TorkDrive™ Compact Casing-Running and Drilling Tool

Runs and pulls casing, reams and drills with casing in a wide range of applications

Applications

- Safety-driven operations
- Troublesome wells
- Offshore and onshore rigs

Features and Benefits

- The tool can push down or reciprocate, circulate, and rotate casing during casing-running operations and drilling-with-casing (DwC™) or reaming-with-casing (RwC™) operations. This reduces the possibility of differential sticking and other problems that can lead to nonproductive time.
- The tool enhances rig-floor safety by replacing conventional tongs, elevators, and personnel to operate them. Remotely operate bails eliminate the need for a stabber in the derrick.
- The external clamping tool handles 3 1/2- to 9 5/8-in. casing; the internal clamping tool handles 9 5/8- to 20-in.casing.
- The flowback feature of the mud-saver valve enables automatic switching between fill-up and flowback modes, which saves time by eliminating the need to remove the mud-saver valve or reposition the tool.
- The internal full-bore design enables high-volume circulation while running casing or drilling, as well as drilling-fluid recovery in tight-tolerance casing-string designs.
- Fill-up mode of the internal tool enables venting of compressed air during casing fill-up operations. That eliminates pressure buildup and the sudden release of compressed air as the tool is removed from the casing.
- The active hydraulic compensation system of the external tool prevents thread damage, which makes the tool effective for premium connections.
- Multiple safety interlocks that prevent dropped strings enhance safety.
- Hoisting with the top-drive connection rather than the elevator bails (links) enables rotational speeds up to 100 rpm for more efficient makeup cycles and DwC operations.
- Multiple torque-reaction-bracket designs adapt to any rig structure for faster operational response.

ECT-Plus ICT-TS

The compact size of the TorkDrive casing running and drilling tool increases rig-up and rig-down efficiency for land operations. The tool is available in external (ECT-Plus) and internal (ICT-TS) gripping models and is part of the Weatherford TorkDrive tool suite.

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Features and Benefits (continued)

- Integral torque/turn monitoring capabilities are independent of the top drive control system and facilitate safe and efficient troubleshooting:
  - The TorkSub™ electronic load cell provides applied torque measurement
  - A high−resolution turns sensor monitors turns/rpm during makeup, which enables a response to inadequate or excessive torque.
  - The tool is ATEX certified for use in Zone 1 hazardous environments, which eliminates the potential for gas ignition.
- The tool is used with Weatherford TorkPro™ software to display torque data and enable monitoring of dynamic forces that could affect connection makeup.

Tool Description

TorkDrive tools are the primary components of the Weatherford OverDrive™ system, which provides a safer, more efficient alternative to conventional casing installation. Each TorkDrive tool is a combination of several conventional casing-running tools—the power tong, elevator, fill-up/circulation tool, and weight compensator.

The compact size of this tool increases rig-up and rig-down efficiency for land operations. The tool accommodates multiple casing sizes and is available in external or internal gripping models. It is well suited for drilling or reaming with casing and for challenging well applications.

Mounted on the top drive and operated remotely, the tool uses the rotational power of the top drive to make up the casing. This configuration eliminates the scaffolding, equipment, and personnel typically needed on the rig floor to run the casing. The tool can interface with any top-drive system. It can be installed quickly to the top drive or rig structure without modifications and can be used to circulate, push down, reciprocate, and rotate the casing string.

The Weatherford TorkDrive tool suite also includes the TorkDrive 750 heavy-duty, TorkDrive 650 modular, TorkDrive 650 electric modular, and TorkDrive DT casing-running and drilling tools.

Options

- The remotely operated single-joint elevator enables hands-free operation.

