

INSTALLATION INSTRUCTIONS OF THE 'BILLABONG' HYDRAULIC RAM – WORKING PRINCIPLES

It is essential to have a fall or head of water to produce the power to operate a ram. Therefore, the drive or intake pipe must be set at a suitable angle and sufficiently long to produce the desired power.

The water falls from the source of supply down the drive pipe and runs to waste through the impetus valve until the increasing velocity is sufficient to lift this valve and close it.

The moving column of water is then directed upwards through the air chamber valve and compresses the air in the dome until its pressure is equal to that of the water in the drive pipe.

The air chamber valve then closes and the expansion of the air in the chamber forces the water up the delivery pipe. Simultaneously, with this operation, the impetus valve is released and the water flows to waste again until the increasing velocity is sufficient to close it as before; the process continues so long as supply is maintained and pipes are clear.

It is evident that the air chamber must be air-tight and that proper relations must exist between the drive and the discharge pipe so that the weight and velocity of the water in the drive pipe may be sufficient to generate power to perform the work required.

Too great a fall will cause excessive wear on the impetus valve. Generally speaking, a ram should not be used to lift water over 200 feet (61m) vertically.

A gate valve is recommended on both the drive and the discharge pipe to avoid the necessity of emptying them when cleaning or making repairs.

The hydraulic ram is most efficient when the volume of the air chamber is equal to the volume of the discharge pipe. Therefore, the larger size rams are best suited for long discharge pipes when there is enough water to operate them.

