

EVOLUTION 6000

(CRT-350)



Introduction

The CRT-350 (Casing Running Tool) introduces a change in the way casing is run today on land rigs and smaller offshore drilling facilities. By combining the functionality of field proven tools such as the Top Drive, Slip Type Elevator, Fill-up and Circulation Tool and Single Joint Elevator, casing operations are now safer, faster and more efficient.

The CRT, which is connected directly to the Top Drive main shaft, hoists, rotates and lowers casing. Additionally, while reciprocating and rotating the casing string, the CRT has the ability to fill-up and circulate to 5,000 psi.

Safety

- Eliminates stabbing-board operations, the leading contributor to LTA's (Lost Time Accidents) while running casing
- In the V-door, less manual pipe & equipment handling therefore fewer safety hazards
- Can be used with Frank's Data-Trek™ Torque-Turn Computer System
- If used for casing tong operations, work platforms are removed, allowing better ergonomics and work space around the well center

Economics

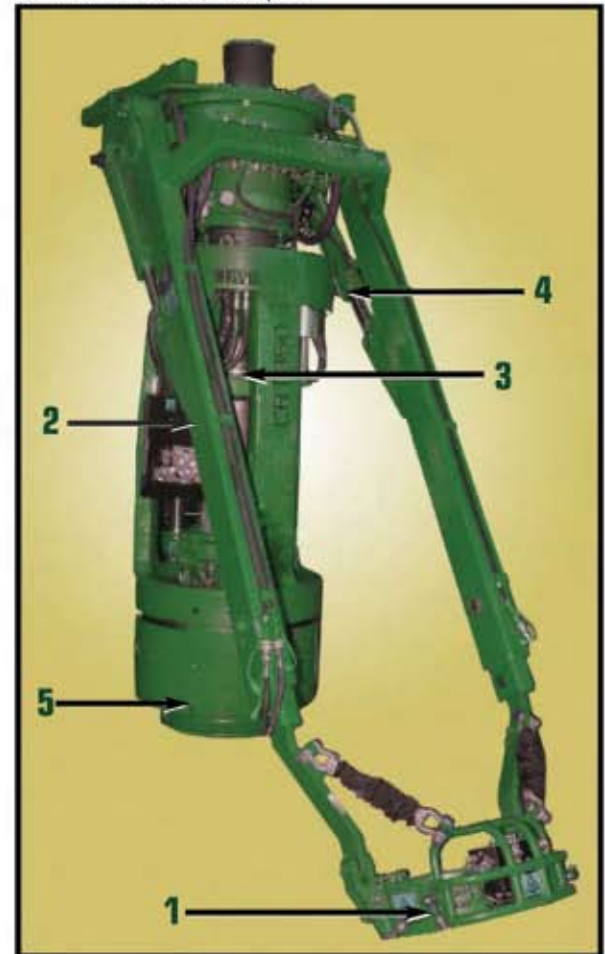
- The CRT's integral compensator substantially reduces the risk of damage due to cross-threading

Well Improvements

- Assures that the casing can be set to the casing point due to the ability of the CRT to push casing to bottom, fill, circulate, rotate and reciprocate
- Reduces the risk of differential wall sticking
- Provides the ability to pressure test casing

Efficiency

- Less equipment to rig up; the CRT combines the single joint elevator, rigid link single joint hoist and stabbing assembly, fill-up and circulation tool and compensator into one assembly
- Single load-path design eliminates elevator links
- A single operator controls all of the functions of the tool from a single control console
- When running mixed strings, pipe size specific components can be changed within minutes due to the twist-lock attachment of the lower body to the upper frame and insert carrier/slip design (insert carriers are available for pipe sizes ranging from 4 1/2" through 9 5/8")



Model 350 Casing Running Tool, showing Single Joint Handling Assembly (CRT-SJHA):

1. Hydraulic operated Single Joint Elevator (HSJH)
2. Adjustable Link-Tilt Frame
3. Fill and Circulation Tool
4. Cylinder assembly for SJHA link tilt
5. Twist Lock for easy slip access

Features

CRT Body

- CRT Body contains quick change out slip assembly via hangers from a visible load beam

CRT Compensator

- Employs a patented cushioned weight compensator which balances out the weight of the CRT and a single joint of casing
- Soft stabbing and thread compensation minimizes casing thread damage

CRT Pipe Sensors

- Pipe sensors detect the casing coupling so slips will set automatically at the correct position below the coupling, ensuring casing connection integrity

CRT Fill-up and Circulation Tool

- Fill-up tool enables fast change out of seal and guide elements when mixed strings are run
- Prevents possible spills of expensive fluids
- Reduces the risk of environmental incidents

Single Joint Handling Assembly (CRT-SJHA)

- Hydraulic operating SJH-elevator (HSJH)
- Cylinder assembly for SJHA link tilt
- A frame to house the above listed SJHA components

Components

The CRT-350 consists of the following components:

1. Hoist and Torque Tool (CRT-HTT)
2. Single Joint Handling Assembly (CRT-SJHA)
3. Hydraulic/Air Swivel (CRT-HAS)
4. Service Loop (CRT-SL) (not shown)
5. Controls (CRT-CTRL) (not shown)
6. Hydraulic Power Unit (CRT-HPU) (not shown)



Specifications and Dimensions

API 8C Hoist Rating	350 ton / 317 M tons
Casing Size	4 1/2" to 9 5/8"
Fill-Up and Circulation	4 1/2" to 9 5/8" circulation and fill-up (fill-up, circulate, and recovery over the full range)
Maximum Mud Circulation Pressure	5,000 psi / 34,500 KPa
Rotational speed	0-20 rpm
Weight	10,000 lbs / 4,536 kg
Maximum Push Down Force	20,000 lbs / 9,072 kg
Transport skid	Complies to DnV rules for lifting Appliances.
Temperature Range	-20° to +40° [°C] / -4° to +104° [°F]
Maximum Torque	35,000 ft. lb.
Diameter of CRT body	31 1/2"
Height*	120 1/2" (Compensator neutral pos.)
*Stackup length is from TDS Bell Guide	