TITGEMEYER GTO

YOUR SOLUTION

TIOS® EL18 Battery-operated Lockbolt Tool
Operating instructions

TITGEMEYER Tb1547GB(1113)1

Contents

Notes on operating instructions

Note

Legislation dictates that the operator must be trained in using electric rivet tools. Upon request, training courses are available through TITGEMEYER in Osnabrück (Germany) or by contacting the customer directly.

Perfected technology

This rivet tool represents the very latest in technology. To ensure the safe operation of this professional tool, please follow all the safety recommendations.

Reading the operating instructions

Please ensure that you read through the operating instructions carefully before operating the rivet tool for the first time.

Actions

All actions required under these operating instructions are described in these operating instructions. Do not carry out any actions other than those described here.

Malfunctions

If a malfunction occurs, the operator should only try to rectify those signalled by an **"0"** (operator).

Illustrations and numbering of parts

All descriptions and parts numbers found in the illustrations refer to the parts list on page 23.

Table for starting torques

For all thread sizes, a table of starting torques has been provided in the section entitled "Maintaining the rivet tool".

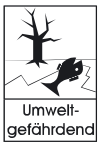
Warnings, guidelines and action to be taken by the operator

Always follow the guidelines and safety instructions. Icons have been used in certain sections of these operating instructions for added emphasis. Please make a point of memorising the icons and what they stand for:

Caution! Risk of injury! This icon warns of dangers.

Caution! Damage to materials! This icon warns of actions which could result in the rivet tool or the blind rivets being damaged.

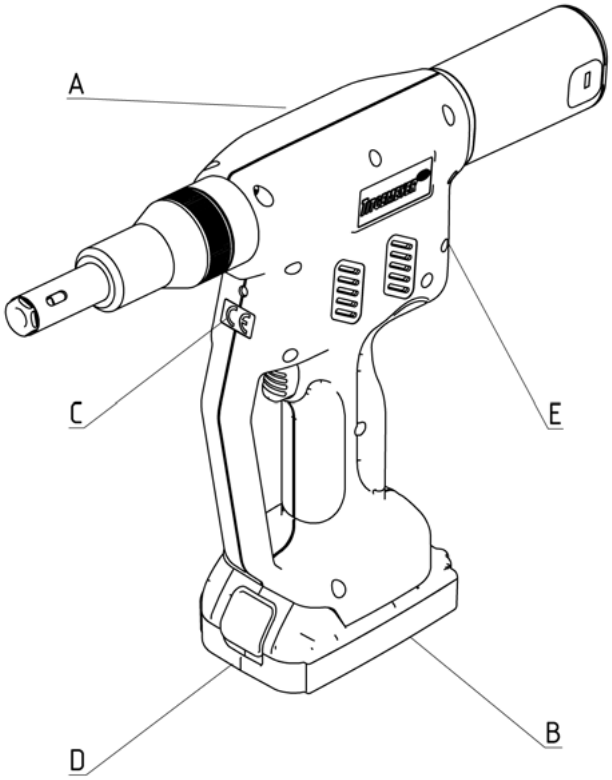
Note DThis icon refers to useful information.
• This bullet (•) highlights each paragraph where you will be required to take action.



Caution! Environmental damage! This icon warns of possible damage to the environment.

This icon indicates that you must first have read the operating instructions before beginning to operate the rivet tool.

Identification of rivet tool parts



A	Name plate	**C**	CE mark
B	Serial no. (located underneath the housing - remove battery!)	**D**	Name of supplier
		E	LED mode status

Labels on the battery and/or battery-operated tool

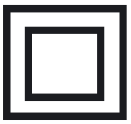
Recyclable

Dry environment

CE mark

Indoor use only

Dispose of correctly



Protection class II
Extra or double insulation between electric circuit and output voltage (without equipment earthing conductor)

Keep away from fire

Safety isolating transformer
Short-circuit proof

Safety notes

Intended use

The TIOS EL15 battery-operated lockbolt tool may only be used to install lockbolts and blind rivets, as described in these operating instructions.
The TIOS EL18 rivet tool is designed to install lockbolts with a max. diameter of 6.5 mm and high-strength blind rivets with a diameter of 6.4 mm at a max. installation force of 18 kN.
This rivet tool may only be used as a manual tool!
The customer is solely responsible for any modifications made to the rivet tool.
The safety notes contained in these operating instructions must be strictly observed at all times.

Foreseeable misuse

Never throw or drop the rivet tool!

Safety notes

This tool has been made to the very latest engineering standards and in keeping with the approved safety guidelines. It can be operated safely provided that the safety notes and intended use are observed and that the appropriate personal protective equipment is worn.

- **Danger, electrical tool:**
  Only allow trained electricians to carry out work on the rivet tool. Check the electrical equipment at regular intervals. Repair any loose connections and damaged leads immediately.

