no teeth are missing at the inner side of the toothed belt.

➜ If necessary, replace the toothed belt.

Checking the toothed belt

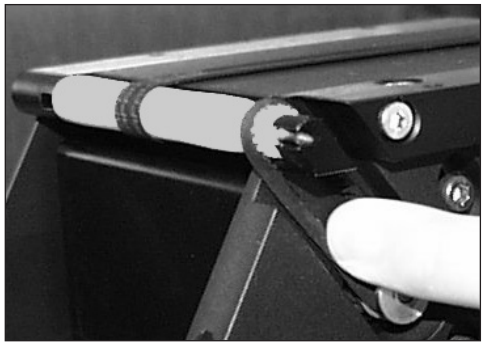


Fig. 26: Checking the toothed belt tension

1. Remove the cover, if any, from the weighing conveyor.

Note

It must be possible to turn the toothed belt at the weighing conveyor in the middle by 90° in its longitudinal axis by pressing it slightly with a finger (see Figure 26).

2. Check the tension of the toothed belt.

Note

For maximum durability of the toothed belt: The toothed belt should not sag, but it should be just so tight that no slippage occurs.

Retensioning the toothed belt

Fig. 27: Motor fixation of the weighing conveyor

1. Remove the cover, if any, from the weighing conveyor.
2. Loosen the three M4 hexagon screws of the motor fixation (see Figure 27) **slightly**.
3. Tension the toothed belt by shifting the motor aside (away from the drive roller by a few millimeters) until the recommended belt tension is obtained (see above).

Replacing the toothed belt

Fig. 28: Hexagon screws of the motor fixation

1. Loosen the three M4 hexagon screws of the motor fixation (arrow) **slightly**.
2. Slide the motor by a few millimeters toward the drive roller until the toothed belt can be removed lightly.
3. Remove the old toothed belt from the drive roller.

CAUTION

Damage to the toothed belt

➜ Do not bend the toothed belt.

➜ Do not overstretch the toothed belt.

4. Lay the new toothed belt onto the motor pulley.
5. Lay the toothed belt with motor pulley carefully onto the drive roller.
6. Tighten the three M4 hexagon screws of the motor fixation.
7. Check the tension of the toothed belt (see above).

4.7.3 Checking, retensioning and replacing the toothed belt at the infeed or outfeed conveyor

Checking the toothed belt

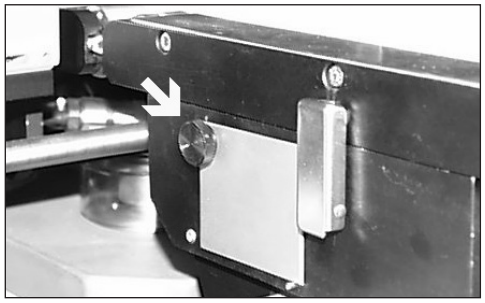


Fig. 29: Knurled screw of the toothed belt cover

1. Remove the cover, if any, from the belt conveyor.
2. If there is a transition plate to the neighboring belt conveyor, unscrew and remove the plate.
3. Loosen and unscrew the knurled screw (arrow) of the cover of the drive pulley and the toothed belt. Remove the cover plate.

CAUTION

Increased wear, disturbing vibrations and weighing imprecisions through defective toothed belt

➜ Ensure that the toothed belt does not rub against anything and no teeth are missing at the inner side of the toothed belt.

4. If necessary, replace the toothed belt.
5. Check the tension of the toothed belt.

Retensioning the toothed belt

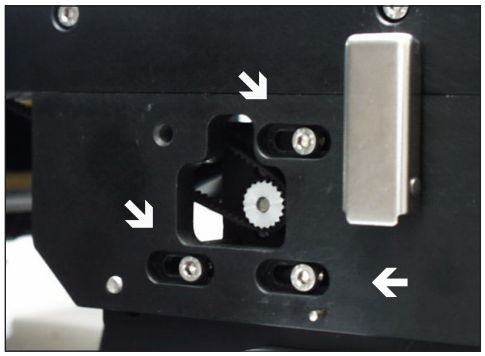


Fig. 30: Motor fixation of the infeed or outfeed conveyor

1. Loosen the three M4 hexagon screws of the motor fixation (see Figure 30) at the infeed or outfeed conveyor **slightly**.

