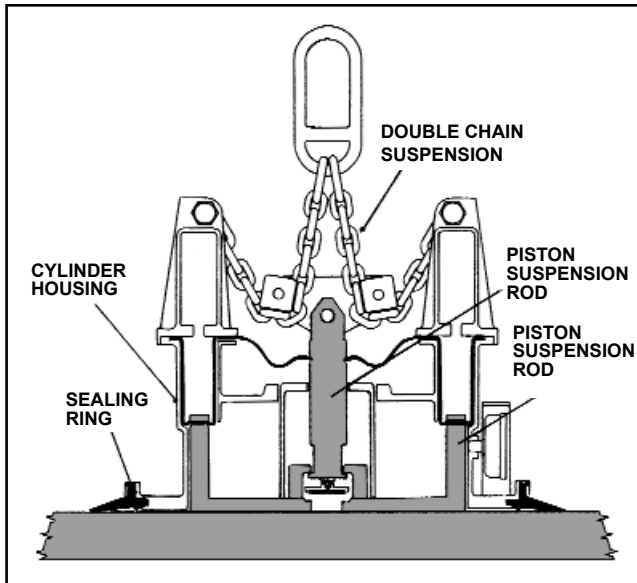
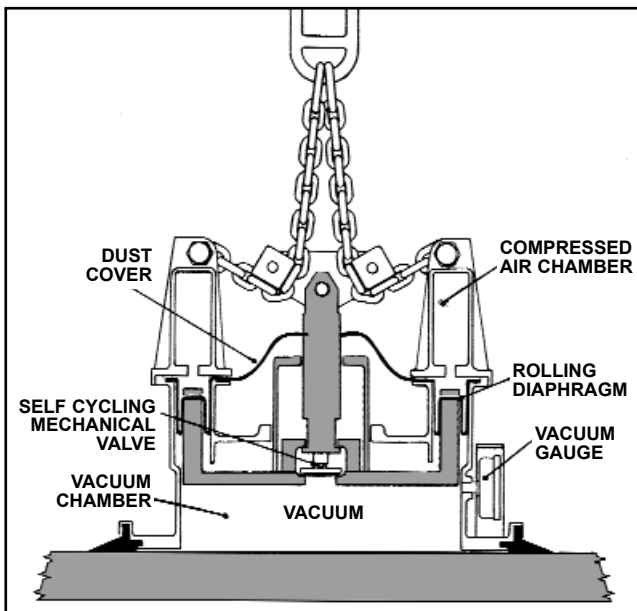


How Mechanical Vacuum Lifters Work



Hook suspended lifter is placed on load, piston descends to lowest position, piston valve closes, weight of lifter compresses vacuum seal between bottom flange and load surface.



Raising the hoist hook and piston creates a vacuum in chamber formed by piston bottom, cylinder walls and load surface. Flexible sealing ring around bottom flange seals out outside air. Vacuum secures powerful "bond" between lifter and load which now can be lifted. When load and lifter are lowered, piston descends in cylinder. At lowest point the piston valve opens and lifter can be released from load, ready for next pick-up.