- Observe the corresponding accident prevention regulations that apply in your country.
- Never point the tool at anyone while it is in use.
- Keep your work area clean, tidy and well-lit. Bad housekeeping and poorly-lit work areas increase the likelihood of accidents.
- Never use electrical tools in explosion-prone areas where combustible liquids, gases or dust particles are found. Electrical tools generate sparks which can ignite dust or vapours.
- Take environmental conditions into account. Never expose electrical tools to rain. Never use electrical tools in humid or moist environments.
- Only use the rivet tool within its specified range of performance. Overloading it may result in the tool being damaged or in risks to your safety.
- Always wear protective glasses. It is recommended that you wear suitable personal protective equipment, such as protective clothing, non-slip safety shoes, a hard hat and ear protection, depending on what electrical equipment is being used
- Remove the battery before changing the accessories or storing away the tool. This precautionary measure will ensure that the electrical tool does not start running accidentally.
- Repairs must only be performed by trained personnel using original spare parts which can be obtained from Gebr. Titgemeyer GmbH & Co. KG. This will ensure that the tool remains safe to use at all times.
- Only use the designated batteries in the electrical tools.
  The use of other batteries may result in injury or fire.
- Only charge the batteries in the chargers recommended by the manufacturer. The battery may be destroyed if inserted into an unsuitable charger.

Safety notes
(continued from page 7)

- Whenever possible, always charge the lithium-ion battery immediately after using and never store it when empty. The battery will keep its capacity constant for a longer time (max. loss per year: 5%) if stored separately from the tool and charger.
- For safety reasons, the lithium-ion battery should not be left in an active charger for longer than 36 hours. Whenever possible, remove the battery from the charger as soon as it is fully charged.
- Whenever possible, always remove the battery from the device before transporting. This will prevent you from unintentionally switching the device on and also prevent the battery from running down very low.
- Never expose the lithium-ion battery to high temperatures (+ 50 °C) or direct sunlight. If the battery becomes hotter than 50 °C while in operation (charging or discharging), immediately remove it from the charger or rivet tool.
- Keep unused batteries away from paper clips, coins, keys, nails, screws and any other small metal objects that might bridge/short-circuit the contacts. Never open or short-circuit the battery. Short-circuiting the battery contacts may result in burns, fire or explosions.
- Batteries may leak when subjected to extreme use or temperatures. Keep your skin and eyes away from a leaking battery at all times. The liquid contained in a battery is corrosive and may cause chemical burns in human tissue. Should the liquid come into contact with the skin, immediately wash it off with soap and water and then with lemon juice or vinegar. If the liquid comes into contact with the eyes, rinse with water for 10 minutes and then seek the advice of a doctor immediately.
- Never charge the battery in temperatures BELOW 10 °C or ABOVE 40 °C.
- The charger must never be connected to a step-up transformer, generator or DC socket.
- Ensure that the ventilation slots on the charger are never covered or clogged.
- Never store the electrical tool or battery in areas where temperatures exceed 50 °C.
- Never store the battery in a box or enclosed container. The battery must be stored in a well-ventilated area.
- No changes, modifications or alterations may be made to the tool without the manufacturer's permission. No conversions may be performed without first being approved in writing by Gebr. Titgemeyer GmbH & Co. KG. Any parts not in fully-working order must be replaced without delay.

Basic requirements for handling the rivet tool

WARNING!
Risk of physical injury

- Attach the spent mandrel collector before using the tool. Failure to do so will cause the mandrels to shoot out on breaking which may result in injury.
- Check that no parts of the tool are damaged. All damaged parts must be repaired before being used. Working with damaged tool parts increases the likelihood of injury.
- If working at elevated heights, always wear a safety harness. Avoid dropping rivets and avoid dropping the tool at all costs. Failure to do so may result in injuries and significant damage.

CAUTION!
Risk of personal injury or damage to the tool

- First remove the battery before cleaning the tool or performing any general maintenance work.
- Keep your face away from the ventilation slots at all times.
- Avoid substances such as lubricating oil and lubricating grease coming into contact with the skin. These substances can cause inflammation of the skin. If they do come into contact with the skin, carefully rinse the affected area to remove them.
- Avoid working in unsecured positions, as you could fall or injure yourself.
- Maintain the rivet tool with great care. Follow the operating instructions when performing maintenance and cleaning work. Keep the handle free from dirt and grease.
- Use the tool with care and be sure to operate it correctly. Ensure that the surrounding conditions are right when working with this tool. Always maintain full concentration during your work.
- Only the lockbolts and blind rivets specified in these operating instructions may be used.

Maintenance and care

The operator may only perform the maintenance and repair work described in these operating instructions.

Service instructions

All maintenance and repair work not described in these operating instructions must be performed by trained personnel who have undergone a corresponding training course with TITGEMEYER. See the address on the last page for further information on training courses.

Note

→ The manufacturer accepts no liability for damage resulting from improper repairs or the use of non-original spare parts.

EU Declaration of Conformity

The TIOS EL18 rivet tool has been manufactured and tested in accordance with the European directives. The Declaration of Conformity can be found on the next to last page.

