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# **INTACT® 1200**

# **INTACT® 1600**

## **Safety Instructions**

**Original Safety Instructions**

# **INTACT® V6.1R**

**Carl Zeiss Optotechnik GmbH**

# 1. Preface

This documentation contains information and procedures regarding the safe operation and the safe maintenance of INTACT tire inspection systems.

For your own safety and to prevent injuries, please read the documentation and, in particular, the instructions in the manual as well as the safety instructions thoroughly and always follow them.

## 2. Liability

Following the operating instructions is a prerequisite for trouble-free operation and for satisfying possible warranty claims. Carl Zeiss Optotechnik GmbH assumes no liability in the event of material damage or personal injury caused by improper use or the failure to follow the safety instructions.

## 3. Warranty

### **Exclusions from warranty**

A warranty claim shall be void if ...

- modifications have been made to the system version supplied by Carl Zeiss Optotechnik GmbH.
- maintenance work is not performed by personnel specially trained at Carl Zeiss Optotechnik GmbH.
- care measures are not performed by the operator or user in accordance with the instructions provided in the manual.
- original spare parts are not used for maintenance or repair work.
- the stipulated maintenance and care measures are not completed in accordance with the technical documentation.

### **Voiding of warranty claims**

The system manufacturer shall not be held liable for any damage caused by unauthorized measurements performed on the INTACT system. In the event of unauthorized manipulations, all warranty claims against the manufacturer and supplier as well as the validity of the EU declaration of conformity shall be void.

# 4. Intended Use

The INTACT is a high-tech tire testing machine which may only be used only for its intended purpose.

Using the system in accordance with the intended use also includes observing all information in this user manual as well as complying with the approved ambient conditions and the specified care measures. Any other use that runs contrary to these instructions, e.g. any deviation from the permissible operating values, is not regarded as intended use.

Appropriate protective equipment must be available, properly installed and fully operational. It must not be moved, bypassed or rendered nonfunctional.

The machine must not be used in rooms where a potentially explosive atmosphere occurs or could occur under certain circumstances.

The operating company must not make any changes to the program code on programmable control systems.

INTACT is foreseen for a 10 years periode of use.

In case of malfunctions of and/or damage to the electrical equipment, the INTACT tire testing machine must be switched off immediately and protected against unintentional restart. All disruptions and damage automatically indicated by the system or otherwise identified must be reported to the manufacturer of the tire testing machine immediately.

The INTACT tire testing machine serves the following purposes:

- Inbound inspection of used tires before retreading.
- Quality control of new tires.
- Testing of tires for trapped air, structural damage, separations and production-related damage.

The INTACT tire testing machine has been designed to be operated as a stand-alone unit. Make sure to follow the instructions below:

- The system may only be used in a technically flawless condition by trained operating personnel observing the applicable safety and accident prevention regulations.
- Operate only in compliance with the technical specifications.
- For indoor use only.
- Transport only with applied safety bolts.
- Do not operate outside the specified scope of application.
- Do not operate when wet.
- Do not make modifications and/or conversions.

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## 4.1. Reasonably Foreseeable Misuse

The INTACT tire testing machine must not be used for purposes contrary to the information given in these operating instructions.

Examples for reasonably foreseeable misuse:

- Carrying out test procedures with living objects.
- Operation and/or performance of care measures by persons who are under the influence of alcohol or other drugs or medication that impairs reaction times.
- Incorrect assembly of the machine.
- Operation of the machine by untrained personnel.

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## 4.2. Non-Compliance with the Intended Use

Non-compliance with the intended use may void the warranty.

The operator is solely responsible for any personnel injury and property damage resulting from non-compliance with the intended use.

# 5. Basic Safety Instructions



**Electric voltage**

Warning
Risk to life and limb due to electrical voltage. Burns, cardiac arrest, death.
<ul style="list-style-type: none"><li>- Do not open the machine housing until it is tension-free.</li><li>- Do not disconnect cables until the machine is tension-free.</li><li>- Do not operate or perform maintenance with untrained personnel.</li></ul>



**Laser radiation**

Caution
Health hazard due to laser radiation. Looking directly into the laser beam or through an optical device can damage the eyes.
<ul style="list-style-type: none"><li>- Do not look into the laser beam. Distance 15 cm.</li><li>- Do not look into the laser beam through an optical device.</li></ul>