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Specifications

Measurement

Clamping Tool	External	Internal
Pipe sizes	3-1/2 to 9-5/8 in. (88.9 to 244.5 mm)	9-5/8 to 14 in. (244.5 to 355.6 mm)
Rated load[a]	350 tons (317,515 kg)	500 tons (453,592 kg)
Maximum makeup torque capability[b]	40,000 ft-lb (54,233 N•m)	60,000 ft-lb (81,350 N•m)
Connection to top drive	6-5/8 in. API Reg	
Design standard	API 8C PSL1	
Maximum push-down force	10 tons (9,072 kg)	
Maximum rotating speed	100 rpm	
Approximate weight with fill-up tool	7,496 lb (3,400 kg)	5,512 lb (2,500 kg)
Maximum circulating pressure	3,625 psi (250 bar)	5,000 psi (345 bar)
Operational temperature range	–40°F to 122°F (–40°C to 50°C)	
Minimum tool ID with fill-up tool	2.5 in. (64 mm)	2.0 in. (51 mm)

[a] The string weight and circulation pressure are included.
[b] Torque limits for rotating or drilling with casing should be calculated separately. For additional information, contact Weatherford, or refer to the appropriate calculation software.

Power Unit

Weight, including oil	3,310 lb (1,500 kg)
Length	67.2 in. (1,702 mm)
Width	35.3 in. (896 mm)
Height	70.2 in. (1,783 mm)
Power	30 hp at 400V/50 Hz (22 kW at 400V/50 Hz)
	34 hp at 460V/60 Hz (25 kW at 460V/60 Hz)

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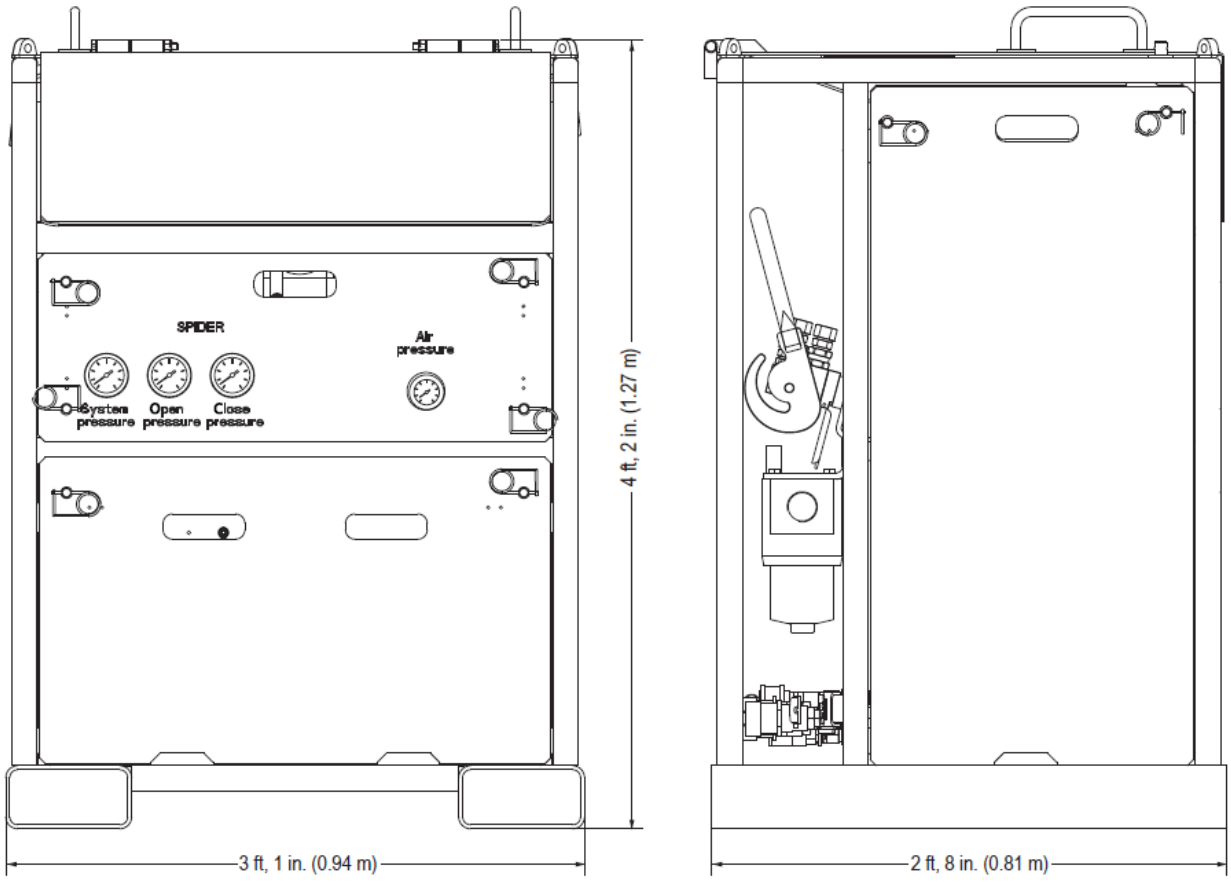
Specifications (continued)



