



TITAN

TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS®

Operating Manual

TITAN® WindMaster™ 2010 Hydraulic Tensioning Pump



TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>



Contents

Contents	2
Signs and symbols	3
Before starting	4
Starting	5
Pressure adjustment.....	6
Venting	7
Coupling of the high-pressure hoses.....	7
Safety hints.....	9
Short guidance	10
Maintenance	11
Operational disturbances and their recovery.....	12
Technical data	12
Hydraulic-schematic	15
Electric-schematic	16
Appendix.....	17

TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email:sales@titanti.com

<http://www.titanti.com>

Signs and symbols

Attention!



Attention: Slipping Hazard!



Attention: Overhead Hazard!



Command: High Importance!



Command: Wear protective eye wear with
side shields or safety goggles!



Command: Wear hard toe shoes!



Forbidden!



TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>

Before starting

These operating instructions is designed to give you some information about the handling and safe application of the **TITAN**[®] WindMaster™ Hydraulic Tensioner Pump.

Please read these operating instructions carefully to ensure the optimum function and a high degree of safety.

The equipment is delivered fully assembled, functionally tested, vented and filled with hydraulic oil. To prevent the oil from spilling during transport, the filling and venting opening (depending on the model) is sealed with a plug. Please ensure that it is replaced by the venting screw before commissioning (see appendix).

SAFETY HINTS: WE STRONGLY RECOMMEND THE INSTALLATION OF A GAUGE ON THE PUMP OR ON THE CYLINDER TO AVOID DAMAGE TO THE COMPONENTS. PROPER PRESSURE CONTROL IS CRITICAL TO THE TASK AT HAND AND TO SAFETY IN EVERY STEP OF THE WORK (Fig. 1).



Fig. 1

TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>



Starting

Note: The TITAN® WindMaster™ 2010 Pump produces extremely high hydraulic pressure. Extreme care must be taken to ensure safety. Failure to do so may result in severe injury or death.



Before starting the work, please make sure that the oil level in the pump tank is correct. The oil gauges should be filled with oil. Filling the tank approximately 1 cm under the tank caps is allowed. In some cases it can be necessary to refill the device with oil.

Use only hydraulic oil and never aggressive oil, because it can results in damaging your seals.

NOTE: CHECK AND ENSURE THAT THE APPLICATION AND ITS THREADED FASTENERS ARE SUITABLE FOR THE MAXIMUM OPERATING PRESSURE.



HINT: ALSO, ONLY HOSES AND CONNECTIONS WITH SUITABLE OPERATING PRESSURE RATING AND SAFETY FACTORS SHOULD BE USED. CHECK ALL HOSES FOR KINKING AND IF FOUND, REPLACE PRIOR TO PRESSURIZING. FOR BEST RESULTS AND OPTIMUM SAFETY, USE ONLY TITAN® SUPPLIED HOSES, CONNECTIONS AND ACCESSORIES.

ATTENTION: NEVER USE THE HOSES AS A CARRING HANDLE.

The high-pressure hose must be shifted as straight-lined and directly as possible, in each case never exceed the minimum bending radius. The hose should not be overdriven or loaded. Sharp edged parts can damage the hose. Pay attention particularly to the suitable threaded connections.

For tightening the threaded bolt or stud connection we recommend normal spanners without extension, in order to avoid overloading at the threads. For the hose connectors only use the threaded bolt or stud connections specified in our catalogue under accessories.

Dirt particles in the hydraulic system can lead to damages at the cylinder faces and at the valve seats, therefore replace dirty hydraulic fluid before starting.

After all components are examined for the structural integrity necessary for the desired pressure, the device can be plugged in to the electricity supply. Turn the main switch to the **pos.1** to start the pump.

TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>

By operating the tracer ↑ on the hand remote control (**Fig. 2**) the hydraulic pressure develops. Before starting, in each case, check the adjusted pressure (chap. Pressure adjustment).