**Movable parts**

Caution
Health hazard due to movable parts. Bruises, hand injuries.
<ul style="list-style-type: none"><li>- Do not stand under the loader / unloader during operation.</li><li>- Do not touch parts of the loader / unloader during operation.</li><li>- Do not touch parts of the tire flip during operation.</li><li>- Secure the lids at the loader / unloader side with transport bolts during maintenance and repair measures.</li></ul>

## 5.1. General Safety Measures

- Wear safety shoes and gloves during machine operation.
- Do not enter pressure chamber or optional tire flipper via loader and unloader or tilting table. Do not climb on the tilting table. It is forbidden for persons to stay around while the tilting table is in motion and operating. Before operating the tilting table, the operator must ensure that no persons are present in the danger zone. (Severe injuries!)
- Unauthorized persons must not have access to danger zones.
- The tire testing machine must not be subjected to shocks. Otherwise, it can be damaged.
- The tire testing machine must not be subjected to significant temperature fluctuations.
- The tire testing machine must not be operated:  
Temperatur: over +40 °C or below +10 °C.

Air pressure (sea level): <1000 m).  
Relative humidity: 10%-85 %.

- Danger of mortal electrical shock. Do not remove protective measures as isolation and shields.
- All work on the electrical equipment of the machine / system may only be performed by a qualified electrician according to electrical engineering regulations and with the main switch switched off and secured against being switched on again.
- All protective and safety-related devices, such as removable protective devices and EMERGENCY STOP devices, must be installed in correct position and enabled and fully functional.
- The company using this machine has to assure that safety measures as safety switches and safety light barriers of the machine are checked on regular base (function and mechanical stability).
- The company using this machine has to assure that personell in laser areas must be conversant with the procedures to be observed with respect to the laser accident prevention regulations.
- To prevent unauthorized persons from operating the machine PC login requires password. Keep it secret!
- The housing of the tire testing machine must not be opened during operation.

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## 5.2. Additional Safety Measures during installation

- **The additional instructions below must be followed during transport / installation of the INTACT tire testing machine:**
- Please use only adequately rated means of transport!
- The presence of persons under suspended loads/machine parts or between suspended parts and fixed objects is prohibited.
- Wear personal safety equipment (safety gloves, safety shoes and safety helmet) during transport!
- Pay attention to centre of gravity of the machine parts!
- In combination with customer owned conveyor: close gaps <120 mm between single conveyor belts! Remaining gap between conveyor belt and fixed object <= 5 mm. Compliance with these specifications must be ensured by the integrator or customer if customer owned conveyor technology (loader and unloader) is used.
- For operation with tilting table: Indicate area below tilting table as danger zone!
- Refer to instructions for transport of the machine in operator and service manuals.
- Use suitable aids for support.
- Secure components against falling over, e.g. by a second person.
- Secure the components immediately after installation.
- Seal off danger zone.

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## 5.3. Additional Safety Measures during operation

**The additional instructions below must be followed during operation of the INTACT tire testing machine:**

- The housing of the tire testing machine must not be opened during operation.
- During automatic operation there is danger of being crushed at pneumatic lids of the pressure chamber.
- Inspecting very large tire dimensions there is danger of being crushed during tire loading. Do not put your fingers through the safety fence!
- Tires must not exceed min / max dimensions!
- There is danger of being crushed during tire unloading at gravity roller conveyors.

- The presence of persons in the danger zone of the tilting table is prohibited while it is moving. Make sure that no one is in the danger zone before operating the tilting table.
- For machines with tilting table mounted at the pressure chamber: Do not reach at the danger zone of the pneumatic cylinder below the tilting table during tire loading! There is residual risk of being crushed at hand and arms.
- Do not climb the tilting table! May cause severe personal injury.
- Do not enter the pressure chamber!
- When the tilting table is raised, it is forbidden to reach into the danger zone of the lifting cylinder under the tilting table. Crushing hazard!

### ***Eliminating blockades/ disturbances in the work process***

Siehe Operating manual, Chapter Trouble Shooting.