Control Panel

Approximate weight	1,102 lb (500 kg)
Maximum hydraulic pressure	3,046 psi (210 bar)
Maximum hydraulic flow	15.8 to 17.2 gal/min (60 to 65 L/min
Maximum hydraulic fluid temperature	176°F (80°C)
Oil filtration	10 µm

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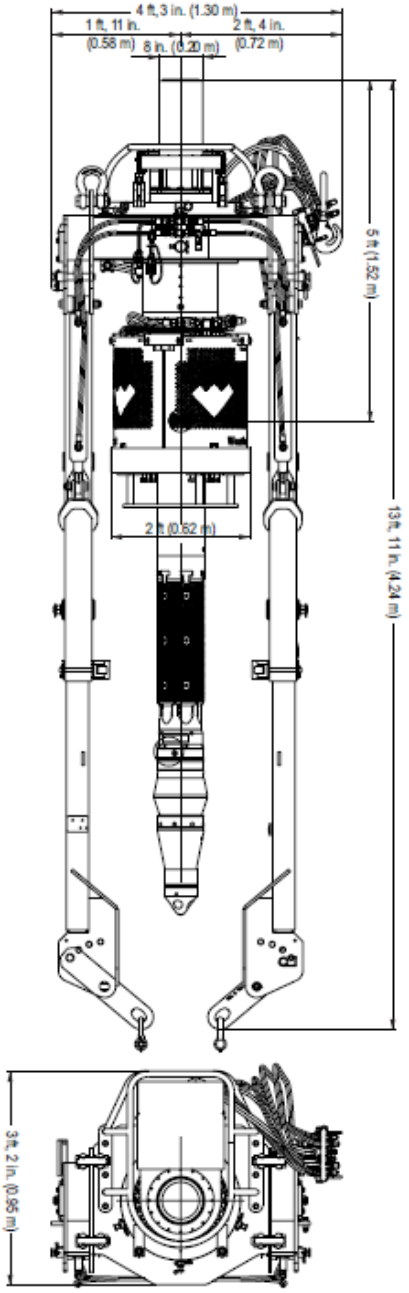
Specifications (continued)



