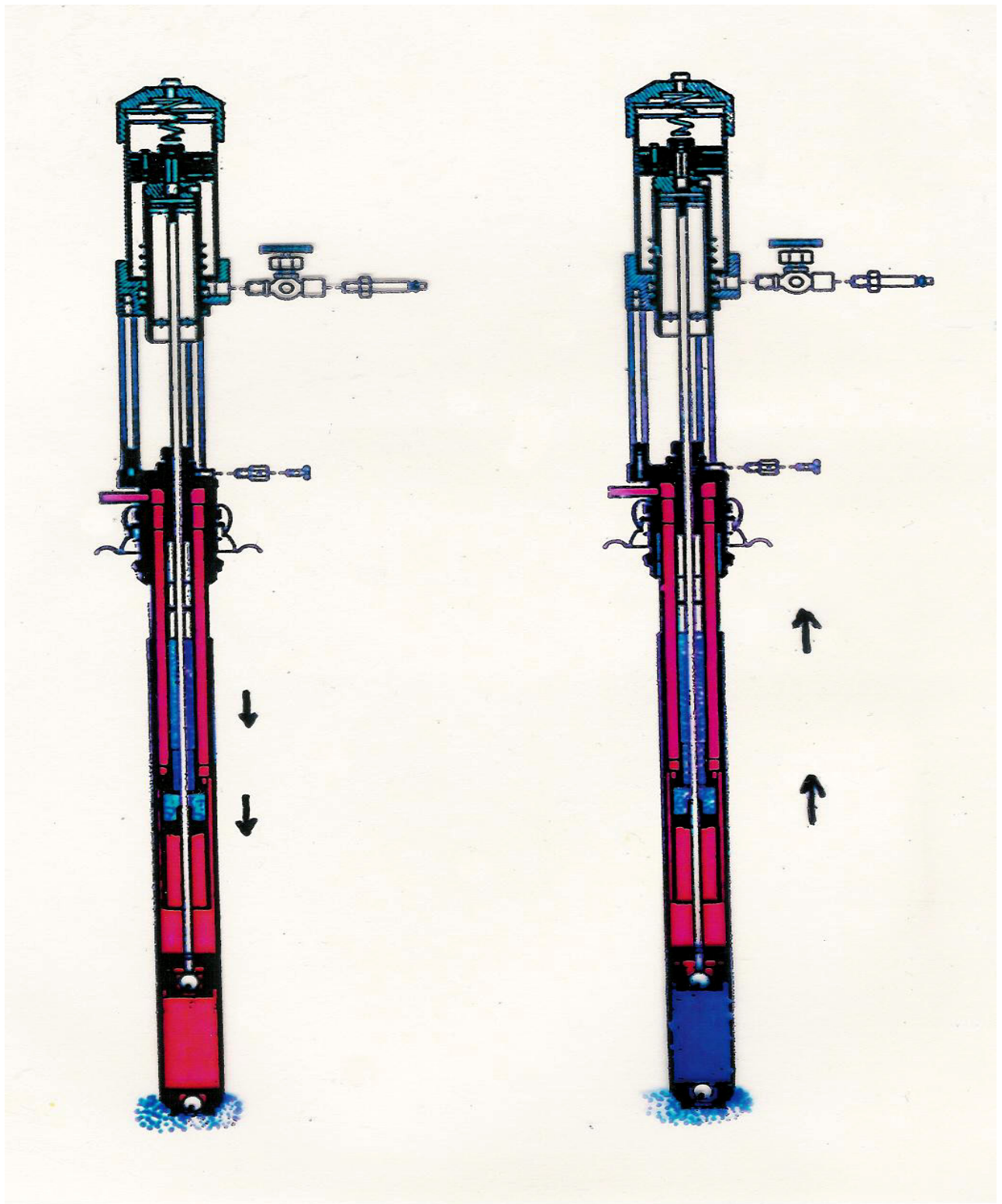


OPERATIONAL INFORMATION



Operation of OP Series and IP02 Series pumps

The first pump on the left is showing a down stroke. Explanation:

- ◆ In the down stroke, the foot valve seats and the inner check valve opens as the piston goes down.
- ◆ At the same time the inner cylinder piston is coming down, pumping in the down stroke displacing this material out the bottom of this cylinder back into the larger tube area and up through the three tubes and out. The bottom area is full of product so the inner check ball is open as it goes down pushing the product from the top of the foot valve area (now closed) up into the center area.

The pump on the right, is showing an up stroke. Explanation:

- ◆ As the pump goes in the up stroke; the bottom foot valve opens to fill the lower cavity.
- ◆ The inner check valve closes and takes twice the amount of product in the upward motion.
- ◆ As this product goes up, 1/2 of the material goes into the upper/inner cylinder while the other half goes up through the three tubes and out.
- ◆ This leaves some material in the upper cylinder for the next down stroke; which when it pumps, also displaces product out through the tubes.
- ◆ Then the pump cycle repeats itself.

Note: This is considered to be a double acting pump in that the pump does pump product in both directions; the up as well as the down stroke.