

The **SAFEST** Way to Handle Nuclear Spent Fuel Casks and Canisters

- Single Failure-Proof Lifting System
- Eliminates Seismic Stack-up Stability Risk
- Design Compliant with 10CFR50 Appendix B, NUREG and ANSI Requirements.
- Interfaces with Existing Cranes and Vertical Cask Storage Systems
- Reduces Fuel Transfer Time
- Transportable to Multiple Units/Sites
- Remote Operator Controls Minimize ALARA Concerns

SAFLIFT™ is built in accordance with our 10CFR50 Appendix B Quality Assurance Program utilizing our ULTRASAF™ Single Failure-Proof Lifting Technology.



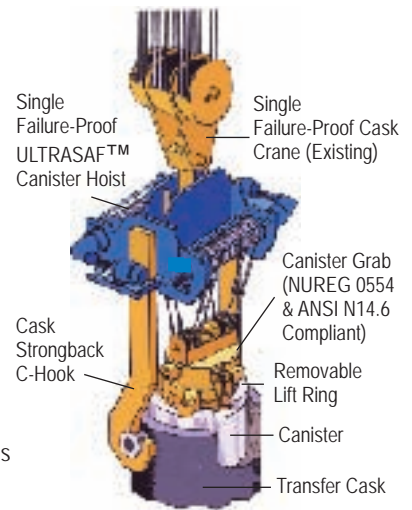
SAFLIFT™ Transferring Canister to Cask



SAFLIFT™ in Storage Stand

The SAFLIFT™ cask/canister lift system is designed to safely transport loaded transfer casks and canisters with the SAFLIFT™ strongback lower block from the spent fuel pool area to the canister transfer area, which is normally located in a truck or railroad bay. Once the transfer cask and canister have been placed on top of the concrete cask, the SAFLIFT™ system provides seismic stability to the stacked casks by supporting the load with the SAFLIFT™ strongback/lower block. This eliminates the problems and costs associated with building based tie-down of stacked casks. The SAFLIFT™, unlike any previously developed system, has the unique capability to remotely lower the canister (using the canister hoist and grab) from the transfer cask to the concrete cask while the strongback/lower block provides seismic stability. This unique capability is the basis of our patent claim. All these tasks are completed using our ULTRASAF™ single failure-proof lifting system consistent with the requirements contained in NUREG 0554 and 0612.

The SAFLIFT™ Strongback Canister Hoist System consists of three primary components including a 125-ton strongback/lower block, 50-ton canister hoist and 50-ton remote canister grab. These components are integrated into one package designed to be used in conjunction with the main single failure-proof hoist on the crane. Operator interface for the SAFLIFT™ is a remote radio control system. This allows the operator to position himself in the best possible position for operation and also eliminates most ALARA concerns. The following is a brief description of each of the three main SAFLIFT™ systems.



125-Ton Strongback/Lower Block: The 125-ton strongback/lower block design basis is NUREG 0554. The strongback/lower block does not require a dual load path as it is designed with at least twice the normal stress design factor for handling critical loads. Practically speaking, components of the strongback/lower block that support critical loads are designed with a minimum design factor of six based on yield and ten based on ultimate strength of the material. The 125-ton strongback/lower block is factory load tested at 300% of the rated capacity in accordance with ANSI N14.6, 1983, Section 7.

50-Ton Canister Hoist: The design basis for the 50-ton canister hoist is NUREG 0554 and NUREG 0612 Appendix C. Factory testing of the canister hoist is in compliance with ANSI B30.2 (incorporated by reference in NUREG 0554). Proof load testing is also completed in accordance with ASME B30.2 at 125% of rated capacity (56.25 tons). The canister hoist is designed with a completely redundant hoisting system utilizing American Crane's ULTRASAF™ Hoist Design. This design produces a symmetrical and balanced design in addition to providing redundancy. Controls for the canister hoist are mounted on SAFLIFT™. Power to the hoists is via a 3 phase power cord from the overhead crane.

50-Ton Remote Canister Grab: The 50-ton remote canister grapple is supported from the lower block of the 50-ton canister hoist. The design basis for the canister grab is ANSI N14.6, 1983, Section 7, which is consistent with NUREG 0612 Appendix C. The remotely operated grappaling system utilizes limit switches to verify grapple engagement. The grapple utilizes a specially designed mechanism that includes a mechanical fail-safe drive that will not allow the grapple to disengage when a load is suspended from the canister grab.

American Crane's SAFLIFT™ Patented STRONGBACK CANISTER HOIST

SAFLIFT™ technology is the culmination of American Crane's experience as the market leader in nuclear fuel handling. SAFLIFT™ was designed to overcome the many problems encountered with outdoor vertical canister/cask transfer facilities. The flaws of the outdoor vertical transfer facilities show that a material handling expert, not cask experts, should design these type systems. ACECO's revolutionary, patented design of SAFLIFT™ is testament to its commitment to providing safe and cost effective material handling solutions.



Canister Grab Engaged



Canister Hoist Lowering



Canister Transfer Complete



Remote Grab Disengaged