

## ELECTRIC WATER HEATERS . . .

### Correct Installation

The heater should be installed in a place where it is protected from wind and weather; preferably in a convenient corner of the separator or releaser room.

To prevent the casing from becoming rusty and perished an electric cylinder should not be installed on a flat surface of wood or concrete, as there is insufficient circulation of air to keep the base dry. Two very satisfactory methods which provide sufficient circulation of air are as follows:—

1. Set the cylinder on three suitable lengths of piping set across one corner of the room and fixed into the concrete walls.
2. Set the cylinder on two lengths of 4in. x 2in. timber, or on piping, set into a solid concrete base completely filling the corner of the room.

The height at which the cylinder is installed is most important. If the position is such that the draw-off tap is considerably higher than the receptacle to be filled, there is considerable loss of heat by radiation as the hot water is drawn off. The correct height of the installation should be governed by the size of bucket or receptacle to be used, and generally this should be so adjusted that the draw-off tap is about 14in. above floor level.

The schedule of sizes of cylinders and elements set out in the Dairy Produce Regulations has been suggested and approved by power-board engineers and authorities and is recognised as sufficient to provide boiling water at the times required, if the heaters are used carefully and correctly. Neither the sizes in the schedule nor any larger sizes which may be installed will be satisfactory for their purpose if they are abused. Some farmers get excellent results from a certain size of cylinder and element, while others, owing to lack of care and correct use, get very unsatisfactory results from the same capacities and sizes.

The careful and intelligent use of electric cylinders and elements is very necessary if they are to fulfil their functions properly. For efficient operation the following points should be watched:—

1. The casing and element should be kept as dry as possible during filling, water never being allowed to overflow except through the overflow outlet and then only for as long as it takes to turn off the filling tap. A dripping filling tap is very detrimental, particularly to those heaters with a short overflow pipe set in at the top of the cylinder, as water will run down the side of the casing and drip off underneath, quickly causing rust holes and wetting the lagging. To heaters with short overflow pipes a length of metal piping should be fitted so that the outlet is at a point below the heater.

**Rubber tubing should not be used for this purpose.** There have been cases where when old milk tubing was used it pinched during filling operations, with the result that a vacuum was created in the cylinder, causing the tubing to collapse.

2. It is essential to keep the lagging of the cylinder dry and in good order, as its purpose is to maintain in the cylinder the heat generated by the element. Where lagging becomes perished with age or wet by absorption or careless filling there will be a very considerable loss of heat. All possible care must be taken to protect the lagging from moisture, and where it is becoming perished it should be replaced.

3. Considerable loss of efficiency is caused by leaking draw-off taps. Such leaks can be prevented by grinding the taps into their sockets with grinding paste.

4. A very common and serious trouble in an electric water heater is that caused by mineral and sediment sludge in the water partly filling the cylinder or becoming attached to the element. Most water from underground sources contains mineral deposits and some of it is quite unsuitable for water heaters. Where minerals are very prevalent the element of the cylinder quickly becomes corroded with deposits to such a depth that it is more or less insulated and the quick passage of heat to the water is prevented. Wherever possible rain-water should be used in electric heaters to avoid such deposits and encrustations.

**If electric water heaters and elements are to function efficiently, they should be examined periodically and attention given where necessary. The accumulation of sludge in the cylinder and encrustations of minerals on the element must be removed.**

As boiling water is required for the efficient cleaning and sterilisation of dairy equipment, conservation of water in the cylinders is very necessary. Where boiling water is used lavishly and wastefully, causing the cylinders to be emptied after each milking, there is no prospect of boiling water being ready at the required times. Only quantities required for effective cleaning should be drawn off so that there is enough water left in the cylinder to raise the temperature of the intake of cold water.

If a cylinder is not producing boiling water and the element cannot be cleaned or increased in size, the quantity of hot water drawn off should be reduced and the intake of cold water reduced accordingly.

The electric heater was originally installed in milking sheds to provide water for washing the machines and utensils. Farmers, however, have found the hot water very useful in mixing calf meal and for washing the udders of cows. It is not suggested that these practices should be discontinued, but they should be done with the utmost economy of water from the heater.

The main points on the use of electric water heaters in milking sheds are:—

1. Correct installation, to prevent undue deterioration.
2. Draw-off tap to be at correct height; just above bucket.

3. Periodical attention to be given to cleaning of element to remove mineral deposits and to flushing of cylinder to remove sludge.
4. Conservation of water when washing up to leave as much as possible in the cylinder to assist in obtaining boiling water for the next milking.

Besides safeguarding the quality of dairy produce, an efficient water heater ensures that there is no wastage of power. This is also of particular importance to the dairy industry at this time.

Dairy water-heater manufacturers have made improvements to their products from time to time, but it is felt that more could be accomplished along the lines of stronger and less perishable casings, better-designed overflow outlets, taps which do not easily wear and drip, a sight glass for gauging the amount of water in the cylinder, and a socket and plug in the bottom of the cylinder to allow easy flushing.

With so much dependent on its efficiency, the dairy electric water heater is worthy of greater attention by both dairy farmers and manufacturers.

## Horticultural Cadetships

THE Department of Agriculture is offering several bursaries for competition among boys of 17 to 19 years of age who are interested in careers as Horticultural or Apiary Instructors.

Successful applicants will be appointed as Horticultural Cadets and will undergo a 6-year training course which includes full-time university study for science or horticultural degrees, and several years' training in the field.

Bursaries while cadets are at university are worth £70 a year by way of allowance, plus £40 a year lodging allowance if a boy has to live away from home. They include also provision for payment of university tuition fees and the cost of standard textbooks.

Any boy who has the university entrance qualification or expects to have it this year may apply. The bursaries will be advertised in the Press in September, the closing date for applications being October 16, 1950.

Further details may be obtained from the Personnel Officer, Department of Agriculture, Box 3004, Wellington, C.1.

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