

## Using Proper Starting Techniques for Gaulin Homogenizers & High Pressure Pumps within a Production or Pilot Plant Process System

One of the more frequently asked questions involves the starting sequence position an homogenizer or high pressure pump should hold in a process system. This bulletin should help you to answer that question and more, pertaining to proper start-up and operation.

To begin with, all Gaulin homogenizers and high pressure pumps are of positive-displacement design and of a reciprocating nature. Therefore, proper, sufficient infeed conditions are of paramount importance when laying the groundwork for installation of our equipment. With that in mind, let's look at a typical starting sequence.

1. **The infeed pump is started.** In some cases, an infeed pump is not necessary. If unsure of proper infeed pressure, please contact Service Dept. The reason for starting the infeed pump first is to assure a full flooded suction on start-up and to prevent possible cavitation. Air can wreak havoc on any positive-displacement-type pump, and our equipment is no exception. If possible, a pressure sensor should be utilized on the homogenizer/pump; and, typically, a 0 to 100 psi diaphragm-type device will be mounted directly on the infeed line.
2. **The homogenizer or pump is started.** If an infeed pressure sensor is used, the sensor should be tied into the starting circuit and should not allow the homogenizer or pump to start unless the pre-determined infeed pressure is achieved. Also tied into the starting circuit is the low oil pressure (LOP) switch. This switch is supplied by Gaulin and monitors the oil pressure in the drive end of the homogenizer or pump. Normal operating oil pressure is 35 psi. Should the pressure fall below 12 psi at any time while the machine is running, the main motor should drop out of the holding circuit, stopping the homogenizer or pump. This is to prevent damage to the drive components, bearings, etc. It is also good practice to install a solenoid in the cooling water supply to the homogenizer or pump. This will eliminate operator error by automatically starting and stopping cooling water at the same time as the homogenizer or pump when the solenoid is wired to the starting circuit of the machine.
3. **Homogenizing pressure or pump pressure is actuated.** This can be done in different ways: hydraulically (by means of an HVA system), pneumatically, or manually turning the hand wheel(s) to achieve desired pressure. In any case, this pressure is always applied only after proper flow is established to the homogenizer or pump to avoid starvation or cavitation. The homogenizing or pumping pressure should be brought up gradually to limit stress on the machine during start-up.

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By following this sequence and rigidly adhering to it, you will certainly extend the life and serviceability of your Gaulin homogenizer or pump. If you have questions concerning the proper infeed pressure for your particular model, please contact the Gaulin Service Department at (800) 243-9313.

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