Note

For maximum durability of the toothed belt: The toothed belt may not sag in the middle (half way between the pulleys) by more than 2 mm, but at least by 1 mm when pressed with the thumb.

2. Tension the toothed belt by shifting the motor aside (away from the drive roller by a few millimeters) until the recommended belt tension is obtained.
3. Tighten the three M4 hexagon screws again.

Replacing the toothed belt

Fig. 31: Replacing the toothed belt

1. Remove the belt conveyor as described in Chapter 4.5.
2. Place the belt conveyor upright on its longitudinal side so that the toothed belt is located at the top.
3. Pull the drive roller slightly upward out of the transport belt and remove the toothed belt.
4. Mount the new toothed belt and insert the drive roller back into its adapter.
5. Remount the transport belt in the reverse order.

4.8 Spare parts and warranty

CAUTION

For reasons of safety and warranty the replacement of a motor, of the weighing terminal or the load cell must be carried out only by the after-sales service or qualified technical personnel authorized by METTLER TOLEDO Garvens.

➜ Please contact our ServiceLine for information concerning appropriate training, if you want to carry out such maintenance works yourself.

Note

Keeping spare parts in stock – i.e. in particular those parts which are normally subject to wear – can help to reduce downtime in the case of a failure. Contact us for advice.

Information about cleaning and maintaining optional devices at the weighframe is available in **X-Series System Manual Part 6: Options**, in as far as such options and accessories require supplementary or specific information about cleaning and maintenance.

5 Operating modes

Note
Information about changing the weigher to a different article is available in the next chapter with regard to the weighframe and in the corresponding **X-Series System Manual Part 4: Weighing terminal** with regard to the weigher parameters (article settings).

5.1 Starting the production (dynamic weighing)

CAUTION

▲ Observe the safety regulations when switching on the weighframe.

1. Switch on the weighframe with the main power switch.

Note
If the weighframe is switched on and off from a remote point, switch it on using the respective control system.

2. After the weighing terminal's short start-up phase has taken place, check that the right package (i.e. package memory location) is active.
3. If necessary, change the article (**X-Series System Manual Part 4: Operating instructions for weighing terminal**, Chapter 5.1).

CAUTION

▲ Observe the safety regulations when starting the conveyor.

4. Touch the START button on the basic screen of the weighing terminal in order to switch on the belt conveyors. Prerequisite is a corresponding version of weighframe and weighing terminal.

   – or –

   In case of designs for external controlling, switch on the belt conveyors via the external control system.

   – or –

   Press the conveyor START push-button (located on the weighframe) to turn on the belt conveyors.

5.2 Ending the production

CAUTION

▲ Observe safety regulations when stopping the conveyors.

1. Touch the STOP button on the basic screen of the weighing terminal in order to switch off the belt conveyors. Prerequisite is a corresponding version of weighframe and weighing terminal.

   – or –

   In case of designs for external controlling, stop the belt conveyors via the external control system.

   – or –

   Press the conveyor STOP push-button (located on the weighframe) to switch off the belt conveyors.

2. To be on the safe side, it is recommended that any existing auxiliary/accessory equipment (such as ticket printers or Garvens PrintCard) be checked for existing data (production results) or print jobs which are important for the documentation of the production.

CAUTION

▲ Observe the safety regulations when switching off the weighframe.

3. Switch off the weighframe by using its main power switch.

Note
If the weighframe is switched on and off from a remote point, switch off by using the respective control system.

5.3 Behavior of the weigher after a failure of the energy supply

Power supply

After a power failure the belt conveyors of the weighframe remain stopped. The weighframe does not restart automatically when the power supply returns.

The operating procedure corresponds to the operating procedure after the main power switch has been switched on, see Chapter 5.1 "Starting the production (dynamic weighing)".