9 5/8- to 14-in. ICT-TS

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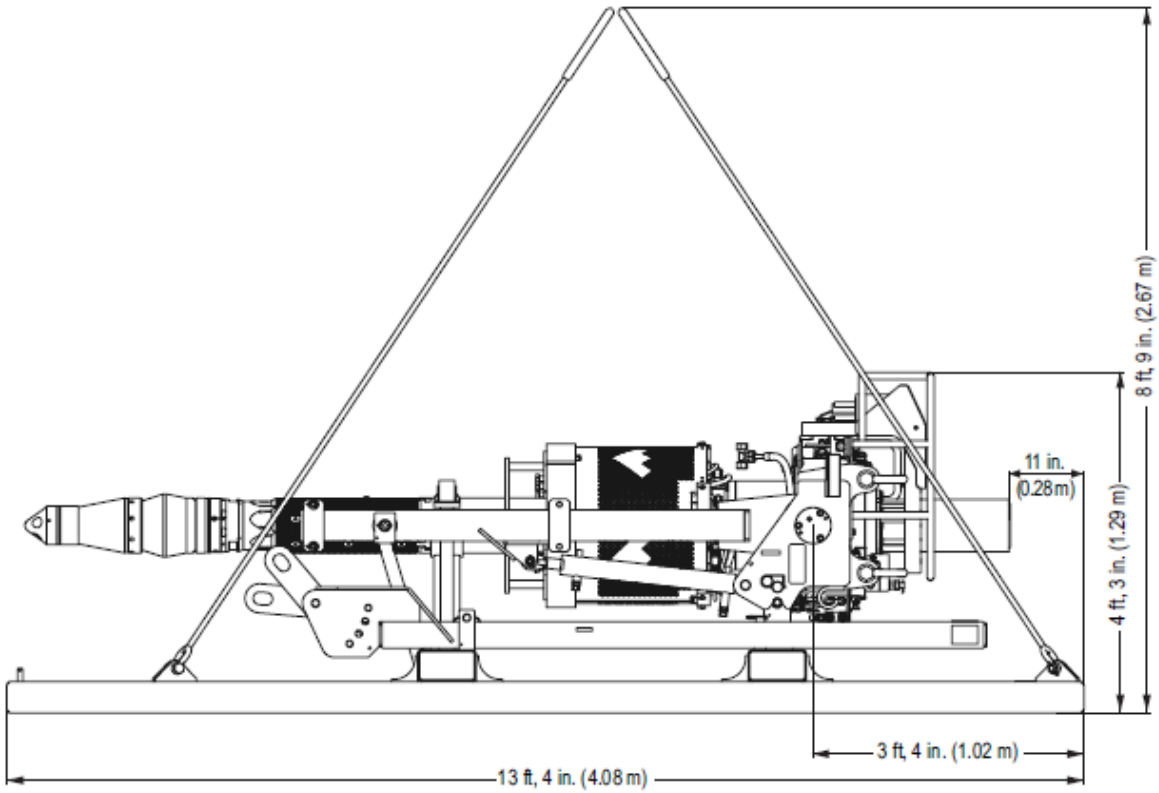
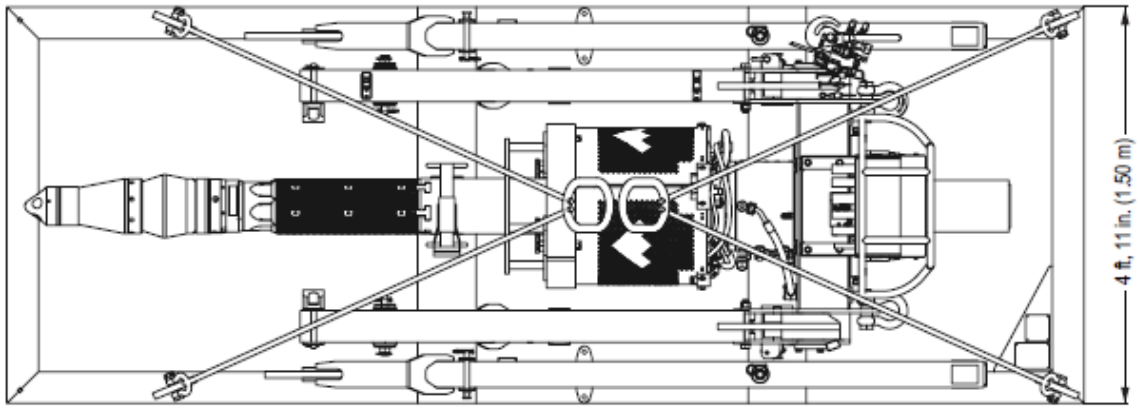
Specifications (continued)