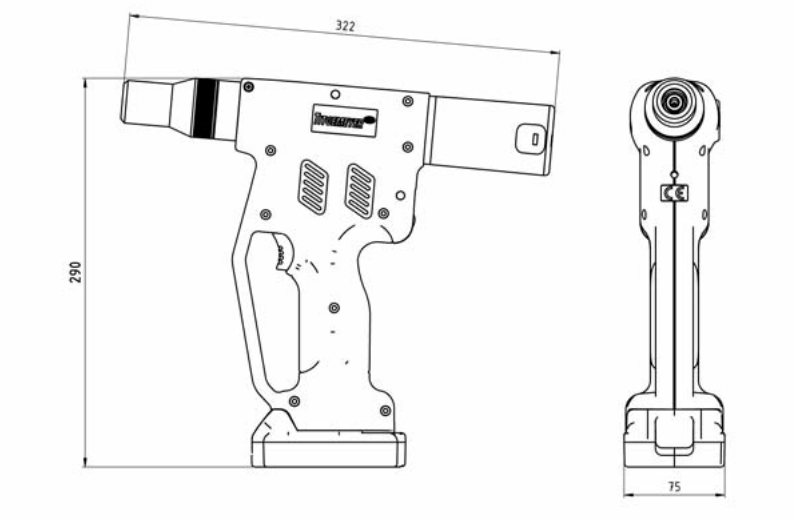
Warranty

Any improper use of this rivet tool, which results in the rivet tool being damaged, will render the warranty void.

Technical specifications

TIOS® EL18 rivet tool

Range of application	Lockbolt up to 6.5 mm in diameter
Installation force	18 kN
Installation stroke	max. 25 mm
Installation speed	max. 22 mm/sec.
Weight	2.2 kg (1.9 kg without battery)
Height	290 mm
Width	322 mm (without pulling unit)
Nose cap ø	22.5 mm
Nose cap length	58 mm (check deviations)
Battery	18 V lithium-ion
Motor	Brushless
Workspace light	LED
Vibration DIN EN 60745-1	an < 2.5 m/s²
Noise emissions L_{PA}	< 75 dB(A), short-term > 80 dB(A)



Rapid charger TIOS® LIO2830 single charger

Input voltage	230V / 50Hz
Output voltage	18V
Charging time	approx. 60 min.
Weight	0.55 kg

TIOS® LIO1820 battery

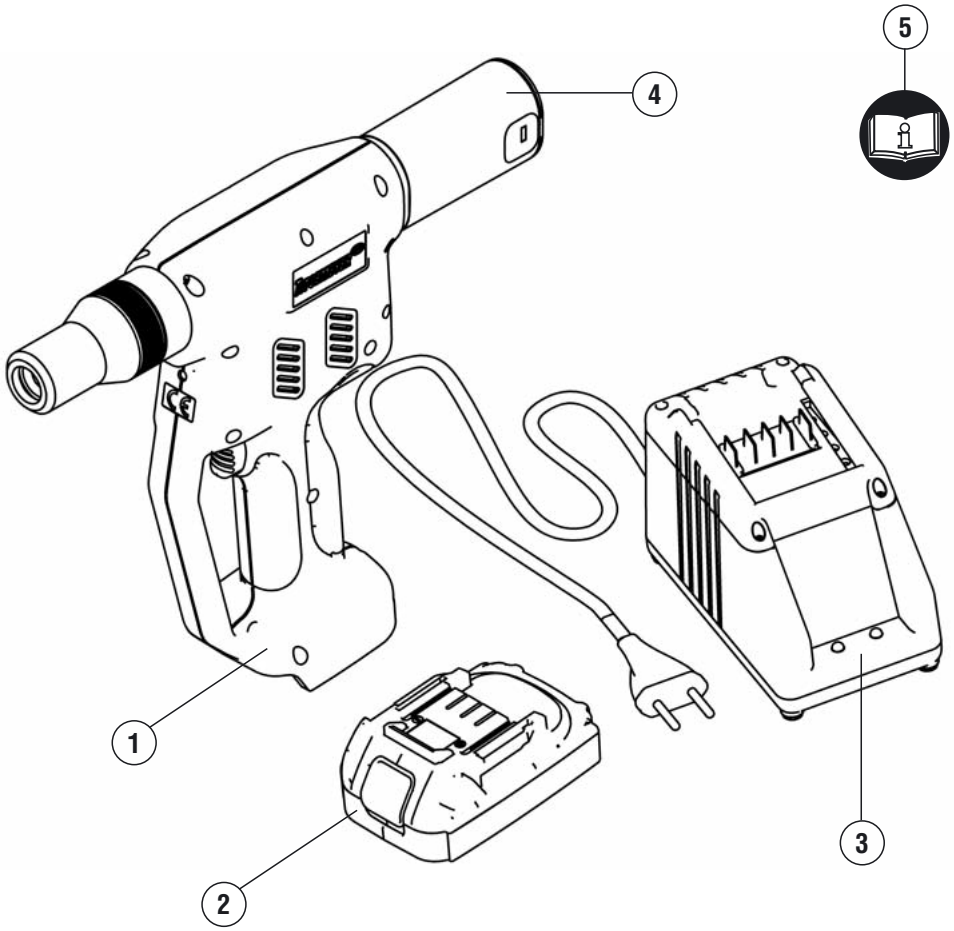
Power supply	18 V Li-Ion
Capacity	2.0 Ah
Cell type	lithium-ion manganese
Number of cells	5
Weight	0.33 kg

TIOS® LIO1840 battery (not supplied)

Power supply	18 V Li-Ion
Capacity	4.0 Ah
Cell type	lithium-ion manganese
Number of cells	5
Weight	0.57 kg

