

Ink Delivery Systems



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FlintGroup

Ink Delivery Systems

- ▶ **Vacuum & Pressure Gauges**
- ▶ **Strainer Cartridges (Simplex or Duplex)**
- ▶ **Pumps (Rotary or Piston)**
- ▶ **Pump Relief Spring**
- ▶ **Relief Valve (By-Pass to Tank)**
- ▶ **Back Pressure Valve**
- ▶ **Fluid Flow (Laminar vs. Turbulent)**
- ▶ **Viscosity vs. Temperature**
- ▶ **Piston Pump Ratios**

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► Vacuum & Pressure Gauges

There are many gauges in the field that are not working. The most important ones are right after the strainer basket, discharge side of pump and after the back pressure valve (Last Print Couple).

Be sure to replace with a diaphragm type gauge, these will prevent premature failure.



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► Strainer baskets

Protects pump from objects large enough to do damage. Basket should be perforated with 1/8" holes. Many have fine mesh screens which will require more frequent maintenance. If vacuum gauges are working properly they are a good indicator of how clogged they may be. There may be a large magnet at the bottom too, this will capture any small metal particles.

Also, when servicing, be sure lid O-Ring is in good shape, if not replace.



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► Pumps:

The pumps used in most operations are either rotary or piston. Typically, rotary pumps are used for circulating systems and piston pumps are used for dead end systems.

Either type require a flooded suction to operate properly, these pumps do not suck ink from the tank, there needs to be enough static head pressure from the weight of the ink to reach the pump.

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► The pump relief spring:

Final protection in case of flow impedance. The spring will allow ink to by-pass at the pump and therefore avoiding any potential pipe damage. The spring adjustment should be screwed all the way in, this will insure that the pump will not bypass prematurely. Pumps will begin to run hot if ink begins to bypass for an extended period of time. Output volume from the pump is determined by the speed in runs.



Adjustment
Screw Under
Cap

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► Relief Valve:

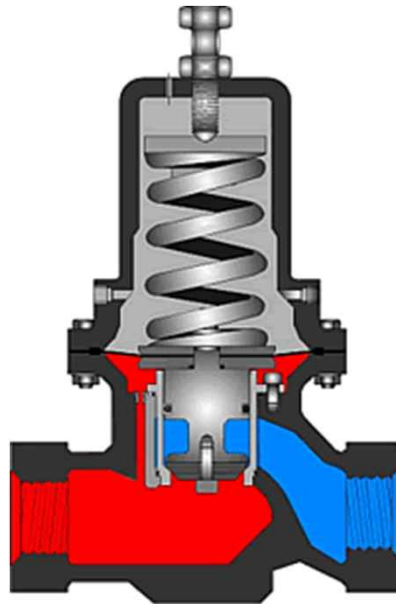
Designed to allow ink to flow back to tank if pump approaches maximum outlet pressure rating on relief spring.



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► Back Pressure Valve:

Responsible for setting minimum ink pressure at furthest print couple from pump.



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► Ink Viscosity & Temperature:

Ink viscosity can vary as much as 10% with a 1 degree change in ambient temperature.

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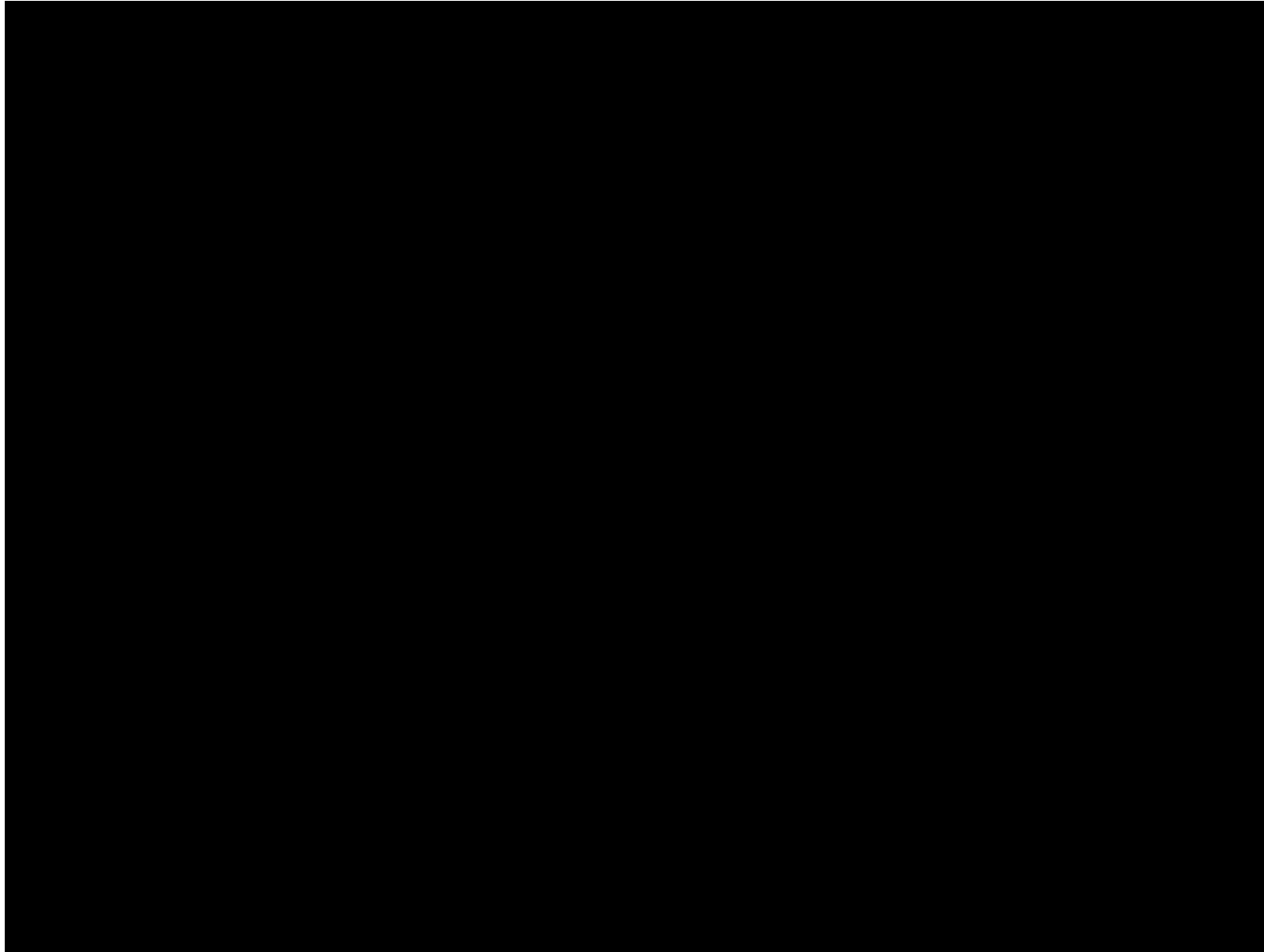
▶ Piston pump ratio:

Is the multiple between incoming air PSI to outgoing fluid PSI. A 25-1 ratio @ 100 PSI maximum inlet pressure would yield 2500 PSI of fluid at the discharge.

Most open fountain presses and inks require this type of ratio, injector inks will typically be around 12-1 ratio.

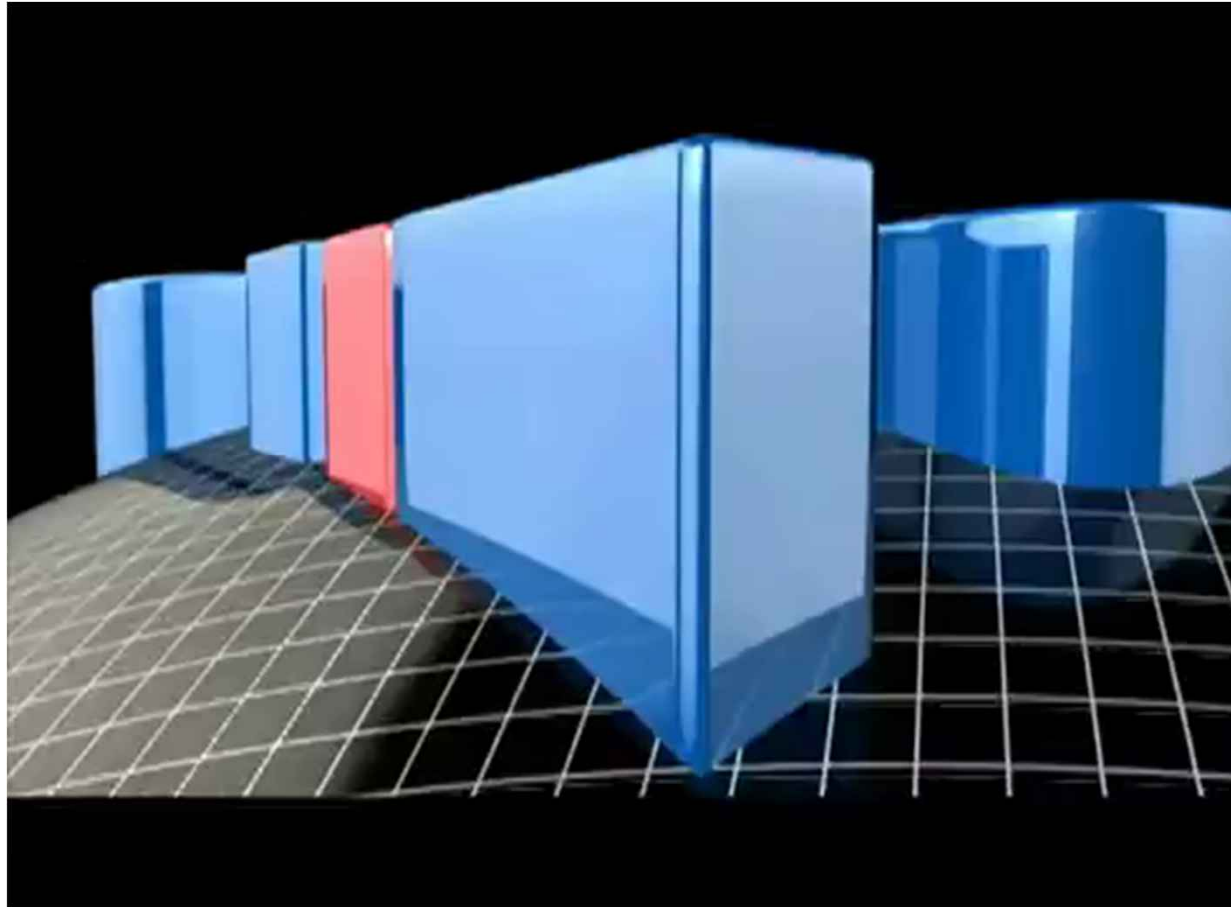
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Laminar Flow Video



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Rotary Pump Operation



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