Fig. 2

By operating the tracer ↓ on the remote control the pressure can be reduced again.

If you are not using the pump motor, please switch it off (Main switch on **Pos.0**) In order to avoid unnecessary wear and thermal loads on the device.

Do not touch the motor and parts near the motor after using it, since the surfaces can be hot.



Pressure adjustment

The output / consumer pressure can be determined by adjusting the low pressure at the pressure limiting valve. This adjusts the input pressure of the pressure converter.

Turning clockwise (+) will increase the pressure, turning counterclockwise (-) will reduce the pressure. The pressure converter operates with a conversion ratio of 1:13. This means, for example, that 10 bar of low pressure will generate an output pressure of 130 bar.

The electric hydraulics pumps are factory-installed and adjusted to 1000 bar initial pressure.

CAUTION: Disconnect all hoses and tensioners PRIOR to adjusting the pressure.



TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email:sales@titanti.com

<http://www.titanti.com>

Venting

Because air is compressible, air within the system can lead to accidents. It is therefore essential to vent the system of air, prior to using the pump, hose and tensioner before starting the work. To accomplish this, let the pump run at a low pressure until the hydraulic system is fully vented.



- Screw in the pressure limiting valve by approx. one revolution from the point at which the spring takes effect, set switch I, to motor on, and vent the entire system at the breather screw of the tensioner or at the end of the hose until pure oil escapes without bubbles.
- Make the desired pressure adjustment (Chap. Pressure adjustment).

Coupling of the high-pressure hoses

CAUTION: IT IS VERY IMPORTANT THAT THE TWO HALVES OF THE COUPLING ARE ALWAYS CLEANED THOROUGHLY BEFORE CONNECTING.



Dirt in the halves of the coupling also makes the complete connection more difficult, obstructing the flow of fluid because it will be possible that the two balls will not open fully.

NOTE: THEREFORE, PLEASE ALWAYS CHECK THAT THE COUPLING IS FULLY ENGAGED OR, IF SCREW UNIONS ARE EMPLOYED, THAT THEY ARE FULLY SCREWED IN.

NOTE: WE RECOMMEND THAT THE DUST CAPS SHOULD ALWAYS BE SCREWED ON WHEN THE COUPLING IS DISCONNECTED.

WE WILL NOT ACCEPT GUARANTEE CLAIMS RESULTING FROM THE INCORRECT USE OF OUR EQUIPMENT OR FROM THE USE OF EQUIPMENT OR SPARE PARTS MADE BY OTHER MANUFACTURERS.

NOTE: QUALIFIED PERSONNEL MUST CONDUCT ALL REPAIRS OR MODIFICATIONS TO THE PUMPS. INCORRECT HANDLING CAN CAUSE THE GUARANTEE TO BE VOIDED.

TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>

Handling instruction for the heating mechanism



Fig. 3 Switch box, heater

- Switch-on the Power supply.
- By pressing the heating-button (see **Fig. 3**) the pump runs one minute in a pressure-free circulation to warm up the oil.
 - After first pressuring, the heating mechanism is out of action.
- If you want to use the heating-mechanism again (after pressuring), you must switch off/on the pump.

TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email:sales@titanti.com

<http://www.titanti.com>

Safety hints

Apart from observing the general accident prevention regulations, the following safety instructions must be observed to prevent life-endangering conditions, damage and an increased accident hazard.



