Fulfills the **SOLAS Container Weight Verification Requirement**

LASSTEC™

LASSTEC

Container Weighing System

CONDUCTIX wampfler

DELACHAUX GROUP

The LASSTEC-Solution

The Twistlock Container Weighing System is designed to measure the load in each twistlock of single- and twinlift spreaders.

Each sensor measures the load of the twistlock which is then sent into a central data processing unit on the spreader from where the information is sent to the crane PLC and to the TOS.

The system also provides various signals to improve operational safeties and it allows to monitor twistlock and spreader life cycles.

The sensors can measure loads up to the twistlock yield point.

LASSTEC™

Fulfills the **SOLAS Container Weight Verification Requirement**

LASSTEC – the container weighing system which complies with the new SOLAS regulation – marketed and supported by the worldwide network of Conductix-Wampfler.

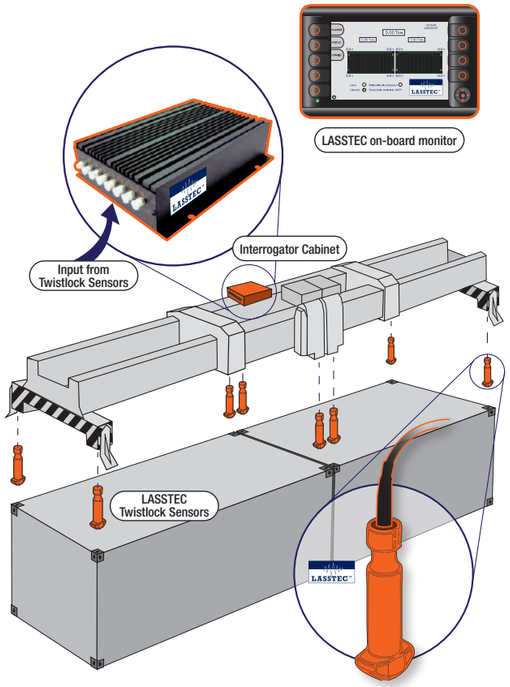
The responsibility to provide the VGM (Verified Gross Mass) of a container lies with the shipper. However, the most practical location to weigh containers is in the ports and terminals.

There are several places in a terminal to weigh containers:

1. **Weigh Bridges**: These are very precise, but if trucks arrive with two 20 ft containers, they cannot be weighed individually. In addition, if the trucks leave the terminal with a container, then the tare weight of the truck cannot be taken.

2. **Ship To Shore cranes**: according to SOLAS regulation, weighing with STS cranes is too late in the process. The manifest and the stowing plan cannot be updated before the containers are being loaded onto the vessel.

3. **Weighing in the stacking yard**: Every container, whether it arrives by road or rail, passes through the stacking yard prior of being loaded onto a vessel. This is the most convenient and practical place to weigh. It needs no infrastructure changes in the terminal and it does not interrupt the work flow.



The LASSTEC system is the first technology to measure the load "where it really happens", namely directly on the spreader twistlocks.

The same system can be installed on any existing and new spreader and in any application.

Key Advantages

Topic	Advantage
Sensor load measuring range	The sensor can measure loads up the yield point of the twistlock and tell if a twistlock has to be replaced.
Cost of twistlocks	Standard twistlocks can be used with holes drilled by the spreader makers.
Operating costs	Replace the twistlocks when their lives are consumed.
Accuracy	As per OIML R51: +/-200 kg up to 10 tons and +/- 300 kg up to 40 ton in static mode.
Load cycle history	Register complete load cycle history of each twistlock and spreader. **• Full overload cycle history can be traced over the life of the twistlock**
Operational safety	Detect if a twistlock is stuck in a container corner after unlocking and when hoisting the spreader. **• Prevent container being lifted on one corner and being dragged over the stack**
Lifting container accidentally on one side	If by accident a container is lifted up to a height of 1,5 m on one side, then the 2 twistlocks may get stretched and damaged. **• The sensor will tell if the twistlock was damaged and needs to be replaced**
Adaptability	The sensors and the system fit a wide range of twistlocks, spreaders and applications.
Supervision & calibration	Conductix-Wampfler international service platform and network will assist customers for installation and will insure the supervisions of the systems.
Certification	OIML R51 I Directive 2014/32/EU

Use LASSTEC to...

