TIER 1

E-SKID™

Engineered & Built for Purpose

The electric E-skid™ technology from Tier 1 is designed specifically for improving the safety and efficiency of wireline pump-down operations.

T I E R 1

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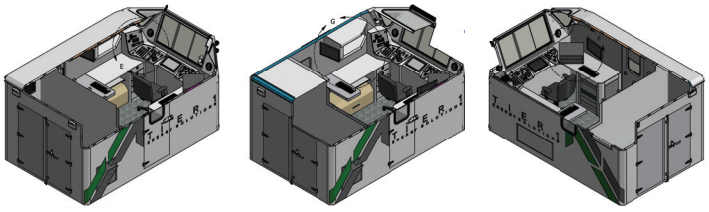
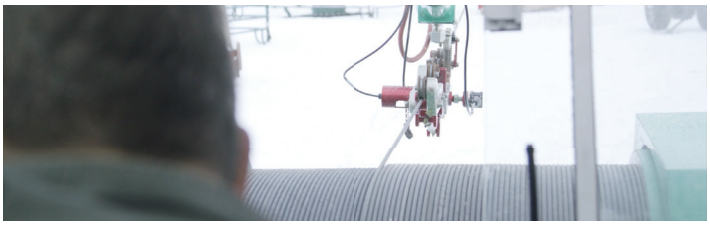
COMPLETIONS | MULTI-STAGE | LINERS | WIRELINE





E-SKID™ ⇒ DESIGNED FOR EFFICIENCY

In addition to implementing the most current sub-components and technology, the E-skid™ has been specifically designed for modularity to maximize operational effectiveness.

POWERED BY ELECTRICITY

The E-skid™ unit is electrically powered and the drum is electric over hydraulic. This provides a high level of control over smooth and quiet wireline operations. The electric motor makes use of variable frequency drive, VFD, technology to provide the soft start-up of the hydraulic system and minimize current draw.

CABIN DESIGN

The cab layout offers generous space for the E-skid™ unit operator to work without interference from other personnel in the cab. There is a separate bench and table for the representative from the operating company to set up and supervise operations as required.

The E-skid™ unit is a cab-forward design which places the unit operator as close as possible to the window and drum. This allows for continuous visual monitoring of the measuring head and spool to ensure any issues are immediately noticed. The visibility from the position of the unit operator enables them to clearly see simultaneous operations such as crane operations and the laying down of bottom hole assemblies. This eliminates blind lifts and minimizes any communication delays.

DRUM TECHNOLOGY

Being the core feature of a wireline unit, emphasis was placed on ensuring the drum made use of the most current and applicable technology. The drawworks incorporate a double chain and sprocket design for smoother and quieter operation. The double chain is also stronger than a single chain design allowing the drum to operate well-below maximum load ratings even on extended-reach well profiles. The drum bearings are of a double row, spherical roller design for strength, durability, and longevity.

A drum counter is installed that has no moving parts to wear out or fatigue over time. The drum counter includes technology that requires the unit operator to have both hands on the controls when nearing surface or power is cut to the drawworks pump and the drum goes into neutral.

The drum has a capacity for over 10,000m (32,000 ft) of wireline and a 45.7cm (18") core diameter which reduces the bending stress on the wireline. Below the drum is an integral catch tray to ensure all fluids coming off the spooled wireline are contained within the unit.

MODULARITY

The E-skid™ is a stand-alone unit that is separate from its source of electric power. This power is produced on location by diesel or natural gas generators. The benefit to having the power unit separate is that pump-down operations will have very little down-time should a generator fail. One simply has to plug into a different source of power.

SERVICEABILITY

A key differentiating feature of E-skid™ is that access to the drum has been designed so that the drum can be swapped out without moving the E-skid™ unit. This ensures that the unexpected downtime of the unit due to wireline cable replacement is minimized as the unit is not required to be completely swapped out. Being a skid mounted design, there is also no risk of the E-skid™ unit being out of service due to drivetrain or engine issues when compared to a conventional truck mounted unit.

FUEL EFFICIENCY

The E-skid™ technology package requires less fuel per operating day than a standard truck unit. In addition, if natural gas is used for the power generation then overall emissions are significantly reduced.

E-SKID™ ⇛ DESIGNED FOR SAFETY, A TIER 1 CORE VALUE

LOW RISK ACCESS

Access to the unit is a simple single step up from ground level eliminating the need for railings and minimizing the risk and severity of a slip, trip, and fall.

MINIMAL SOUND LEVELS

Sound levels at the E-skid™ are low enough that hearing protection is not required. This low noise generation also ensures contribution to the overall operational sound level during lease operations is minimized.

ERGONOMIC DESIGN

The operator's chair and winch operations panel have been ergonomically configured for comfort so that fatigue is easily managed while doing long duration and repetitive operations.

UNOBSTRUCTED VIEWS

The line of sight from the operations chair allows for a nearly unobstructed 180 degree angle of horizontal visibility and a 90 degree angle of vertical visibility. This viewing allows the E-skid™ unit operator to observe overhead crane operations, high wellhead assemblies, as well as the picking up and laying down of bottom hole assemblies. Having line of sight with simultaneous multi-service operations greatly improves the safety and efficiency of performing the task.

LIGHTING

The E-skid™ unit is equipped with significant LED outdoor lighting to ensure good visibility around the unit regardless of the time of day or weather conditions. The E-skid™ cab has optional red interior lighting for night-time operations in order to reduce eye-strain and glare.

KEY SPECIFICATIONS

- ⇛ **Size, l x w x h:** 6.60m x 2.54m x 2.67m (260" X 100" x 105")
- ⇛ **Minimum line speed:** 0.5 m/min (1.7 ft/min)
- ⇛ **Maximum line speed:** 400 m/min (1312 ft/min)*
  *will be limited by operating procedures
- ⇛ **Line Capacity:** 10,000m (32,800 ft)
- ⇛ **Fully equiped weight:** 11,340 kg (25,000 lbs)
- ⇛ **Power Requirements:** < 100 kW
- ⇛ **Maximum Operating Noise Level:** < 82 dB