Upward/Downward Movement Controls Vacuum Pickup and Release

Simple On/Off Cycle is Quick and Reliable

Basic Operating Procedure

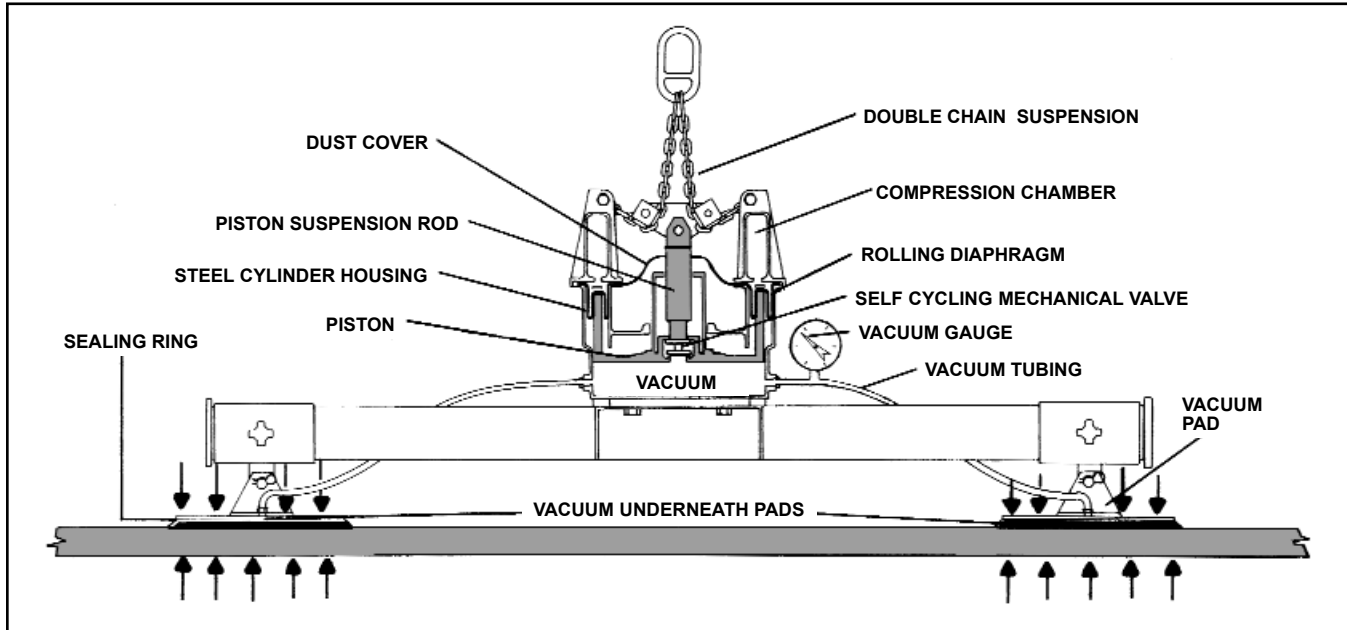
1. Lifter is hanging from crane hook.
2. Lifter is lowered onto load until chain is slack.
3. Lifter is pulled up by hoist and picks up load.
4. Lifter and load are set down until chain is completely slack.
5. Lifter can now be raised without load.
6. Set the lifter down again until the chain is completely slack and it is ready to pick up its next load.

Technical Description

The vacuum generator of the ANVER lifter consists of a free-moving piston within a closed cylinder. A rubber rolling diaphragm forms an airtight seal between piston and cylinder. Since the integrity of this seal does not depend on metal-to-metal contact, it does not lose efficiency with use.

The vacuum grip-and-release cycle is controlled by an automatic self-cycling valve located in the bottom of the piston. When the unit is lowered onto the load and the suspension chain slackens, a cam automatically closes the piston valve. Hoisting action then pulls up the piston, creating a powerful vacuum inside the cylinder and underneath the vacuum pads.

When the load is completely set down and the suspension chain is again slackened, the cam opens the piston valve, releasing the vacuum. The lifter then can be raised, ready for the next pickup. Grip and release is instantaneous. Since the valve can only cycle when the chain is completely slack, it cannot be shifted to the "release" position while a load is being held.



How Safe is Vacuum Handling?

Lifting of loads with vacuum was often considered hazardous, as something that might succeed only now and then, "if all went well."

Lifting long, large plate with multi-cup vacuum handlers is still seen by many managers as a fairly dangerous technique only to be undertaken if there are no other practical ways of doing so. We well understand this concern. Vacuum handling can be hazardous, but nearly always for reasons that have nothing to do with using "vacuum" as a power source.

Vacuum uses the unfailing atmospheric pressure as a source of power and this energy source is totally safe, totally reliable and without flaws. The vacuum between a vacuum pad and the surface of a suitable load, held in place by a rubber seal compressed between pad and load, will never fail to 'hold' that load unless the vacuum is reduced by a leakage of air into the gap between the pad and the load surface. This leakage can come from either the vacuum lifter itself, some of which cannot be made airtight, or from dirt on the load surface that prevents the rubber seal from making perfect contact.

All "powered" vacuum lifters that generate vacuum with pumps or venturis must rely on an outside power source. The better vacuum lifters will generally have vacuum loss warning devices to detect leakage and vacuum reserve tanks to slow down the effects of leaks.

The greatest source of mishaps or failures with vacuum handling equipment occurs with misapplication of the equipment and human error. A vacuum lifter is a specialized lifting tool and should not be treated as a general purpose handler to be operated by untrained personnel on any and all types of loads. (For detailed recommendations for safe vacuum handling, always refer to the vacuum lifter instruction manual).

However, when operated as recommended by the suppliers of vacuum lifters, these systems have proven to be extremely safe for operators and floor personnel as no one needs to get close to the load and no hands are required to attach and detach the load.