

How deepwell handpumps work

For water table depths below about 20m or for busy water points, a strong pump is needed. Deepwell pumps are designed for these conditions, but they are more expensive to make and maintain. The piston and valves are located at the bottom of the rising main.

The piston is contained within a **pump cylinder** that connects to the rising main. A rod that is threaded down through the rising main connects the piston with the handle on the ground surface. Lifting the **handle** up forces the piston down the chamber; a valve in the piston opens to let water out of the tip of the pump chamber and into the rising main above.

Pushing down on the handle pulls the pump rod and piston up. This pulls all the water above the piston up the riser and out of the spout. The rod has to be strong to cope with the forces acting on it. As the piston goes up, the pressure under it reduces; the weight of the water in the borehole forces a **foot valve** open, letting in water to fill the pump cylinder. The cycle then repeats.