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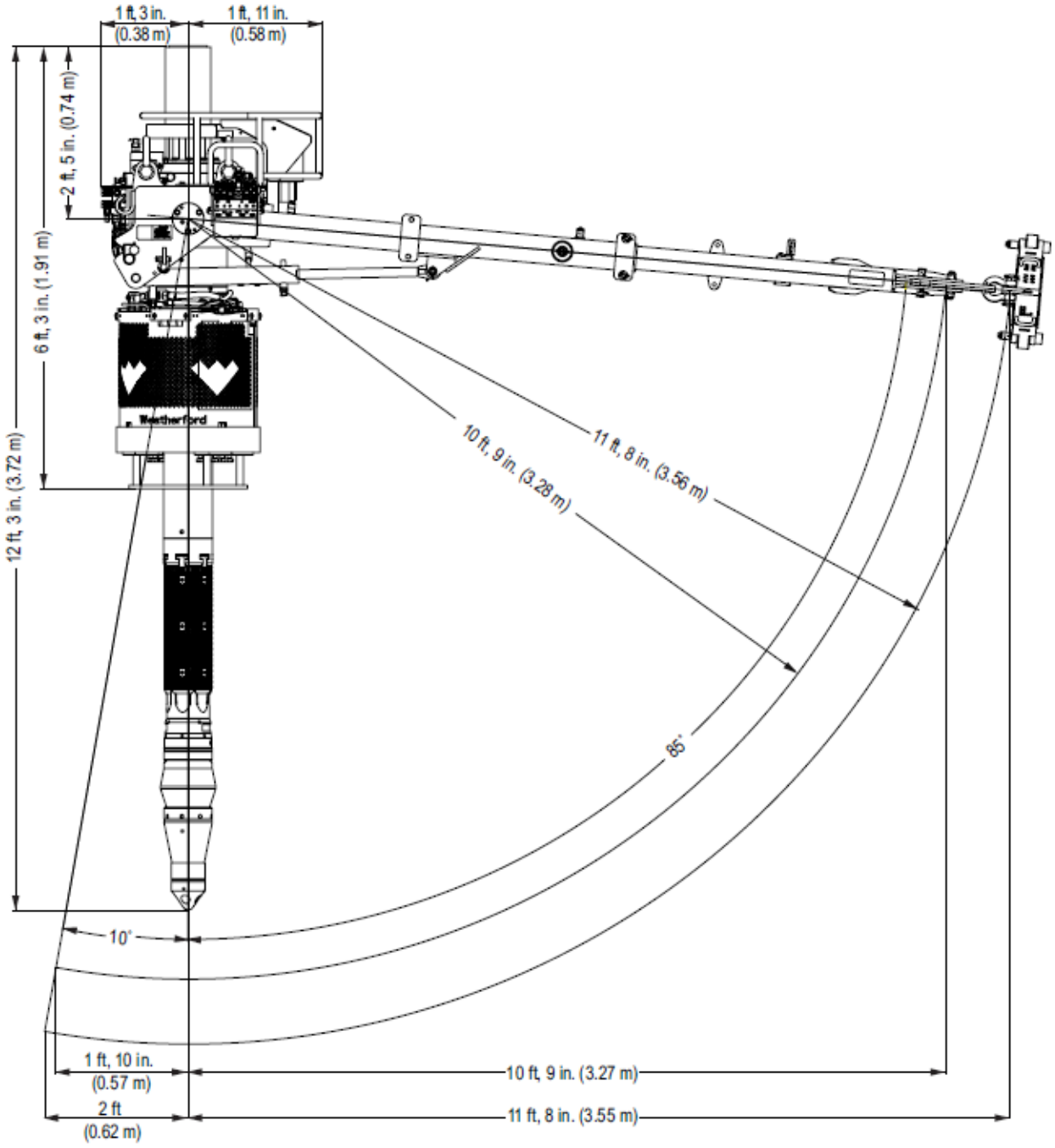