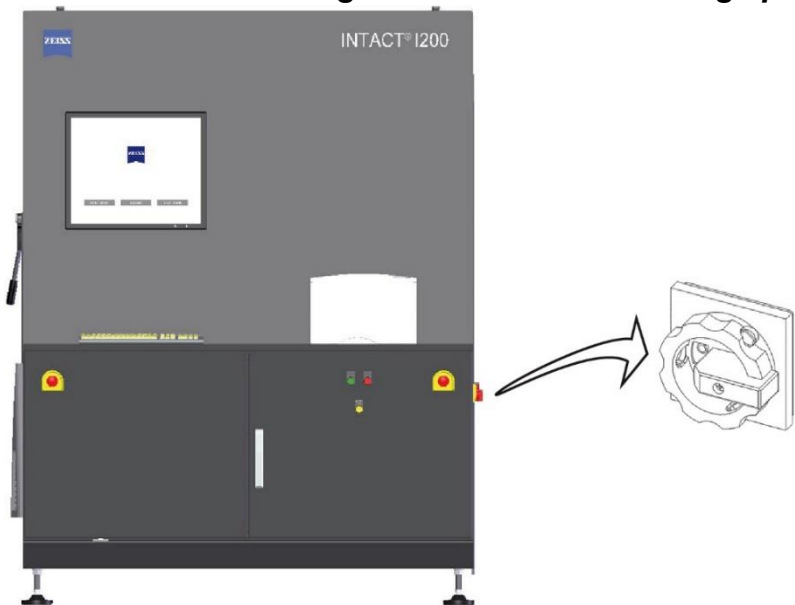
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## **5.4. Additional Safety Measures during maintenance**

**The additional instructions below must be followed during maintenance of the INTACT tire testing machine:**

- Maintenance services and alignment work must be performed only by trained personell using personal protection equipment and observing the regulations regarding work safety.
- Wear personal safety equipment (safety gloves, safety shoes) during maintenance!
- During maintenance services combinations of risks and multiple consequences may occur.
- Before starting any maintenance and service work, disconnect the instrument from the electrical supply and secure it against unauthorised restart (LOTO: Lock Out - Tag Out). When the power supply is switched off, the pneumatic supply is automatically switched off as well. The operating company must ensure that there is a main shut-off device in the compressed air supply line and that there is a lock so that it can be secured against being switched on again.
- During maintenance work, the machine must be depressurised and secured against being switched on again using a lock on this main shut-off device.
- Caution!  
Dangerous movements caused by inherent energy (compressed air) possible.
- Perform any work inside the pressure chamber only when machine is switched off and and secured against unauthorised restart!
- Do not enter the pressure chamber!
- Alignment work may require supplementary lighting. Use hand lamp!
- Only use original spare parts as only original spare parts meet the specified technical requirements.


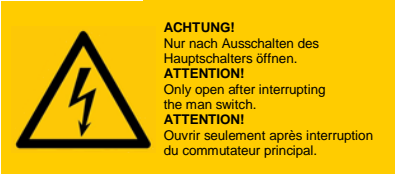

Disconnecting the machine from voltage/pressure









- 1. Switch off the main switch (1) on the INTACT and secure it with a padlock against being switched on again.
- 2. Put up a sign reading "Attention, working on the machine. Do not start the machine".

5.5. Product Safety Labels

The following warning signs are attached to the INTACT tire testing machine and its components:

<div><p><b>Warning hazardous voltage</b></p></div> <div><p><b>Warning hazardous voltage (Attention! Only open after interrupting the man switch.)</b></p></div>	<p>These symbols indicate danger due to high voltage (380 V – 500 V) especially inside electrical cabinets. Work may only be carried out by skilled personnel.</p>
<div><p><b>Warning laser radiation hazard</b></p></div> <div><div><p>LASER KLASSE 1 CLASS 1 LASER PRODUCT APPAREIL A LASER DE CLASSE 1</p><p><b>Note class 1 laser product</b></p></div><div><p>Invisible laser radiation Avoid direct exposure to beam Laser class 3B</p><p><b>Note class 3B laser product</b></p></div></div>	<p>These symbols indicate the special danger implied in working with lasers. Work on the measuring head may be done by trained personnel only!</p>

 <b>Warning of hand injuries</b>	This symbol indicates danger due to moveable parts. Work may only be carried out by skilled personnel.
 <b>No Access</b>	This symbol indicates access is prohibited because of severe risks in pressure chamber or flipper.
 <b>No stepping on surface</b>	This symbol indicates stepping on conveyor surface is prohibited because of severe risks on surface and in pressure chamber or flipper.
 <b>No fork lift trucks beyond this point</b>	This symbol indicates risk of damage for machine parts when supported by fork lift in this areas.
 <b>Danger zone</b>	These hatched areas mark the danger zone around the tilting table.
 <b>Do not reach into this area</b>	This symbol indicates areas that must not be reached into.

## 2.1. Requirements to operating company and personnel

The system may only be used, repaired and maintained by trained operating staff.

