

WAC 296-24-23511 Brakes. (1) Brakes for hoists.

(a) You must ensure that each independent hoisting unit of a crane is equipped with at least one self-setting brake, hereafter referred to as a holding brake, applied directly to the motor shaft or some part of the gear train.

(b) You must ensure that each independent hoisting unit of a crane, except worm-gear hoists, the angle of whose worm is such as to prevent the load from accelerating in the lowering direction is, in addition to a holding brake, equipped with control braking means to prevent overspeeding.

(2) Holding brakes.

(a) Holding brakes for hoist motors must have not less than the following percentage of the full load hoisting torque at the point where the brake is applied.

(i) 125% when used with a control braking means other than mechanical.

(ii) 100% when used in conjunction with a mechanical control braking means.

(iii) 100% each if two holding brakes are provided.

(b) Holding brakes on hoists must have ample thermal capacity for the frequency of operation required by the service.

(c) Holding brakes on hoists must be applied automatically when power is removed.

(d) Where necessary holding brakes must be provided with adjustment means to compensate for wear.

(e) The wearing surface of all holding-brake drums or discs must be smooth.

(f) Each independent hoisting unit of a crane handling hot metal and having power control braking means must be equipped with at least two holding brakes.

(3) Control braking means.

(a) You must ensure that a power control braking means such as regenerative, dynamic or countertorque braking, or a mechanically controlled braking means is capable of maintaining safe lowering speeds of rated loads.

(b) You must ensure that the control braking means has ample thermal capacity for the frequency of operation required by service.

(4) Brakes for trolleys and bridges.

(a) You must ensure that foot operated brakes do not require an applied force of more than 70 pounds to develop manufacturer's rated brake torque.

(b) Brakes may be applied by mechanical, electrical, pneumatic, hydraulic, or gravity means.

(c) Where necessary you must provide brakes with adjustment means to compensate for wear.

(d) You must ensure that the wearing surface of all brake drums or discs are smooth.

(e) All foot-brake pedals must be constructed so that the operator's foot will not easily slip off the pedal.

(f) Foot-operated brakes must be equipped with automatic means for positive release when pressure is released from the pedal.

(g) You must ensure that brakes for stopping the motion of the trolley or bridge are of sufficient size to stop the trolley or bridge within a distance in feet equal to 10% of full load speed in feet per minute when traveling at full speed with full load.

(h) If holding brakes are provided on the bridge or trolley(s), you must ensure that they do not prohibit the use of a drift point in the control circuit.

(i) You must ensure that brakes on trolleys and bridges have ample thermal capacity for the frequency of operation required by the service to prevent impairment of functions from overheating.

(5) Application of trolley brakes.

(a) On cab-operated cranes with cab on trolley, a trolley brake is required as specified under (4) of this section.

(b) A drag brake may be applied to hold the trolley in a desired position on the bridge and to eliminate creep with the power off.

(6) Application of bridge brakes.

(a) On cab-operated cranes with cab on bridge, a bridge brake is required as specified under (4) of this section.

(b) On cab-operated cranes with cab on trolley, you must use a bridge brake of the holding type.

(c) On all floor, remote and pulpit-operated crane bridge drives, you must provide a brake or noncoasting mechanical drive.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 15-24-100, § 296-24-23511, filed 12/1/15, effective 1/5/16; Order 73-5, § 296-24-23511, filed 5/9/73 and Order 73-4, § 296-24-23511, filed 5/7/73.]