List of parts

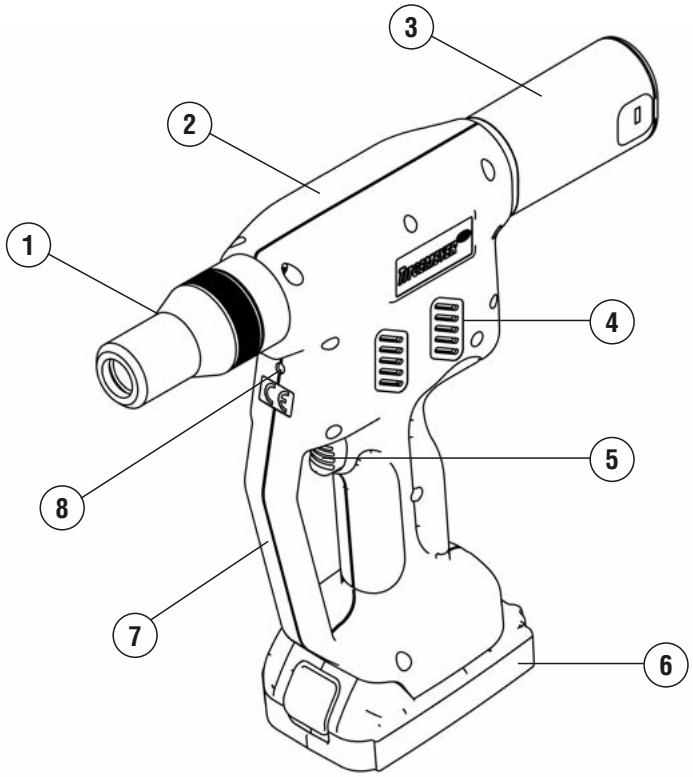
1. 1 TIOS EL18 battery-operated blind rivet tool
2. 1 TIOS LIO1820 battery
3. 1 TIOS LIO2830 single charger
4. 1 spent mandrel collector
5. Operating Instructions



Note

→ The pulling head is not supplied.
This must be ordered separately.
See also table on page 16.

Description of rivet tool



1. Lock nut
2. Housing
3. Spent mandrel collector
4. LED mode status
5. Trigger
6. TIOS LIO1820 battery
7. Hand guard
8. LED light

Required tools

You will need the following tools to perform all the adjustments, care and maintenance work.

Tools:
– Open-end spanners: SW 13 and SW 17
– Allen key: 1/4 inch

Storing the rivet tool

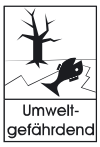
Until used for the first time

If you do not need to use the rivet tool immediately, please store it in its original packaging in a dry, dust-free place.

Longer storage after use

Clean the rivet tool (see “Maintaining and cleaning the rivet tool”).
Remove the battery whenever the rivet tool is not in use.
If you do not intend to use the battery for a lengthy period of time, fully charge the battery and then store in a dry, dust-free place.
Store the rivet tool in a dry, splash-proof place.
Store the rivet tool in a well-ventilated room that is well-protected from heavy dust.
Ensure that no aggressive chemicals or vapours are present in the storage area.
Never store the electrical tool or battery in areas where temperatures exceed 50 °C

Disposing of the rivet tool



Dispose of the rivet tool components in the proper manner. Neither the rivet tool nor its individual parts should be mixed with household waste. They should be disposed of at a special collection centre for electronic waste.
Do not dispose of the battery as solid waste. It should be taken to a battery recycling plant or returned to the manufacturer for disposal.

Maintaining and cleaning the rivet tool

Caution

Risk of injury due to improper care! All maintenance, care and service work on rivet tools must be conducted by suitably trained personnel. If the tool is used as intended, the operator should be at no risk. The operator may only carry out the work described in these operating instructions.
Risk of injury due to falling rivet tool!

Important

Danger of material damage due to corrosion!
Do not use any aggressive cleaning agents or flammable liquids to clean the tool!
Do not spray any cleaning agents, solvents or readily flammable substances into the vents or openings in the housing.

The following tasks are recommended:
Clean the rivet tool and check for any mechanical faults depending on how and where it has been used.
If the rivet tool is to be stored for a longer period, first clean the tool, then lightly grease all the exposed metal components (see “Maintenance intervals”).

Preparing and fitting the rivet tool

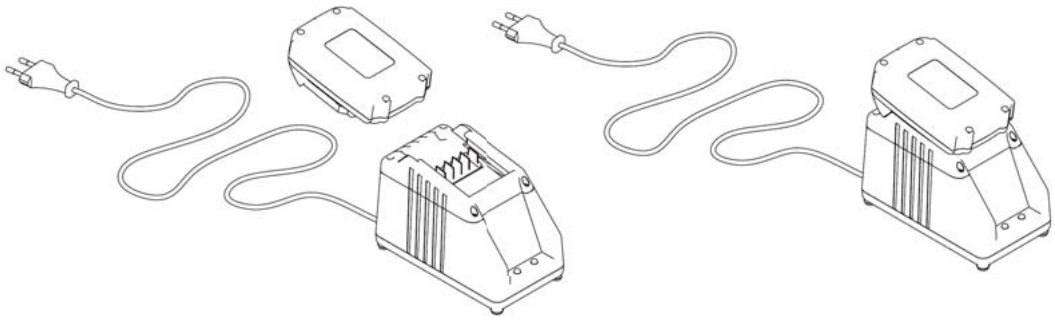
Initial setup

1. Read the operating instructions and keep in a safe place.
2. Perform a visual inspection of the devices to check for defective or loose parts (damage in transit).
3. Plug the charger into the mains.
4. Insert the battery into the charger (check the display!).
5. Charge the battery (approx. 60 min).
6. Attach the spent mandrel collector. To do this, rotate the collector about a quarter turn and pull backwards to detach. Fully empty the collector and then reattach by following the above steps in reverse.
7. Insert the battery into the rivet tool until you hear an audible “click”. (To remove the battery, press the catch downwards and pull the battery forwards).
8. Press the start trigger.
9. The rivet tool is now ready for use.

