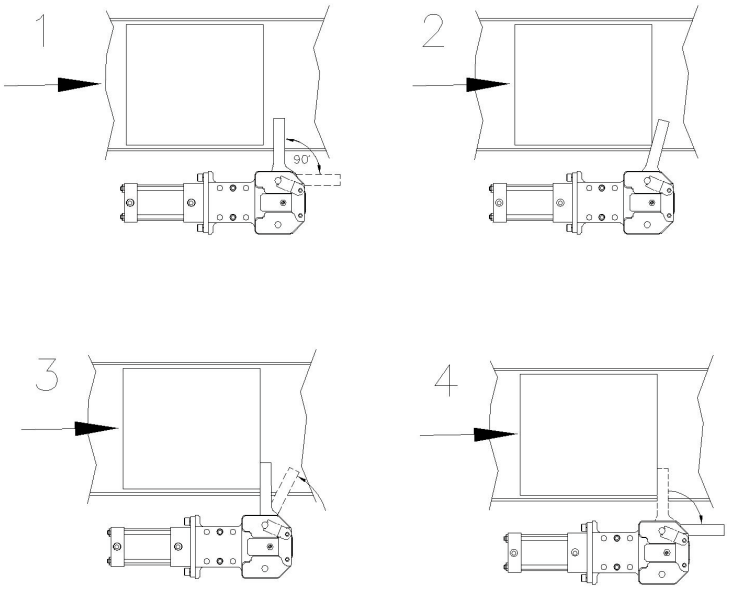
Grip-Clamp for Positioning or Stopping

Grip-Clamps can be used in a variety of applications involving stopping and positioning on conveyor or transfer lines.



The illustrations to the left show an example of a Grip-Clamp Power Lock with a pneumatic cylinder being used as a pallet stop.

When a pallet is to be stopped, the arm swings into its closed position (fig 1). The pallet strikes the arm and is slowed to a stop (fig 2), using the cylinder as an air shock.
The pallet is moved back to the point where it initially contacted the arm (fig 3). Swinging the arm to its open position allows the pallet to move on (fig 4).

The appropriate Power Lock to use in the above application will depend on factors such as:

- Free space envelop for the Grip Clamp.
- Equipment attachment points.
- Mass and velocity of the pallet being stopped
- Maximum contact force allowed in stopping the load
- Arm length / pallet contact point requirements.

Since the cylinder on the Grip-Clamp is used as an air shock, the air pressure applied to the cylinder will influence the stopping capacity of the Grip Clamp. For system design purposes, the stopping capacity for a particular pneumatic Grip Clamp model can be estimated. For a specific Grip Clamp design, the stopping capacity is determined by the pressure on the cylinder and is a measure of the ability of the Grip Clamp to stop the load within one inch of travel.

As an example, for standard 6211or 6206 models with a 2.5” cylinder, standard solid arms and with pressure on the blind side of the cylinder being used to stop the load, the stopping capacity (in joules) is estimated using the following relationships:

Stopping capacity (joule) = Pressure(PSI) * 0.09 = Pressure(KPascal)*0.06
For example: A cylinder held at 100PSI has the stopping capacity of 100(PSI)*0.09 or 9 joules.

To estimated the load stopping requirement, the weight and velocity of the load is used in one of the following relationships:

Stopping energy(joules) = 0.021*Weight(lb)*[velocity(ft/sec)]^2 = 0.5*Weight(kg)*[velocity(M/sec)]^2
For example: A 200 pound pallet moving at 1 ft/sec has 0.021*200(lb)*[1(ft/sec)]^2 or 4.22 joules of kinetic energy.

W227 N546 Westmound Dr., Waukesha, WI 53186-1653
Tel 262-544-5994 • Fax 262-544-0116 • www.aladco.com