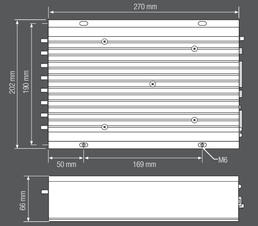
- Measure exact container weights in single and twinlift modes during the load cycle.
- Determine load eccentricity of containers in single-, twinlift spreader applications.
- Ensure all twistlocks are engaged and are carrying a load when lifting a container.
- Detect if a container is accidentally lifted with the spreader on one side only.
- Monitor and record twistlock load cycles to optimize replacement intervals.
- Provide spreader and crane life cyclemanagement and track overload situations.

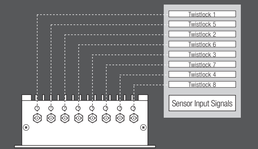
Features

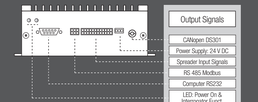
- The system can be installed into new and existing spreaders without modifying the spreaders.
- The fiberoptic sensor is inserted into a small hole drilled into the center of the twistlock. The hole is only 3mm in diameter so that it won't affect the structure of the twistlock. Twistlocks are recertified after drilling.
- The sensors are totally insensitive to shock loads, vibrations, EMI, humidity and corrosion.
- The fiber optics sensors can measure loads up the twistlock yield point. The twistlock yields before the sensor gets damaged!
- No periodic re-calibration is required during twistlock life.
- All major spreader makers endorse the system and provide their twistlocks drilled and re-certified.
- The data is processed on the spreader and sent via CAN bus through the existing spreader cable or by WIFI to the crane or machine.
- The VGM and Time Stamp can be sent to the TOS through existing data communication channels or by WIFI. LASSTEC systems feature communication interfaces which can be used for transmission to TOS upon specification. The container ID can be manually transmitted to the TOS. Conductix Wampfler assists terminals in establishing the data communication.
- A dedicated monitor in the cabin visualizes the container weights,and load eccentricities and any occurring operational alarms. Load cycles can be stored for a period of 10 years.
- The system meets accuracy and certification as per OIML R51 requirements.

System Overview

Technical Data	
Max. capacity reading per twistlock	100'000 kg
Load sampling rate per twistlock	50 Hz
Accuracy	as per OIML R51: +/-200 kg up to 10 tons and +/- 300 kg up to 40 tons in static mode
Interrogator Output Signals	CANopen DS301
	RS485 with Modbus protocol
	Profibus Module (optional)
Interrogator Output Data	Date and Time, Container size
	Load of each twistlock, Total load (Real time weight)
	Stabilized Container weight
	Load eccentricity (in X and y-axis)
	Peak load for each twistlock when lifting container, Total peak load
Alarm Data	Consult Conductix-Wampfler
Interrogator power source	24 VDC, 1 A (min 18 V DC / max. 28.5 V DC)
Interrogator protection	IP55
Interrogator operating temperature range	-30°C to +60°C
Interrogator Humidity resistance	Max 90% at 40°C without condensation
Interrogator shock & vibration resistance	According to IEC 60068-2-6
Interrogator EMC resistance	EN 61000-6-2, EN 61000-6-3,
	EN 61000-4-2, DIN 40839-T1
Functionality indications with built-in LEDs	Power On/Off
	State of Interrogator functioning
Menu driven software and PC Interface	RS232 for calibration and Interrogator diagnostic
Interrogator weight	2 kg
Signals required from the spreader	Twistlocks locked
	Twistlocks unlocked
	Spreader in 20, 30, 40 and 45 ft positions
	Spreader in Twinlift mode







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For more information on LASSTEC please contact us.

lasstec@conductix.com

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