

of the last car of a slow moving trip pulled by a locomotive.

(e) Positive-acting stopblocks or derails should be used where necessary to protect persons from danger of runaway haulage equipment.

(f) An audible warning should be given by the operator of all self-propelled equipment including off-track equipment, where persons may be endangered by the movement of the equipment.

(g) Locomotives and personnel carriers should not approach to within 300 feet of preceding haulage equipment, except trailing locomotives that are an integral part of the trip.

(h) A total of at least 36 inches of unobstructed side clearance (both sides combined) should be provided for all rubber-tired haulage equipment where such equipment is used.

(i) Off-track haulage roadways should be maintained as free as practicable from bottom irregularities, debris, and wet or muddy conditions that affect the control of the equipment.

(j) Operators of self-propelled equipment should face in the direction of travel.

(k) Mechanical steering and control devices should be maintained so as to provide positive control at all times.

(l) All self-propelled rubber-tired haulage equipment should be equipped with well maintained brakes, lights, and a warning device.

(m) On and after March 30, 1971, all tram control switches on rubber-tired equipment should be designed to provide automatic return to the stop or off position when released.

§ 75.1403-11 Criteria—Entrances to shafts and slopes.

All open entrances to shafts should be equipped with safety gates at the top and at each landing. Such gates should be self-closing and should be kept closed except when the cage is at such landing.

§ 75.1404 Automatic brakes; speed reduction gear.

[STATUTORY PROVISIONS]

Each locomotive and haulage car used in an underground coal mine shall be equipped with automatic brakes,

where space permits. Where space does not permit automatic brakes, locomotives and haulage cars shall be subject to speed reduction gear, or other similar devices approved by the Secretary, which are designed to stop the locomotives and haulage cars with the proper margin of safety.

§ 75.1404-1 Braking system.

A locomotive equipped with a dual braking system will be deemed to satisfy the requirements of § 75.1404 for a train comprised of such locomotive and haulage cars, provided the locomotive is operated within the limits of its design capabilities and at speeds consistent with the condition of the haulage road. A trailing locomotive or equivalent devices should be used on trains that are operated on ascending grades.

§ 75.1405 Automatic couplers.

[STATUTORY PROVISIONS]

All haulage equipment acquired by an operator of a coal mine on or after March 30, 1971, shall be equipped with automatic couplers which couple by impact and uncouple without the necessity of persons going between the ends of such equipment. All haulage equipment without automatic couplers in use in a mine on March 30, 1970, shall also be so equipped within 4 years after March 30, 1970.

§ 75.1405-1 Automatic couplers, haulage equipment.

The requirement of § 75.1405 with respect to automatic couplers applies only to track haulage cars which are regularly coupled and uncoupled.

WIRE ROPES

SOURCE: Sections 75.1429 through 75.1438 appear at 48 FR 53239, Nov. 25, 1983, unless otherwise noted.

§ 75.1429 Guide ropes.

If guide ropes are used in shafts for personnel hoisting applications other than shaft development, the nominal strength (manufacturer's published catalog strength) of the guide rope at installation shall meet the minimum

§ 75.1430

value calculated as follows: Minimum value=Static Load×5.0.

§ 75.1430 Wire ropes; scope.

(a) Sections 75.1430 through 75.1438 apply to wire ropes in service used to hoist—

(1) Persons in shafts or slopes underground; or

(2) Loads in shaft or slope development when persons work below the suspended loads.

(b) These standards do not apply to wire ropes used for elevators.

§ 75.1431 Minimum rope strength.

At installation, the nominal strength (manufacturer's published catalog strength) of wire ropes used for hoisting shall meet the minimum rope strength values obtained by the following formulas in which "L" equals the maximum suspended rope length in feet:

(a) *Winding drum ropes* (all constructions, including rotation resistant).

For rope lengths less than 3,000 feet:
Minimum Value=Static Load×(7.0—0.001L)
For rope lengths 3,000 feet or greater:
Minimum Value=Static Load×4.0

(b) *Friction drum ropes.*

For rope lengths less than 4,000 feet:
Minimum Value=Static Load×(7.0—0.0005L)
For rope lengths 4,000 feet or greater:
Minimum Value=Static Load×5.0

(c) *Tail ropes* (balance ropes).

Minimum Value=Weight of Rope×7.0

[48 FR 53239, Nov. 25, 1983; 48 FR 54975, Dec. 8, 1983]

§ 75.1432 Initial measurement.

After initial rope stretch but before visible wear occurs, the rope diameter of newly installed wire ropes shall be measured at least once in every third interval of active length and the measurements averaged to establish a baseline for subsequent measurements. A record of the measurements and the date shall be made by the person taking the measurements. This record shall be retained until the rope is retired from service.

[48 FR 53239, Nov. 25, 1983, as amended at 60 FR 33723, June 29, 1995]

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§ 75.1433 Examinations.

(a) At least once every fourteen calendar days, each wire rope in service shall be visually examined along its entire active length for visible structural damage, corrosion, and improper lubrication or dressing. In addition, visual examination for wear and broken wires shall be made at stress points, including the area near attachments, where the rope rests on sheaves, where the rope leaves the drum, at drum crossovers, and at change-of-layer regions. When any visible condition that results in a reduction of rope strength is present, the affected portion of the rope shall be examined on a daily basis.

(b) Before any person is hoisted with a newly installed wire rope or any wire rope that has not been examined in the previous fourteen calendar days, the wire rope shall be examined in accordance with paragraph (a) of this section.

(c) At least once every six months, nondestructive tests shall be conducted of the active length of the rope, or rope diameter measurements shall be made—

- (1) Wherever wear is evident;
- (2) Where the hoist rope rests on sheaves at regular stopping points;
- (3) Where the hoist rope leaves the drum at regular stopping points; and
- (4) At drum crossover and change-of-layer regions.

(d) At the completion of each examination required by paragraph (a) of this section, the person making the examination shall certify, by signature and date, that the examination has been made. If any condition listed in paragraph (a) of this standard is present, the person conducting the examination shall make a record of the condition and the date. Certifications and records of examinations shall be retained for one year.

(e) The person making the measurements or nondestructive tests as required by paragraph (c) of this section shall record the measurements or test results and the date. This record shall be retained until the rope is retired from service.

[48 FR 53239, Nov. 25, 1983, as amended at 60 FR 33723, June 29, 1995]