- **☞ If leaks occur when pressure is applied**, the pressure must be relieved immediately. The leak must be sealed and defective components must be replaced.
- **☞ When repairs are made** use original spare parts only. The unauthorised replacement of damaged components with non-original spare parts is not permitted.
- **☞ All components must be handled exclusively as described in the operating instructions and the general drawing. Changes to the functional sequence or a different application are not allowed.**
- **☞ It must always check if the high-pressure hoses** are connected correctly.
- **☞ The high-pressure hoses** must be laid such that they cannot be driven over by vehicles or unnecessarily trodden by persons. Never lay hoses over sharp objects (danger of cutting) and do not pinch or trap them.
- **☞ Before the pressure is applied**, the maximum working pressure (without consumers) must be adjusted **by an authorised person** at the **pressure-limiting valve** (Chap. Pressure adjustment).
- **☞ The unit is not fitted with a safety valve.** The maximum system pressure of 2500 bar must never be exceeded.
- **☞ Repairs** must only be conducted when the system is depressurised and disconnected from the power.
- **☞ Verify the oil level** before each commissioning.
- **☞ You must carry protection eyeglasses** while working with high-pressure hydraulic aggregates.
- **☞ In the case of use of a remote control**, pay attention to electromagnetic radiations.



TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>

Short guidance

The following steps must be taken before the first start:

- **Fill up hydraulic fluid** (e.g. ISO VG 46) at the filler pipe if necessary until the oil gauge is filled with oil
- **Connect the plug** to a power source (Consider the electrical data)
- **Disconnect all hoses** to the consumers
- Close the **manual shut-off valve** (otherwise pressure-free circulation)
- **Adjust the working pressure** at the pressure limiting valve
- **Build up the pressure** by operating the tracer ↑
- Stop **building up the pressure** by releasing the tracer ↑
- **Release the pressure** by opening the manual shut-off valve or by operating the tracer ↓

CAUTION: ALWAYS CHECK THE MAX. ADJUSTED HYDRAULIC PRESSURE FIRST WITHOUT THE HOSES OR TOOLS CONNECTED. THE MAX. PERMISSIBLE HYDRAULIC PRESSURE OF THE SUPPLIED HYDRAULIC GAUGE MUST NOT BE EXCEEDED.



TURN THE REGULATING KNOB COUNTERCLOCKWISE → REDUCES THE PRESSURE

TURN THE REGULATING KNOB CLOCKWISE → INCREASES THE PRESSURE

Always observe the hydraulic pressure gauge when applying pressure to the pump.

Safety requires that you read very carefully and understand fully the operation instructions, prior to turning on and operating the pump.



TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>



Maintenance

The first oil change and cleaning of the oil tank and the suction filter of the pump should take place after approx. 50 service hours. All other oil changes depend on the degree of contamination of the environment. The intervals must be determined individually from case to case. It is usually sufficient to conduct this maintenance work in an annual interval. However extreme conditions may require much shorter intervals.

Cleaning the oil tank

It is only necessary to release the lid fastening screws on the unit and the entire pump-motor unit can be removed. Then rinse out the oil tank with oil only. **DO NOT USE TEXTILES!!!**

The suction filter of the pump must be examined and cleaned if necessary during fluid changes.

High-pressure hoses

The high-pressure hoses must be examined to detect ageing (cracks, pores) and must be replaced after 5 years at the latest.



Repair instructions

If repairs become necessary use original spare only. Use of non-Titan parts may cause severe safety risk at worst and inferior performance at best.

Ensure extreme cleanliness during maintenance work on the pump to preserve its function and service life.

The pressure converter must not be dismantled. All necessary repairs can only be conducted by **TITAN®** or a authorized and certified **TITAN®** service technician.

TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email:sales@titanti.com

<http://www.titanti.com>

Trouble Shooting Chart

Most faults have a simple cause and can therefore be rectified on site, i.e. time losses and transport costs can be avoided. Some of the most frequent faults are explained below. If this information is insufficient, please consult our technical support or your authorized **TITAN[®]** Repair Facility.

