



ZERO FATALITY STANDARD – ZFS No 6 WORK WITH SUSPENDED LOADS AND HOISTING OPERATIONS

4th Version – November 2022

PURPOSE OF THE STANDARD

This standard establishes the requirements for work with suspended loads and hoisting maneuvers, as well as indicating the minimum content that Colbun and collaborating companies' procedures must consider.

This standard applies to all work involving the loading or unloading of materials or equipment that must be suspended in the air.

The following are considered as hoisting equipment with suspended loads: tower cranes, bridge cranes, gantry cranes, megalifts, hydraulic beds, crawling systems, mobile cranes (truck cranes, crawler cranes, boom trucks, fork cranes), among others.

GUIDELINES

1. PERSONNEL REQUIREMENTS

Personnel carrying out the activity shall have training and/or appropriate competencies for the lifting equipment being used.

2. EQUIPMENT, FACILITIES AND ACTIVITIES REQUIREMENTS

2.1. GENERAL REQUIREMENTS

- a. The specific characteristics of the site—including terrain, working environment, weather conditions, proximity of structures and equipment, and other factors affecting the safe execution of the work—must be evaluated and included in the Job Hazard Analysis (JHA).
- b. If necessary, meteorological monitoring must be conducted on the day of the activity, considering wind speed, precipitation, and/or temperature to ensure safe operations.
- c. Additional elements and equipment must be provided for operations carried out in low-light conditions or at night, as needed.
- d. All lifting equipment and machinery must be operated in strict accordance with the manufacturer's specifications and limitations. These specifications, including manuals, load charts, or other relevant documents, must be available on-site for both operators and inspectors. Documents must be in a language and units comprehensible to the users, and in Spanish/English if the equipment will be used permanently during operation and maintenance.
- e. Equipment operators must conduct a visual inspection of the critical components of the equipment before use, utilizing a pre-defined checklist. A record of the inspection must be maintained.
- f. Guide ropes of adequate length must be used to control the load, ensuring that no part of the body or hands comes into contact with a suspended load.
- g. The area beneath the suspended load, as well as the potential fall radius of the hoisting equipment and/or its load, must be designated as a restricted access zone. This zone must be clearly marked and maintained throughout the duration of the lifting operation. If the area cannot be physically demarcated, alternative

safety measures must be implemented.

- h. The load capacities of all lifting devices must be clearly displayed via plates, labels, or engravings. These load capacities must be verified for each configuration of use. Under no circumstances may lifting devices be modified or handcrafted.
- i. Safety distances from energized lines and electrical equipment must be maintained as specified in ZFS 10: Working on Electrical Installations or must be verified by a qualified electrician.
- j. Lifting accessories, such as slings, shackles, chains, special devices (yokes, spreaders, hoists, rails, beams, lifting lugs, fork crane extensions), and other related equipment must:
 - i. Be inspected and approved by the designated person in charge before each lifting operation.
 - ii. Be discarded if found to be in poor condition or no longer fit for use.
 - iii. Be protected from contact with sharp edges to prevent damage.

2.2. SPECIFIC REQUIREMENTS

Crane Towers and Mobile Cranes

Crane towers and mobile cranes must meet the following requirements:

- a. The equipment must possess valid technical certification provided in writing by the owner.
- b. Signaler. A qualified signaler must be present during all crane operations to guide the manoeuvres
- c. The procedure for the lifting maneuver must be well known and validated by the operator. Any modifications to the procedure must be analyzed, documented, and approved by the person in charge of the activity before implementation.

Boom Truck:

There must be a minimum of two personnel involved in the operation—the boom operator and an assistant. If the boom truck is equipped with a remote-control system, the assistant may be dispensed with.

Winches and Traction Elements

- a. Repairs to winches, sheaves, and cables must be documented to ensure traceability of their condition and load capacities. This documentation must include, braking performance records, and mandatory replacement criteria for worn components
- b. Winch winches are to be used solely as traction devices and are never to be used for hoisting.
- c. Vehicles must not be used as driving elements for traction work (e.g., in combination with pulleys and ropes).

3. RECORDS

[Use Checklist No. 6 to verify compliance Zero Fatalities Standards-Colbun S.A.](#)



EXCEPTIONS

Previous to the start of work, Colbun's Facility Manager (Project, Power Plant) may authorize exceptions to this Standard in writing. Should there be a discrepancy where there is more than one Facility Manager, it must be escalated to a higher hierarchical level for definition.