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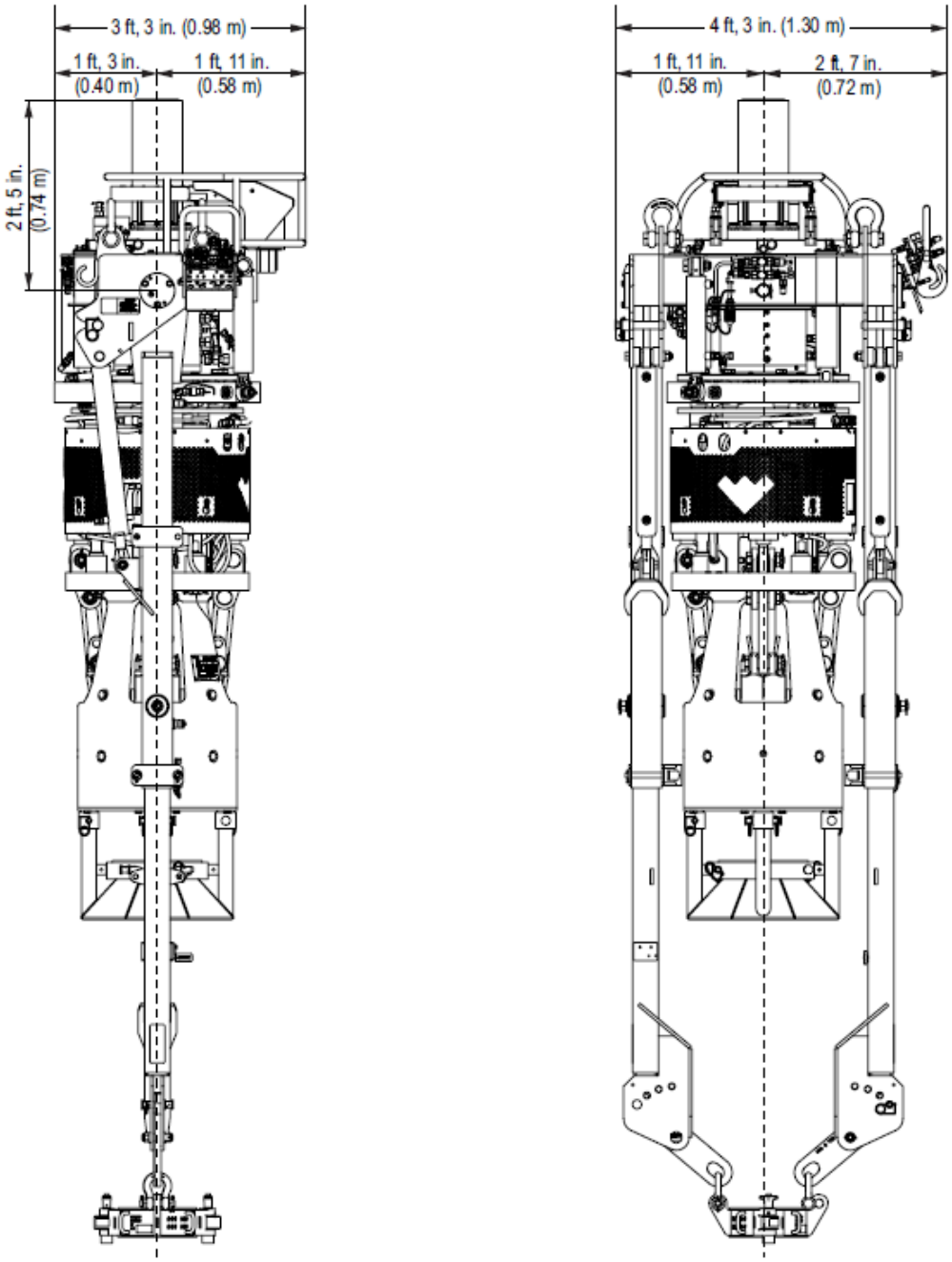
Specifications (continued)



