

ICON COMPENSATED TENSION LIFT FRAME

Passive Heave Compensation

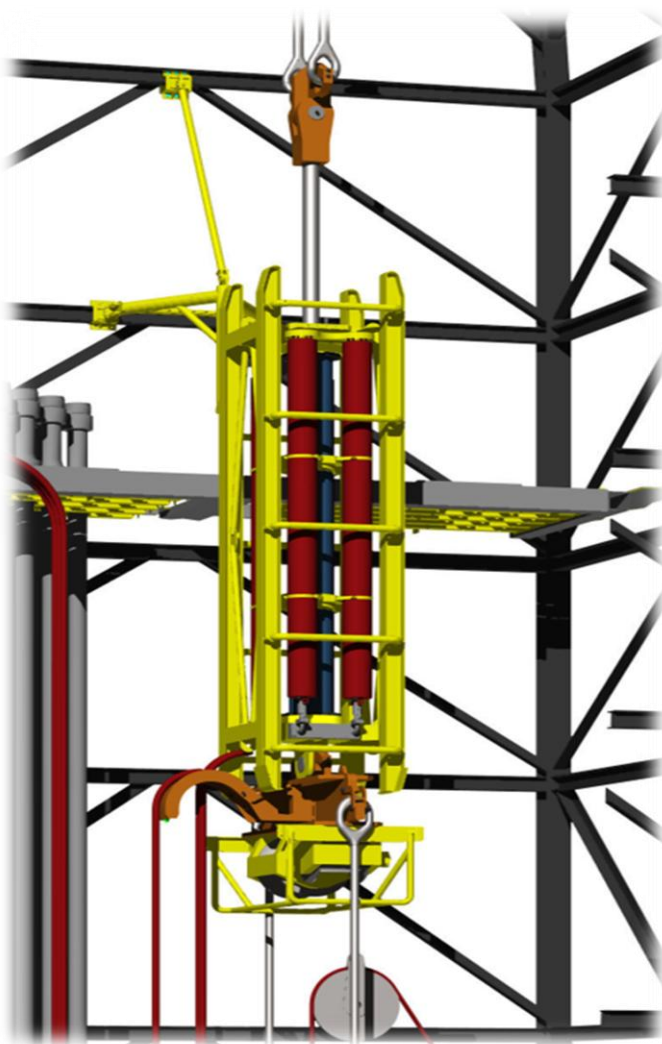
Standard Unit or Customised to Client's drilling program

Sheet 1 of 2.

The ICON Compensated Tension Lift Frame (ICTLF) System is designed to be installed as part of the travelling block assembly on a semi-submersible drilling rig. It is similar in operation to a standard MODU drill string compensator, mounting to the top drive unit and therefore can be rapidly deployed as required.

The ICTLF's function is to minimise hook load variations due to vessel heave.

The ICTLF can be installed either as a Primary Compensator or as a Passive back up to an active heave compensation system, when configured with ICON's "Safe-Link" system.



View showing Compensator unit.

ICON Primary/Passive Units. (Independent of Rig String Compensator system) Standard Features:

The ICTLF assembly installs directly to the top drive using either Bale Arms or a Saver Sub connection ensuring quick deployment.

The Compensator assembly connects to the Tension Lift Frame. The Tension Lift Frame comprises of spreader beams and bale arms, which enable wire line or coil tubing activities to be performed within the frame. The lower spreader beam of the Tension Lift Frame connects to the Surface Flow Tree.

The ICON Compensated Tension Lift Frame comes standard with a 4.5m stroke and a Dynamic / Static load capacity of 250 short tons. However, Icon can customise solutions up to a 7m stroke and up to 500 short tons dynamic / 750 short tons static.

The ICTLF is equipped with anti-recoil valves that sense sudden load release and **safely arrest the motion of the compensator in the event of drill string failure**. The unit also incorporates a lock off facility to hydraulically lock the Compensator unit during operations.

The ICTLF Primary Passive Heave Compensator system only requires a H.P. rig air supply for system operation. No external power supply is required, making this system ideal for hazardous areas.

The supplied control panel provides all necessary instrumentation to enable remote operation and monitoring of the ICTLF system during use.

Based on ICON's extensive experience, our units are constructed using materials sized and suited to the harsh marine environment, ensuring long reliable life and low maintenance.

Every unit ICON supply is **Certified, Safe and Compliant** to any of the current offshore codes or standards (eg – API 8C), at your request.

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ICON Secondary/Passive Units. (Back Up to the Rig String Compensator system) Standard Features:

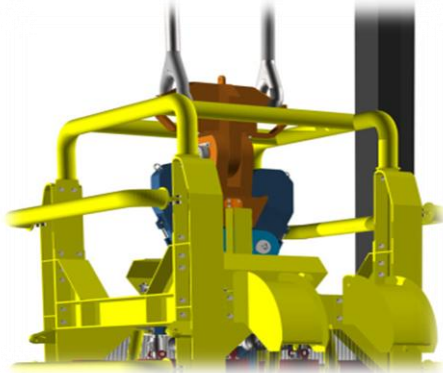
This model of the ICTLF incorporates the Icon Safe Link feature enabling the ICON Compensated Tension Lift Frame to be utilised as Back up to the Rig String Compensator system. The safe link feature constantly monitors drill string tension and triggers the ICTLF to begin compensation in event of accidental lock up of the rigs drill string compensator.

The ICON Compensated Tension Lift Frame when configured as a Secondary/Passive Unit comprises all features within the Primary/Passive Unit.

The ICTLF control system requires an electrical power supply. This powers additional load cells, providing data to digital load readouts and the Programmable Logic Controller. All electrical equipment supplied is Ex Rated.

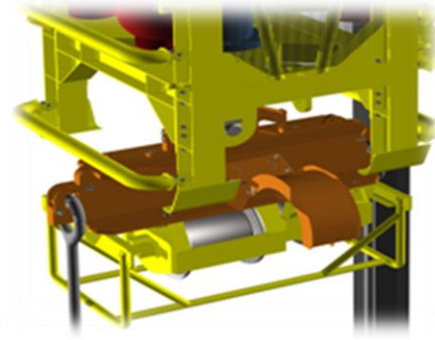
Optional Extras / upgrades available:

- **Static Load Locks.**
To maintain retracted position and enable static loads in excess of the rated dynamic capacity.
- **Linear or Pressure Transducers.**
Provides cylinder position data or pressure data to the control system.
- **Touch Screen panel.**
Provides a graphical user interface to monitor, adjust and operate the compensator system.



View showing Static Load Locks

- **Dolly Track Guides.**
Eliminates movement caused by vessel pitch / roll.



View showing Winches and Lower Spreader Beam

- **Hydraulic Winches.**
To enable working crew to install Coil Tubing or Wire Line equipment independently, without the need for Rig Crane services.
- **Access Platforms.**
Allows your working crew to access the ICTLF quickly, safely and easily.



View showing optional ICON Access Platform.

- **Fluid Supply Upgrade Skid.**
Add volume / remote reservoir for the ICTLF skid.
- **Air Compressors.**
Either Electric or Diesel driven Air Compressors allows independent increase of Capacity or Redundancy to compliment or replace the need for Rig Air.

ICON understands the challenges clients face and we are happy to discuss your specific drilling needs. Please feel free to discuss with our staff any queries you may have regarding Heave Compensation issues.