



## Maximum Capability Document

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### *Hawboldt SPRE-2530/S Electric Research Winch*

This document has been prepared in accordance with Appendices A and B from the UNOLS RVSS. This machine is primarily used for 0.322" tension members, with an 11,600 lbf breaking strength. Per Appendix A, the machine in its current configuration is limited to a Factor of Safety (FS) of 2.0 on the tension member due to the fact that the tension member is EM cable, and not a wire rope. The winch contains a cable tension monitoring system with alarms, however it does not contain a load limiting system.

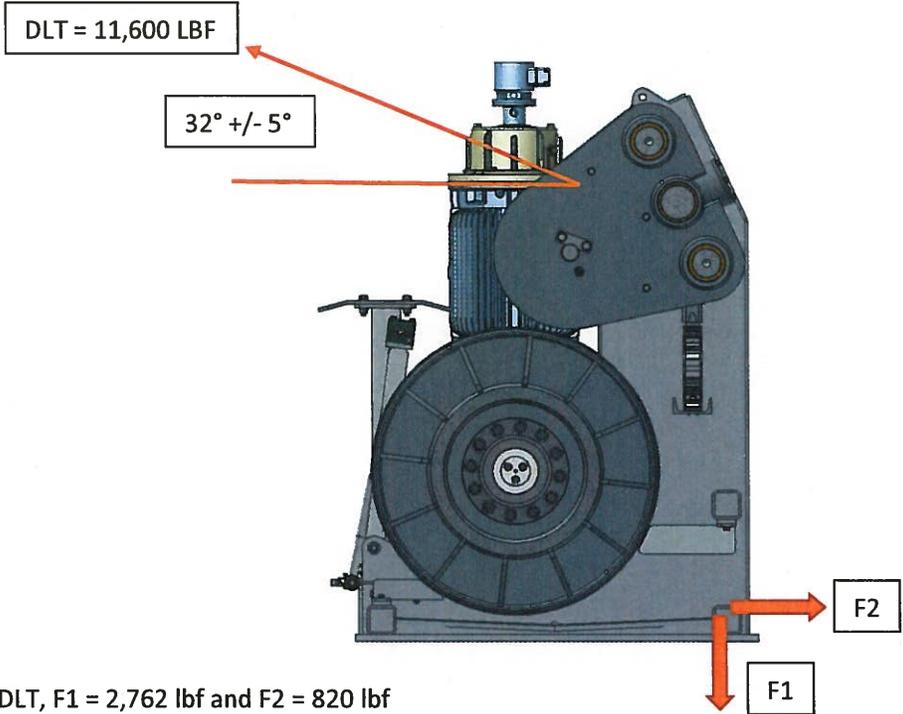
Per Appendix B, with 0.322" tension members possessing an NBL of 11,600 lbf or less, this machine is constructed in accordance with B.4.7.1, and rated for "Lifting and Towing-Deep Water". Stronger tension members are permitted, however the deployment types would be limited to "Lifting and Towing – Mid Water", where the deployed tension member length must never exceed 75% of the nominal water depth, per Appendix B.4.7.2. Addition of an Auto-Render feature would allow stronger tension members to be used for all deployment types, per Appendix B.4.7.3.

### **System Characterizations**

Empty Weight	3,300 lbf
Maximum Weight	4,300 lbf
SWT of Winch	3,800 lbf @ 32° above horizontal
SWT Fleet Tolerance	+/- 5° vertical, +/- 2° horizontal
Max. Line Speed @ Bare Drum	60 m/min
Power Requirements	30 HP @ 460VAC/3PH/60Hz

Note that the SWT is based on the full drum holding capacity of the winch brake. Exceeding this value at full drum may cause brake slippage.

**Free Body Diagram**



At DLT, F1 = 2,762 lbf and F2 = 820 lbf

Forces are maximum forces per bolt, at DLT, for the bolt pattern provided on the winch (see below). Analysis is good for a vertical fleet angle of  $32^\circ \pm 5^\circ$  and a horizontal fleet angle of  $\pm 2^\circ$ .