Mandrel collector

→ • **Note:**
A magnetic contact switch is installed on the mandrel collector. If the collector has not been fitted or if the contact is not closed, the tool will not operate.

Charging battery



Description of LED status on the charger

Left LED


Mains


Defective charger

Right LED

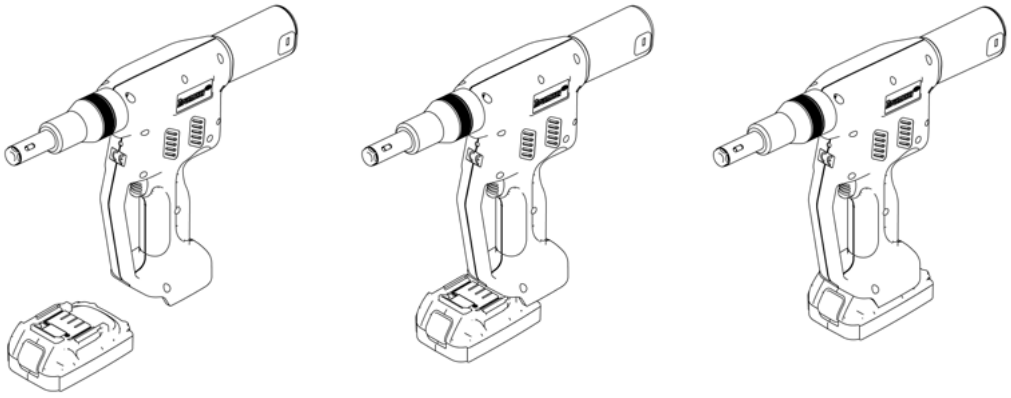

Charging battery


Battery charged

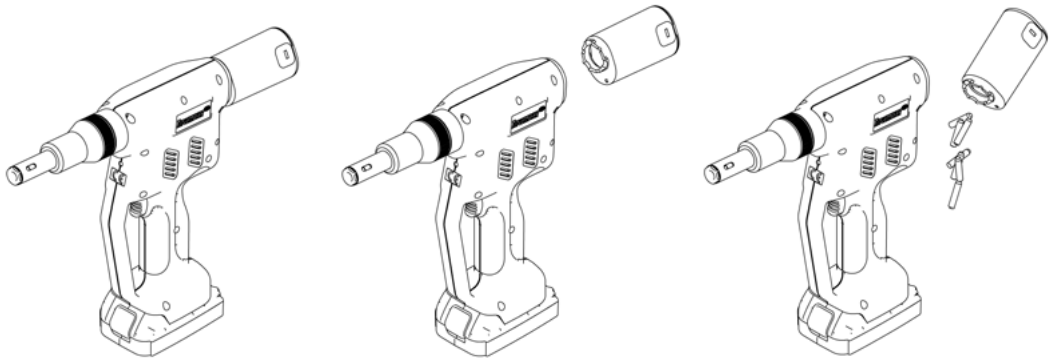

Defective battery


Battery too hot or too cold

Inserting the battery → • **Note:**
An audible “click” will be heard if the battery is properly inserted.



Emptying the mandrel collector → • **Note:**
A magnetic contact switch is installed on the mandrel collector.



Operating the rivet tool

Caution

Risk of injury due to flying rivet heads! For this reason, no blind rivets should be loaded when checking the rivet tool. Always wear protective glasses.

Caution

Risk of injury due to discharging mandrel! Only use this tool with an undamaged spent mandrel collector. And always ensure that the collector is correctly in position.

Selecting the pulling head

To install different sizes and types of lockbolts and blind rivets, you can change the pulling head on the rivet tool. If a different pulling head is already fitted, remove this one first by following the installation steps in the operating instructions in reverse order.
Always be sure to check the pulling head for signs of exterior damage before installing.
Pulling heads will need to be ordered separately.

The tables below can be used to determine what type of pulling head needs to be fitted.