3 1/2- to 9 5/8-in. ECT-Plus

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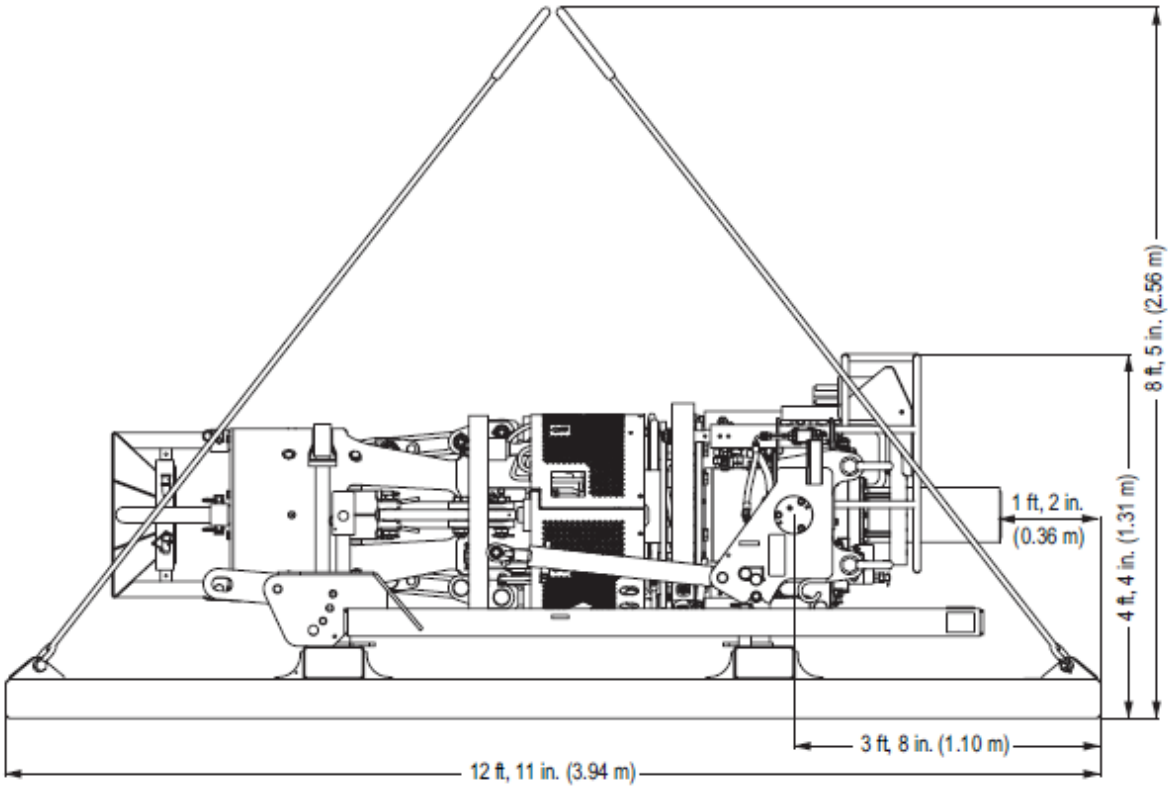
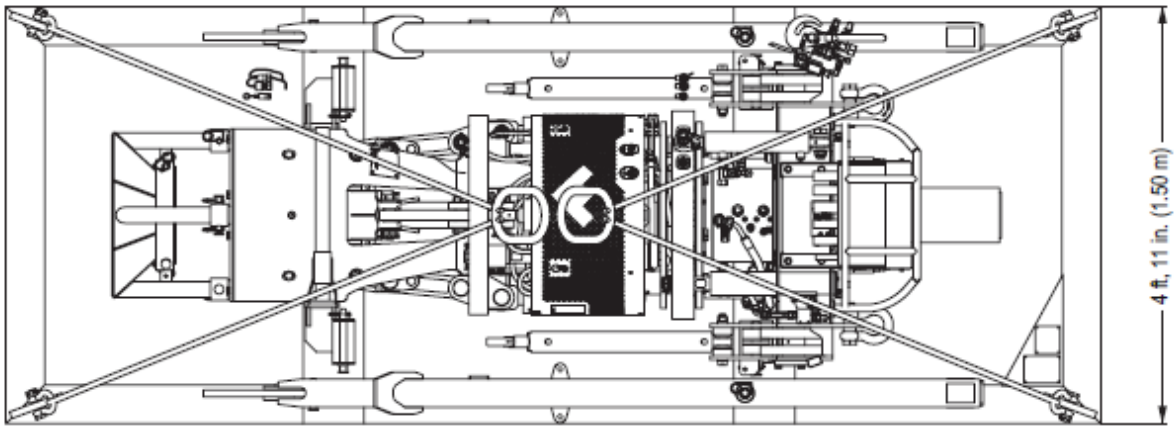
Specifications (continued)





