Leveling Systems In Mold Coating

Leveling Systems

General Description:

The EMC leveling system is designed to retrofit into older presses where leveling is needed. The "passive" leveling system uses the "Master/Slave" concept to accomplish leveling. The (4) corner cylinders are slaved to a 4 part master cylinder so that motion can only occur if all 4 corners move together. This system is highly effective when used for In Mold Coating applications or to simply improve the process control on an older press. The "passive" design is a highly reliable, time tested system that will run without a lot of maintenance for years.

Features:

- Skid mount hydraulics and control system
- Inline "Master" cylinder (Equalizer) mounted on skid
- Standard mount cylinders for the "push back" operation
- Adjustable spacers for differing mold heights
- All accessible components for easy maintenance
- Standard hydraulic valves and components
- Production proven reliability since 1980
- Adjustable mold open height (Separator cylinder)

Push Back Cylinders

Specifications:

- Leveling ability 15% of press tonnage
- Air bleed sequence every cycle
- "Zero" leakage valves used in cylinder circuit
- Repeatable leveling to .005" corner to corner
- Safety Relief valves to limit maximum pressure to 5000 psi
- Gauges for all hydraulic circuits
- All-in-one Equalizer Cylinder

Options:

- Leveling cylinders and Equalizer mounted on platen
- Use press hydraulics if available
- Use press controls if available

Equalizer

The Basic Leveling Sequence

1. The low pressure pre-charge valve is dropped
2. The leveling relief valve is engaged
3. The press begins to close

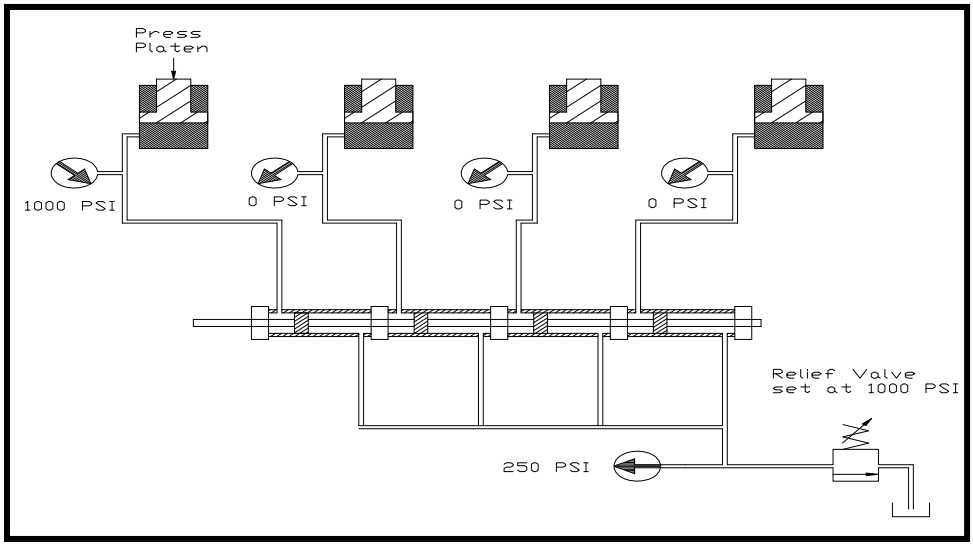

Figure 1 - 1st Contact

4. 1st Contact - On closing, press platen comes in contact with the first cylinder. Pressure builds because cylinder can't move because the equalizer can't move, because the relief valve is closed. Platen begins to level itself.

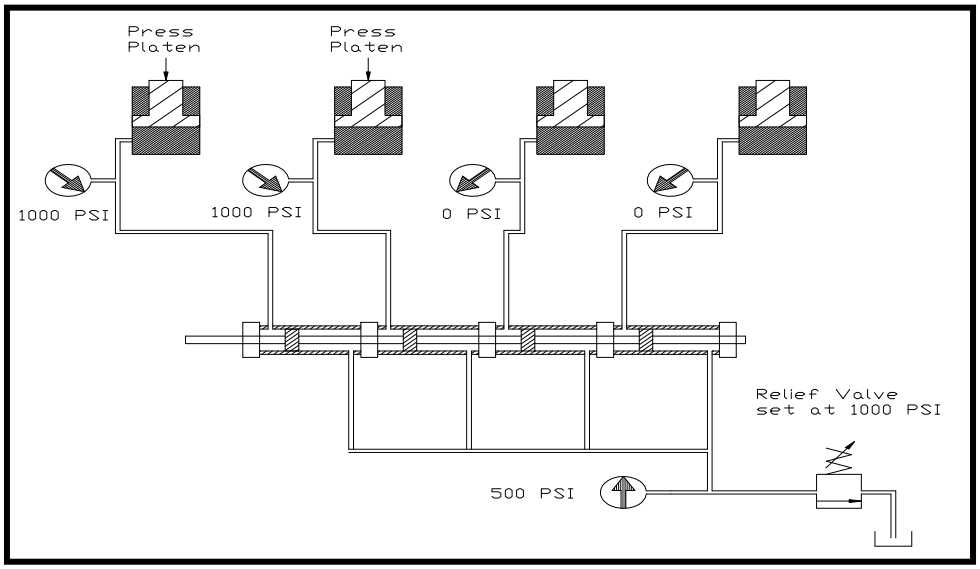

Figure 2 - 2nd Contact

5. 2nd Contact - The second cylinder makes contact; pressure in system continues to build, but relief valve doesn't open.