	Type	ø*	Material	Pulling head	Montage
Lockbolts	Standard	5.0	Al / Steel / Stainless steel	99-3003	page 20
		6.5	Al / Steel / Stainless steel	99-3006	
	Maxigrip	5.0	Al / Steel	99-1456	page 20
		6.5	Al / Steel	99-1477 UK	
Blind rivets	M-LOCK and MAGNA BULB	5.0	Al / Steel / Stainless steel	99-3303	page 20
		6.5	Al / Steel / Stainless steel	99-3305	
	BOM	5.0	Steel	99-994	page 20

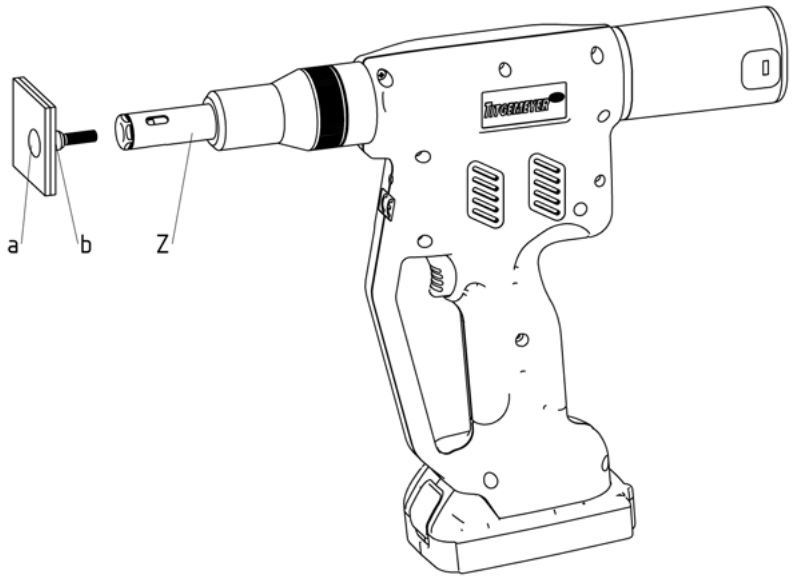
** Blindniete: Nietschaftdurchmesser; Schließringbolzen: Schaft-Nenndurchmesser*

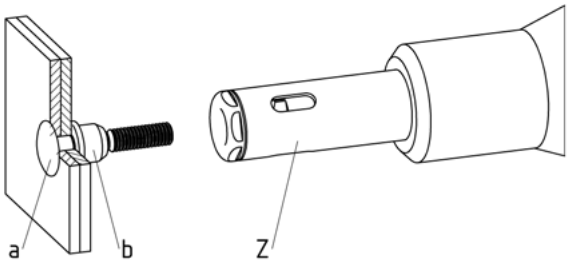
Installing the lockbolt
What to remember!

Note → The pulling heads and lockbolts you are using may differ slightly from the ones shown in the illustrations below.

Important  Damage to materials! Always hold the tool at right angles (90°) to the area where you want t o install the lockbolts. If held at another angle, the lockbolt will not install correctly.

Note → For details on hole diameters and clamping areas, please refer to the specifications in the rivet manufacturer's catalogue.





- Getting started
- Insert the lockbolt (a) into the pre-prepared hole
- Slide the locking ring (b) over the mandrel of the lockbolt (a), making sure it is correctly positioned
- Hold the head of the lockbolt (a) in place. Slide the rivet tool and pulling head (Z) over the mandrel of the lockbolt (a) and press firmly up against the locking ring (b).
- Press the trigger as far as it will go and hold down. The pulling head will slide over the locking ring, causing it to deform and press the material into the grooves on the stem.
- Release the trigger. The detached mandrel is then discharged into the spent mandrel collector when you install the next rivet/lockbolt.

LED display (operating modes)

The display is located at the back of the housing, below the spent mandrel collector.
The following statuses can be displayed on the LED display when the tool is in operation:

LED-display		Description of status:	Aktion
	Lighting LED comes on briefly; LED display briefly turns red then green	Function test after inserting the battery and pressing the trigger.	
	LED display turns green	Mandrel collector not or not correctly fitted, or pressure-sensitive switch not pressed.	Fit spent mandrel collector correctly and press the pressure-sensitive switch.
	LED display flashes orange	Battery almost flat but still operable.	Replace or charge battery.
	LED display remains orange	Battery flat, no longer operable.	Replace or charge battery.
	LED display flashes red	Malfunction: Current overload due to excessive break-load on the mandrel or overheated tool (55 °C)	Wrong blind rivet and/or lockbolt used, or pulling unit is dirty or damaged. Service the pulling unit or allow the tool to cool down. Fit mandrel collector correctly.
	LED display remains red	Malfunction: The rivet tool is out of order and no longer works.	Contact your supplier.

Description of decal:
LED status for rivet tool

Replace or charge battery.

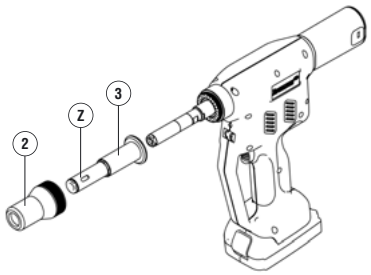
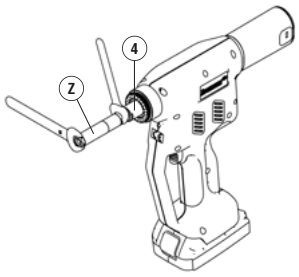
Malfunction: Defective charger

Maintaining the rivet tool

Caution

Risk of injury due to improper care! All maintenance, care and service work on rivet tools must be conducted by suitably trained personnel. If the tool is used as intended, the operator should be at no risk. The operator may only carry out the work described in these operating instructions.