Pump does not pressurize

- | | |
|--------------------------------|---------------------------------------|
| • Air in pump | Switch motor on and off several times |
| • Changeover valve jammed | Switch by hand |
| • Pressure converter defective | Replacement necessary |

Pump pressurizes inadequately

- | | |
|------------------------|---------------------------------------|
| • Air in pump | Switch motor on and off several times |
| • Gear wheels worn out | Replacement necessary |

Pump does not reach pressure

- | | |
|----------------------------|--------------------------------|
| • Pump worn | Replacement necessary |
| • Valve worn | Leak to tank |
| • Relief valve misadjusted | Adjust pressure limiting valve |

Pressure cannot be relieved

- | | |
|-------------------------|----------------|
| • Solenoid valve jammed | Switch by hand |
|-------------------------|----------------|

Technical data

1. Gear pump

Operating pressure p max:	230 bar
Conveyed volumes:	LP – 1.5 l/min until 4 l/min up to 230 bar

2. Pressure Intensifier

3.

Converting ratio	1:13
Operating pressure p max:	2500 bar
Conveyed volumes:	HP – 0.9 l/min up to 2500 bar

TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>



TITAN
TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS[®]

4. Motor

Electric motor
Function:

Power and the AC network on the motor type plate
Switch 1 at position "1" – Motor runs
Switch 1 at position "0" – Motor stops

5. 4/3 way Solenoid valve Y1/Y2

Voltage supply:
Function:

24V
Position Y1 – Pressure increases
Position Y2 – Pressure decreases
Central position – Pressure-free circulation

6. Hydraulic delockable check valve HRV1

Function:

Opens with the manipulation of the direction control valve Y2

7. Pressure limiting valve DBV1

Function:

Regulates the low pressure continuously from 0 – 230 bar (theoretically 192 bar)
Correspondingly the high pressure from 0 – 2500 bar

8. Electrical control

Transformer
Control circuit board with fuses
Remote control

9. Remote control

Function:

Tracer I (↑) execute the directional control valve Y1
Tracer II (↓) execute the directional control valve Y2

TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>



TITAN
TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS®

10. Heater

Function: The pump runs one minute in a pressure-free circulation to warm up the Oil

11. General

Weight incl. oil:	Approx. 35 kg (type dependent)
Dimensions [mm]:	HxWxL – 525x360x585
Tank capacity:	Approx. 3 l carryable
Motor connection:	Plug with 5m cable length
Pressure fluid:	Hydraulic oil 1.3 to 3.5 E at 30° C
Temperature range:	-30° to +80° C
Remote control:	Pressure Increase/decrease switch and 5 m cable length

TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

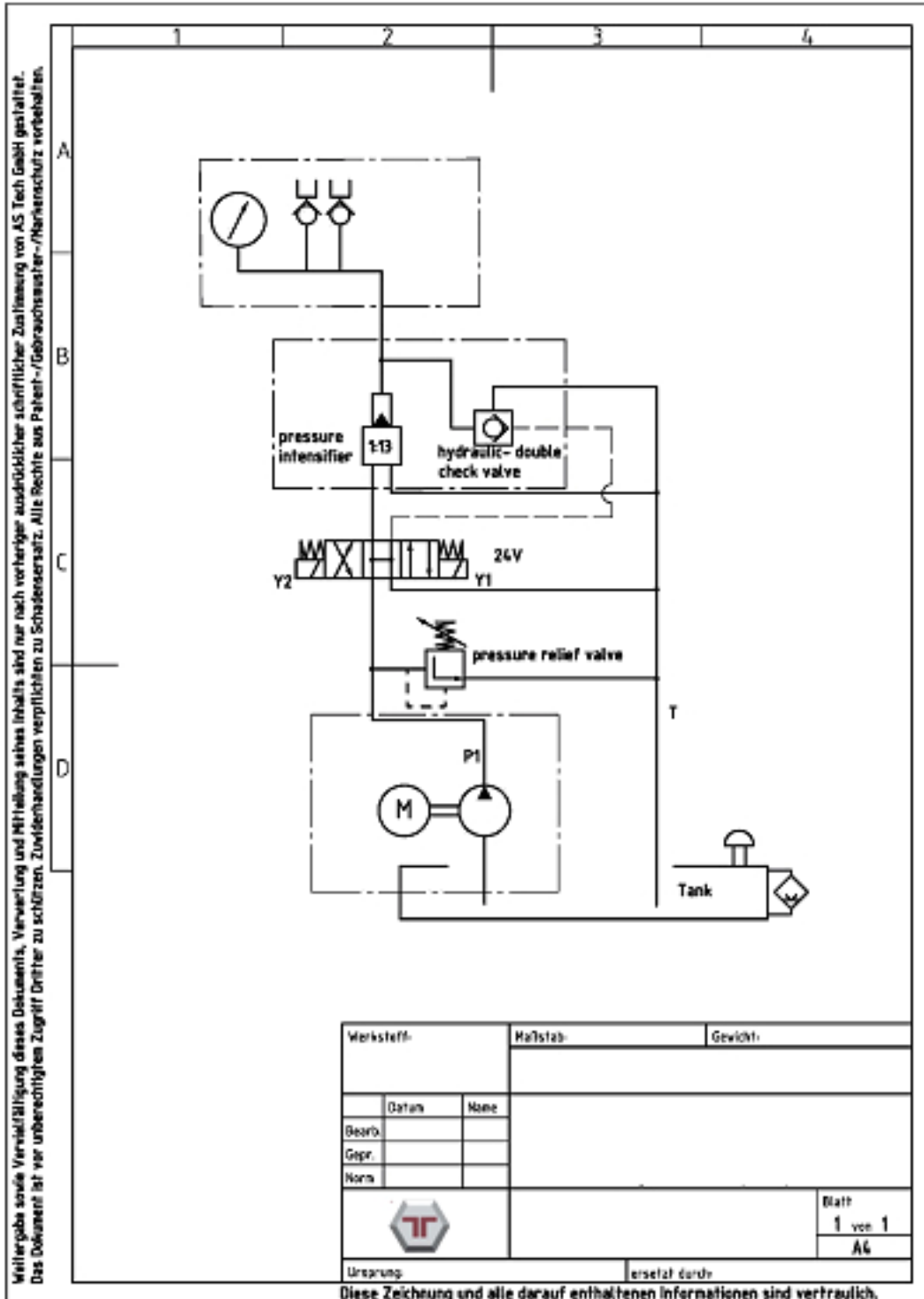
<http://www.titanti.com>



TITAN

TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS®

Hydraulic-schematic



TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

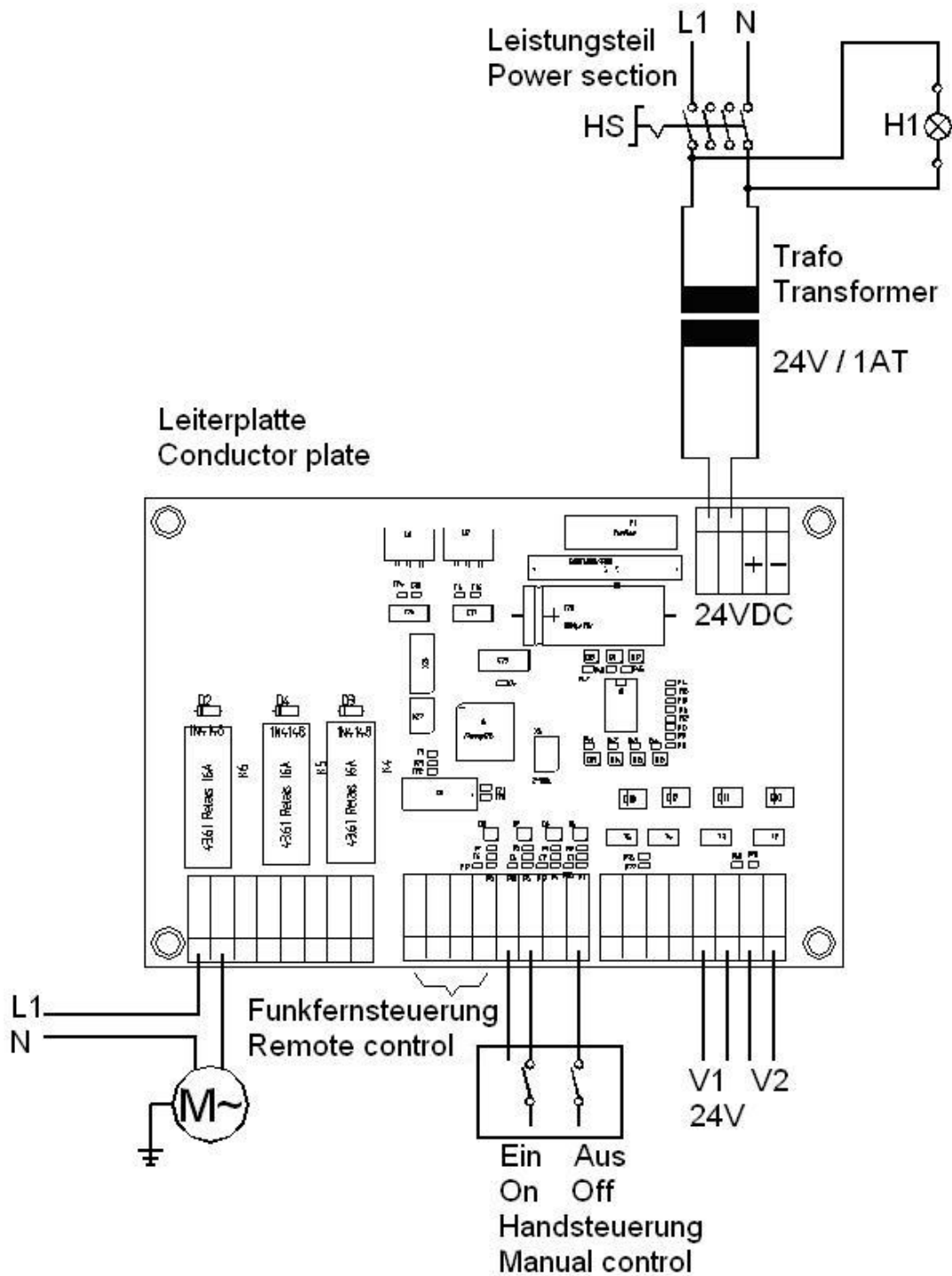
<http://www.titanti.com>



TITAN

TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS®

Electric-schematic



TITAN Technologies International, Inc.®

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