The company using this machine has to assure that personnel is trained on regular base. Applicable safety and accident prevention regulations must be observed at any time.

### ***Operating company***

The operating company must ensure that:

- all requirements regarding the installation site are met.
- the components and the complete machine are used as intended.
- all safety elements function as intended and comply with the provisions of the Ordinance on Industrial Safety and Health.
- all safety devices are properly installed and functional before each start-up of individual components and the complete machine.
- a person responsible for safety is appointed.
- only trained and qualified personnel work on the components and the complete machine.
- trained and qualified personnel working on the components and the complete machine have the appropriate training and experience.
- personal protective equipment is available to the trained and qualified personnel.
- the operating instructions / manual for the components and the complete machine are available at all times at the place of use.
- the industrial safety regulations are observed. This includes, for instance that:
- the operating company must comply with their monitoring and supervision duties.



- the operating company must carry out trainings to train instruct personnel on the individual components and the complete machine at fixed intervals.

### ***Trained and qualified personnel***

Only trained and qualified personnel is allowed to work on the components and the complete machine (machine / product).

Persons under the age of 18 may only work on the machine under the supervision of a trained and qualified specialist.

A trained and qualified specialist is a person who, due to his training and experience, can safely carry out the required work and is able to recognise and avoid possible risks and dangers.

The following conditions apply to trained and qualified personnel:

- trained and qualified personnel must have been appointed to perform the required work by a person responsible for safety.
- trained and qualified personnel must have the appropriate training and experience required for performing the work to be done.
- trained and qualified personnel must have received instruction on the components and the complete machine.
- trained and qualified personnel must have knowledge of the relevant standards, regulations, accident prevention rules and the respective operating conditions.

### ***Qualified personnel (for assembly)***

(Assembler, manufacturer's designing engineers, forwarding agents, transport personnel)

In the position to carry out the assigned tasks and to recognize dangers independently due to appropriate technical training, knowledge and experience Measures for hazard avoidance are known.

### ***Machine Operator***

Machine operator instructed by the operating company. Tasks and operating steps that go beyond operation in normal mode (measuring tires) may only be carried out by the machine operator after the operating company has expressly instructed him to do so.

### ***Service personnel / qualified personnel***

Includes (maintenance staff) and qualified and trained electricians

Supervisor appointed by the operating company

In the position to carry out the assigned tasks and to recognize dangers independently due to appropriate technical training, knowledge and experience Measures for hazard avoidance are known.

The supervisor (employee of the operating company) is trained and instructed by the manufacturer and able to carry out extended tasks on the machine. These tasks are specified in the operating instructions.

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## **5.6. 2.9 Procedure in the event of dangerous incidents and accidents**

### ***Rescue of injured persons***

1. Press the emergency stop button immediately.
2. Clamping cylinders and tilting table can be moved slightly by hand to free persons.

### Fire

1. Switch off the machine at the main switch.
2. If necessary, switch off the turning station at the main switch.

## 5.7. Additional Symbols and Warning Signs

### 5.7.1. Caution



Warning of direct danger for the operator. The operator must read text marked with this sign in the manual very carefully and observe the instructions given there.

### 5.7.2. Diode Laser or Retro-Reflective Sensor (Laser)



This symbol will be found at the measuring head, and it indicates the special danger implied in working with lasers. Work on the measuring head may be done by trained personnel only!

As the lasers are class 1M laser products in accordance with DIN EN 60825-1:2001-11, no further marking is required.

The symbol to the left is found on the retro-reflective sensors (laser) at the lead-in and lead-out lids and at the lift axis. The symbol shown below is provided on the holders of the retro-reflective sensors (laser). This warning sign indicates the special danger implied by the retro-reflective sensors (laser). They present a similar danger as the diode lasers. The retro-reflective sensors are class 2 laser products. As they are not switched off, you need to be particularly careful. Please observe the instructions and warnings given in the user manual for the retro-reflective sensors (laser).

### 5.7.3. Danger



Caution! Voltage!



Caution! Voltage!  
Cord is live even if main switch



Achtung!  
Nur nach Ausschalten des  
Hauptschalters öffnen!

Only open after interrupting  
the main switch.

Ouvrir seulement après  
interruption du  
commutateur principal.

These symbols are found on the control cabinet and the terminal box of the tire testing machine. They indicate danger due to high voltage (380 V – 500 V). Work may only be carried out by skilled personnel.