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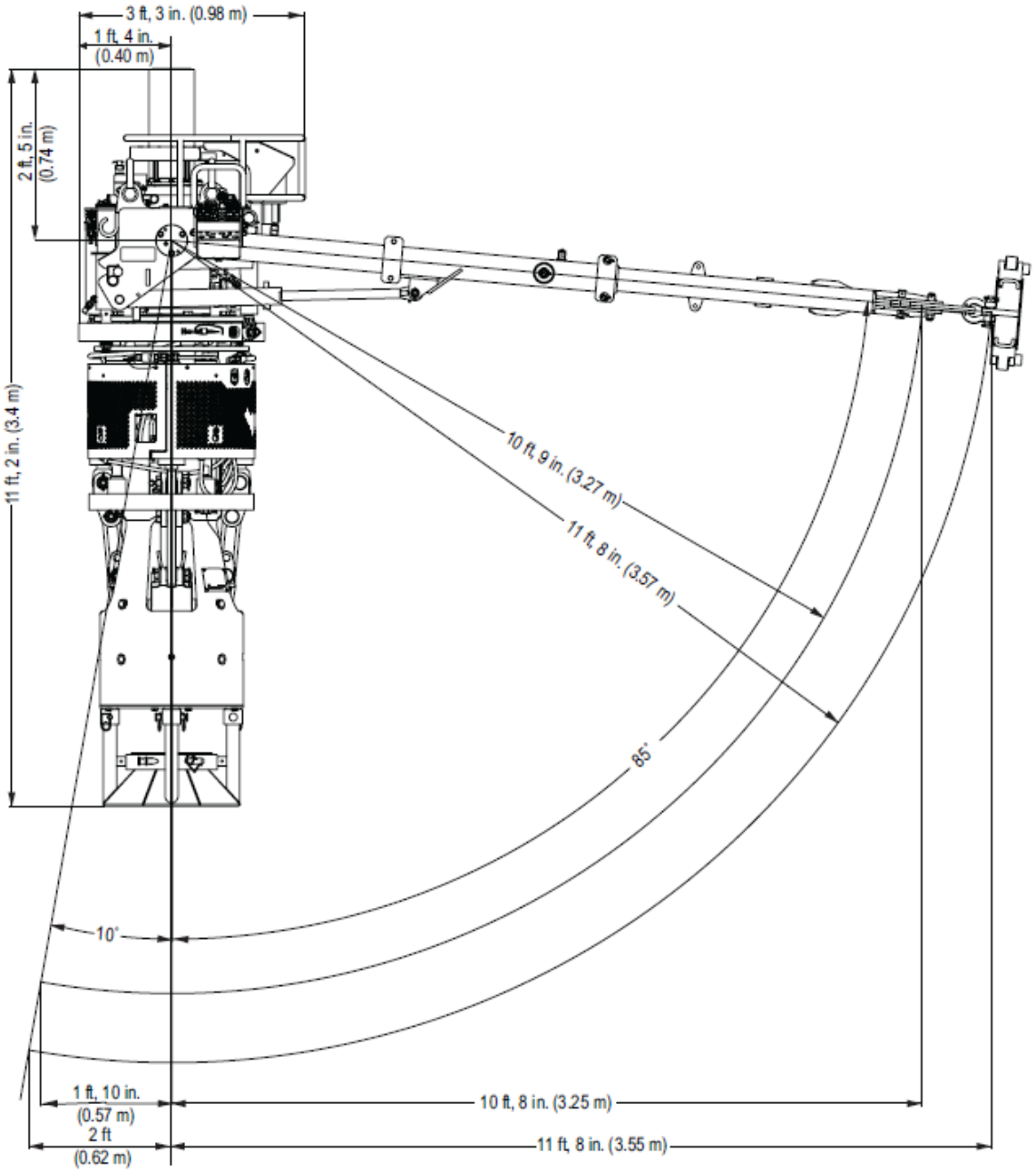
Specifications (continued)



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* Total Depth is a registered trademark in the US.