6 Faults/emergency run

If you wish to contact the after-sales service/ServiceLine due to persistent problems, please have as much information at hand as possible:

- Type (model)
- Serial number
- Year of manufacture
- METTLER TOLEDO Garvens order number and date, if known
- Displayed software version of the weighing terminal
- Precise wording of the displayed error message or detailed fault description, respectively

This helps us to avoid delays in helping you.

6.1 System messages

In the info field of the basic screen at the weighing terminal error and fault messages are displayed in plain text. These provide information about certain processes or malfunctions.

A list of error messages with the description of cause and remedy can be found in the **X-Series System Manual Part 4: Weighing Terminal**, Chapter 10.

6.2 Emergency run

In case of any fault occurring at your METTLER TOLEDO Garvens weighframe, an emergency run function can be activated so that the products continue to be transported on a belt conveyor while the weighing function does not function. All weighframes feature this emergency run circuit.

Note
The weighing function of the checkweigher and all other functions normally available are deactivated in the case of emergency run; only the conveyors are running in order to transport the items.

CAUTION

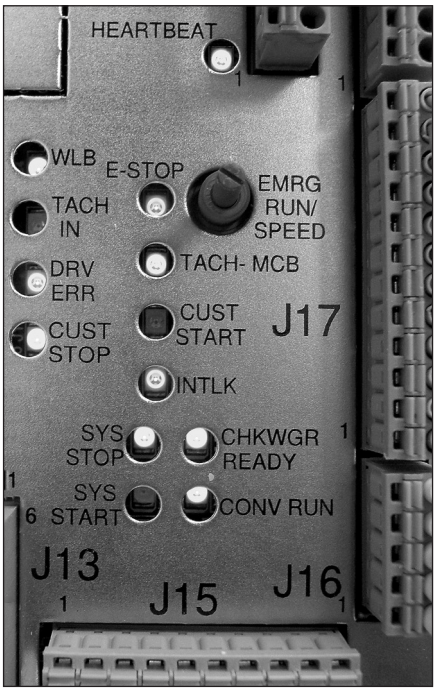
After the control cabinet has been opened, live parts become accessible!

➜ The weighframe must be opened by a qualified electrician only.

The **Emergency run switch** for controlling the speed during the emergency run is located in the control cabinet on the XRTC module.

1. Open the door of the control cabinet.

The XRTC module can be located easily by means of the following figure:



The button beside the caption EMRG RUN/SPEED which is located top right is a speed controller with integrated switch for the emergency run.

2. In the case of a malfunction slightly turn the blue button.

You feel a slight resistance. After overcoming this resistance the controller can be turned continuously.

3. Press the conveyor start button (button "I") on the weighframe.

4. Set the desired speed for the emergency run.

Note
The electronic equipment belonging to the emergency run function can also be designed as a separate unit, if necessary, outside the control cabinet.

7 Technical data

7.1 Weighframe

Material of the standard design	Framework, control cabinet and pillar made of stainless steel, different (customized) versions possible.
Protection class of the weighframe	Impermeable to dust and splash water in accordance with IP 54
Electromagnetic environmental classification	E2
Compressed air connection	1/4 inch (1/4"), 6 bar
Permissible operating temperature	0 to +40 °C
Noise emission	Less than 70 dB(A)
Power connection of the weighframe	230/115 VAC ±10%, 50/60 Hz, single phase
Weighframe power consumption	approx. 200 VA

7.2 External components and connections

Interfaces	At least: 2 x serial (COM1 and COM2, depending on design RS-232-C, RS-422-A, RS-485, CL20), PS2, Ethernet, 2 x USB (expandable via hub)
Printer and external storage media	Connection via interfaces; technical design depends on configuration

7.3 Weighing functions

Main function	Dynamic weighing with displaying of weights as well as weight classification and automatic sorting/rejecting of the weighed goods; with various options (depending on the ordered customized version): • Data transmission via interface • Reports (statistics) • Saving or printing data • Programs for controlling fill processes • Various special modes of operation (depending on customized version)
Secondary function	Static weighing

8 Index