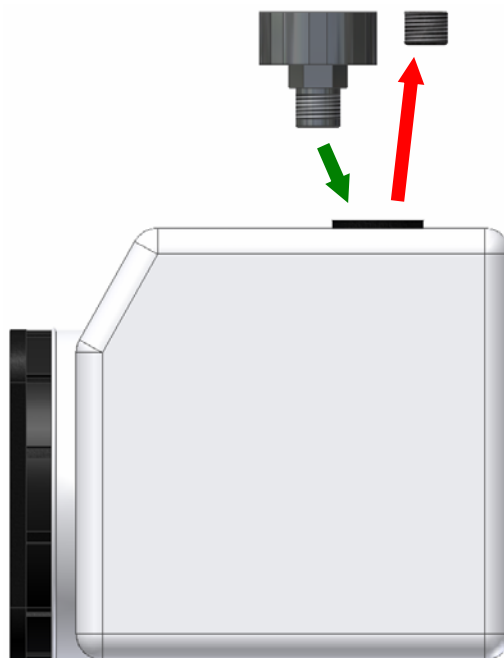
<http://www.titanti.com>



TITAN
TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS[®]

Appendix

Before starting the  plug has to be replaced by the venting screw! 



For each transport replace the
plug again!

TITAN Technologies International, Inc.[®]

9001 Jameel Street, Suite 180 • Houston, TX 77040

Toll-Free: 866.345.8484 • Phone: 281.449.9994 • Fax: 281.449.9996 • Email: sales@titanti.com

<http://www.titanti.com>