OPERATE A FRICTION DRIVEN WINDER

NQF Level: 2
Credits: 5
SAQA Unit Standard number: 256595

Introduction

The importance to operate a friction driven winder is to provide transport for persons up and down the shaft and conveying minerals to surface. Persons and material are normally conveyed in cages and minerals are hoisted with skips. There are operating differences between friction driven winders and the mines specific requirements will be applicable for every winder.

There are basically two types of friction driven winders: -

a) The ground type with separate sheaves and deflecting sheaves
b) The head gear type situated above the winding compartments

Every person in the working environment has a responsibility towards personal safety and the safety of others. A person competently operating a friction driven winder contributes effectively towards his/her own safety and the safety of others in terms of providing winding operations and thereby transportation for persons to and from the underground workings and conveying minerals to surface.

You must also be alert to potential consequences of incorrect working standards and must strictly adhere to legislation and all laid down site specific requirements that will ensure your own safety and the safety of others, as well as the operation of equipment to comply with required safety standards.

Incorrect operating methods are hazardous and may lead to accidents and may cause injuries to persons or damage equipment.

DYNAMIC TESTING OF A WINDER

The purpose of a dynamic test is to determine the "degree of protection" on the winder.

The provisions of the Mines Health and Safety Act Regulation 16.75.6 require that the engineer dynamically test the automatic overwind and overspeed prevention devices at least once in every six months not exceeding 200 days.

The Chief Inspector of Mines may also perform decelerator meter tests on a winder, which will be conducted by an Inspector of Machinery or a competent person appointed by him.

Pre-Dynamic Test Procedures.

The driver must be specially warned in writing as prescribed in regulation 16.55. The full procedures and all the required actions to be followed by the driver during testing the winder must be entered in the driver logbook. Such entry shall be signed and countersigned by the driver and by any driver relieving him.

The appointed engineer must be present during the full period while testing the winder and the only person responsible for giving instructions to the driver during the test.
In the interests of safety and possible damage to equipment, no tests must be conducted without all personnel being fully aware of all the dynamic testing procedures including the winding engine driver.
The Dynamic test procedure must be available in the driver cabin before the test is conducted.
The winder must be clutched for the bank and the lowest landing station in the shaft. For rock winders the tip and the bottom loading box in the shaft.
It is important not to alter the clutched position except for the false bank position, until the test is completed and all the safety devices re-connected in their original positions.
On rock winders a fully loaded skip must be prevented to be lower at full speed to the bottom of the shaft under normal winding conditions.

For Blair and Koepé winder “Dynamic Tests”, must not be done with fully loaded conveyances descending, without permission from the responsible Engineering Manager, regardless of any instruction or request from any person or institution. Each mining group must be responsible for safe testing procedures.

Before any Dynamic Test is done, the engineer should ensure that the winder is checked, such as: overwind and overspeed safety devices, brake strokes, brake shoe clearances,
quick drop take-up stroke and the brake holding power to meet the minimum requirements of regulations 16.6.1; 16.6.2; 16.6.3.
Each brake must be tested separately in the full out of balance position,
The winding engine driver must arrange that the conveyances be loaded on request for the dynamic test.
A false bank level must be established 5 to 10 turns from the real bank level in the shaft and the turns must be counted accurately. The winder conveyance is allowed to run into this false bank at different speeds, normally quarter, half, three quarters and full speed.
The Department of Minerals and Energy (DME) require a minimum degree of protection not less than 140%.
The driver must only take control of the winder during the test when any potential or actual danger indicates that the winder is running out of control.
Refer to regulation 25.6 (a) (ii) Fracture or failure of any essential part of the winding engine, or any safety device used in connection with the winding equipment.