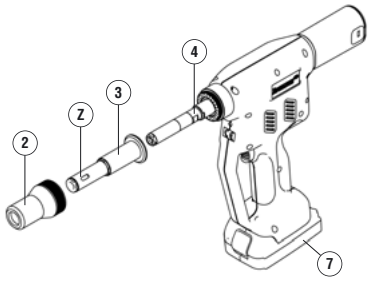
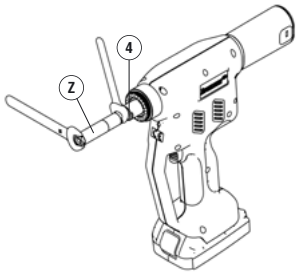
Cleaning the pulling unit

1		Remove the battery before beginning any work on the rivet tool. Loosen the lock nut (17) and remove by pulling it forwards. Pull the pulling head (14) and guide bushing forwards and remove.
2		Loosen the jaw case using an SW 13 and SW 17 open-end spanner. Remove the jaw case body (4) from the jaw case (Z) using an SW 17 open-end spanner and 1/4 inch Allen key. Clean all the parts thoroughly using a cleaning rag or compressed air. Reassemble following the above steps in reverse order. Before reassembly, grease the jaws with an acid-free oil.

Maintenance intervals

Interval	Activity	How?	Who?	Remarks
Daily before each use	Check for cracks	Visual inspection	Operator	If tears appear, submit the rivet tool to Maintenance.
Daily before each use	Check the pulling head for rivet diameter as well as wear and tear	Check pulling head for wear and tear	Operator	Replace pulling head if necessary
Daily before each use	Check the jaws and jaw case	Check the clamping jaws in the pulling heads	Operator	Clean or replace clamping jaws if necessary (see “ Installing the pulling head”)

Replacing the pulling unit

1		Remove the battery (7) before beginning any work on the rivet tool. Loosen the lock nut (2) and remove by pulling it forwards. Ziehen Sie die Zugkopfhülse (Z) und die Führungshülse (3) nach vorne ab.
2		Loosen the jaw case (Z) using and SW 13 and SW 17 open-end spanner. Remove the jaw case body (4) from the jaw case (Z) using an SW 17 open-end spanner and a 1/4Allen key. When selecting the pulling unit, check that it meets the required specifications (tool + fastener) – see table on page 16. Reassemble following the above steps in reverse order.

Note → A degree of play within the pulling unit has been incorporated into the design. This ensures that the battery-operated tool will always work as required.

Table for starting torques

The table below shows the torque values that must be adhered to for the specified threads.

Pos.	Description	Thread	Torque MA in Nm
2	Lock nut	M 40	Hand-tight
4	Jaw case body	M 16	30 Nm
Z	Pulling head housing	17 / 32 inch	30 Nm

Troubleshooting

Work that may be performed by the operator is highlighted by the letter **"O"**.
Work that may be performed by the trained personnel is highlighted by the letter **"T"**.

Caution

Risk of accident!
Remove the battery at all times until the fault has been detected.

Important

Damage to materials! Work that is highlighted by the letter **"T"** may only be performed by trained personnel. Submit the rivet tool to Maintenance.
Only trained personnel may replace original parts.

Note

A full function test must be performed each time a fault is repaired.

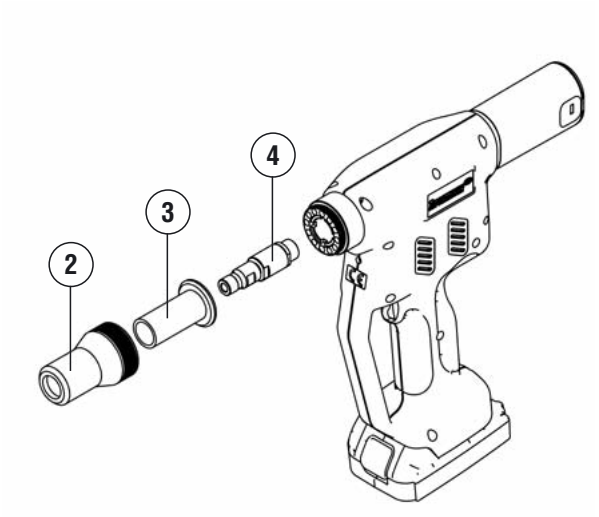
Malfunctions	Cause	Remedies
Rivet does not install	Flat battery (LED flashes orange)	**O** Replace battery
	Spent mandrel collector not correctly attached (LED flashes green)	**O** Attach collector
	Loose jaw case or jaws are defective	**O** Replace jaws + jaw case if necessary
Mandrel is not rejected	Jaws / jaw case dirty	**O** Clean
	Slide pipe dirty	**O** Clean
	Mandrel too large for nose piece	**O** Replace nose piece
	Mandrel wedged inside jaws	**O** Loosen nose piece, remove lock nut and cap. Loosen jaw case, replace jaws if necessary
Battery does not charge in charger	Defective battery (right LED flashes red)	**T** Replace battery and dispose of used one properly
	Defective charger (left LED flashes red)	**T** Replace charger and dispose of used one properly
	Charger not connected to mains (left LED dead)	**T** Check the power supply on the charger