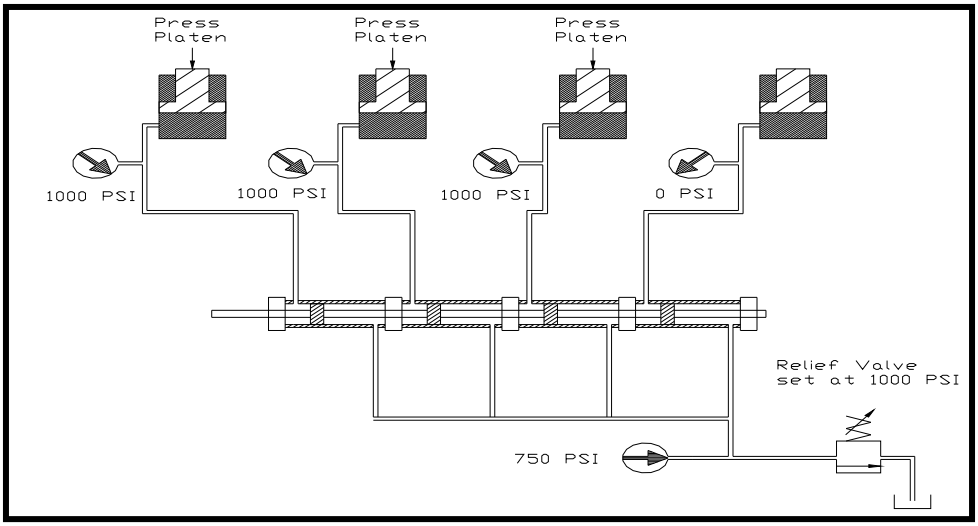

Figure 3 - 3rd Contact

6. The third cylinder makes contact, system pressure builds; the platen is almost level.

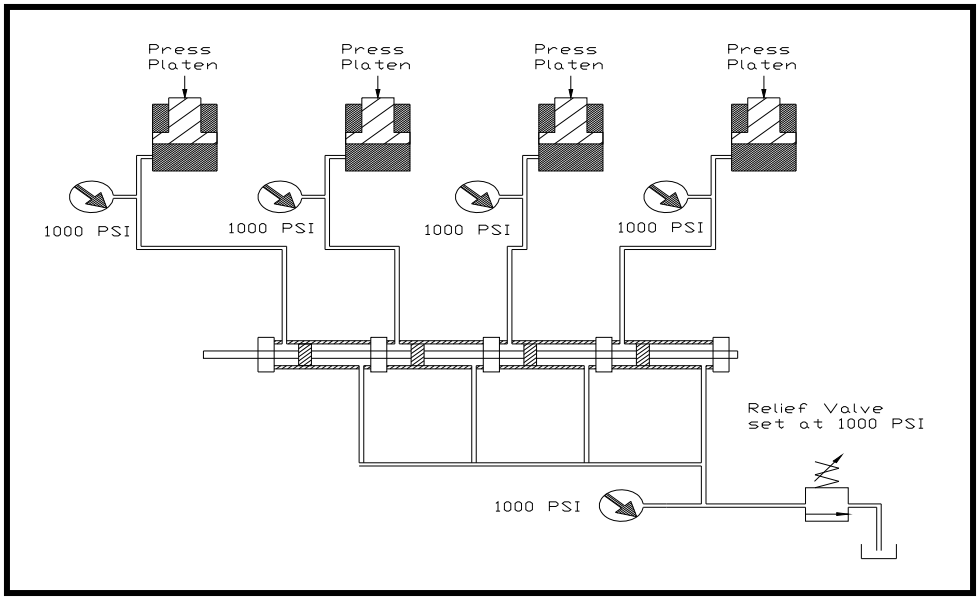

Figure 4 - Full Contact

7. Full Contact - The fourth cylinder makes contact; the platen is level, the system pressure has reached relief valve setting. This allows the equalizer and cylinders to move. The platen closes. Leveling is achieved.

8. The Equalizer is engaged to help raise or strip the press parallel
9. The press continues to open after disengaging the Pushback Cylinders
10. The bleed and reset sequence is executed
11. Ready for next press cycle