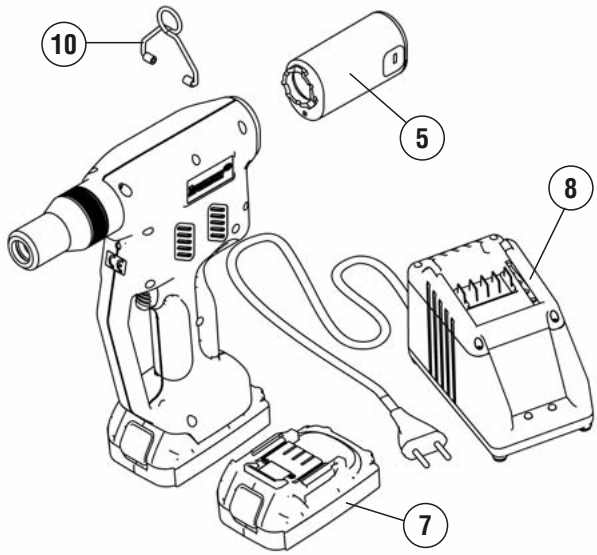
Warranty

In addition to the statutory warranty period, TITGEMEYER provides a further 6 months' warranty starting from the date of purchase (invoice required for proof of purchase).

The following consumables are excluded from the warranty:
– Spent mandrel collector
– Pulling heads

Spare parts list for TIOS® EL18





Pos.	Description	**Part No.**
1	TIOS EL18 battery-operated blind rivet tool	**352 300 000**
2	Lock nut	352 300 101
3	Guide bushing	352 300 102
4	Jaw case body	352 300 103
5	Spent mandrel collector	352 200 380
6	Fuse, 30A	352 200 301
7	Insertable battery, TIOS LIO1820 2.0 Ah	352 200 902
8	Single charger, TIOS® LIO2830	352 200 910

Optional accessories (on request)

Pos.	Description	**Part No.**
9	Insertable battery, TIOS LIO1840 4.0 Ah	352 200 903
10	Complete fixing kit	352 200 921
Pulling heads for lockbolts		
Z1	Pulling head 99-3003	371 680 000
Z2	Pulling head 99-3006	371 705 000
Z3	Pulling head 99-1456	372 985 000
Z4	Pulling head 99-1477UK	371 980 000
Pulling heads for blind rivets		
Z5	Pulling head 99-3303	371 805 000
Z7	Pulling head 99-3305	371 815 000
Z8	Pulling head 99-994	372 780 000

EU Declaration of Conformity

We hereby declare that the device stated below meets the requirements of the specified norms and directives. Any modification to this charger not agreed in advance and approved in writing will result in this Declaration of Conformity becoming invalid. (This Declaration refers to the condition of the device at the time it was marketed).

Authorised by:

Company: Gebr. Titgemeyer GmbH & Co. KG
Location: Hannoversche Str. 97
49084 Osnabrück (Germany)
Tel.: +49 (0)541 5822-0
Fax: +49 (0)541 5822-491

Description of device:

Rapid charger for charging lithium-ion batteries
18V 1.65Ah / 18V 3.3Ah

Name of model:

TIOS® LIO2830 Single Charger

Applied norms and directives:

2006/95/EC Low Voltage Directive

2004/108/EC Electromagnetic Compatibility (of electronic or electrical products)

EN 60335 / EN 55014 / EN 55014-2:98 / EN 61000-3-2 + A12:97, A1 + A2:99

G. Chr. Titgemeyer
Managing Director

Date: 11.01.2012

EU Declaration of Conformity

We hereby declare that the device stated below meets the requirements of the specified norms and directives. Any modification to this rivet tool not agreed in advance and approved in writing will result in this Declaration of Conformity becoming invalid. (This Declaration refers to the condition of the device at the time it was marketed).

Authorised by:

Company: Gebr. Titgemeyer GmbH & Co. KG
Location: Hannoversche Str. 97
49084 Osnabrück (Germany)
Tel.: +49 (0)541 5822-0
Fax: +49 (0)541 5822-491

Description of device:

Battery-operated blind rivet tool

Name of model:

TIOS® EL18

Applied norms and directives:

2006/42/EC Machinery Directive

2004/108/EC Electromagnetic Compatibility (of electronic or electrical products)

EN 55014 Electromagnetic compatibility – Requirements for household appliances, electric tools and similar appliances.

DIN EN 60745 Hand-held electrical power tools

Party authorised to compile the relevant technical documentation:

Gebr. Titgemeyer GmbH&Co.KG
Head of Engineering Team
MSc(GB), Dipl.-Ing (FH) B.Thünemann

Hannoversche Str. 97
49084 Osnabrück (Germany)

G. Chr. Titgemeyer
Managing Director

Date: 11.01.2012

Service

Should you encounter any difficulties ordering spare parts or if you would like to learn more about available training courses:

GEBR. TITGEMEYER GmbH & Co. KG
Hannoversche Strasse 97 • 49084 Osnabrück (Germany)
PO Box 43 20 • 49033 Osnabrück (Germany)
Tel. +49 (0)5 41/58 22-0 • Fax +49 (0)5 41/58 22-491
email: fasteners@titgemeyer.com
Web: www.titgemeyer.com

Gebr. TITGEMEYER GmbH & Co. KG
Hannoversche Straße 97
(Navigation: Hettlicher Masch 2)
49084 Osnabrück, Germany
P.O. Box 43 20
49033 Osnabrück, Germany
Phone: +49 (0)5 41/58 22-0
Fax: +49 (0)5 41/58 22-491
email: fasteners@titgemeyer.com
www.titgemeyer.com