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March 7th 2011 ~ Monday Morning Minutes:

Centrifugal Pump Start Up

You specified the best, Bell and Gossett. The contractor purchased the best, Bell and Gossett. Now how do you make sure it is operating the best!

Once a B&G base mounted centrifugal pump is installed in your hydronic system we recommend it be commissioned with a specified check, test, and start-up service. This service, when performed by R. L. Deppmann, includes the following:

1. Verification that the pump and motor on the job site matches what was ordered and submitted.
2. Verification that the entire system is piped, filled, and vented. Verification that the system controls are in the full heat or cool position.
 - a. Often times, in new construction, we are called to complete the check, test, and start prior to the system piping being completed and prior to the balance contractor completing their job.
3. Insure that the pump is installed per Bell and Gossett's installation instructions. This includes but is not limited to; proper anchoring and pipe supports. Discuss the installation with the contractor to correct any issues if possible.
4. Grease the motor and pump if applicable.
5. Check voltage, proper rotation, and no load amp draw at the motor. Verify the motor overload protection is sufficient.
6. Align the pump and motor to B&G standards. Unless specified otherwise, this is done with a straight edge method for pumps less than 25 HP on variable frequency drives (VFD) and for pumps less than 60 HP on applications with starters. Larger applications are done by laser alignment.
 - a. Alignment done prior to shipment may be worthless. Shipping, handling, and installation of pumps provide a multitude of opportunity for misalignment. Field alignment after installation assures you of a job done right.
 - b. Some specifications may call for laser alignment on smaller horsepower pumps.
 - c. Some specifications call for tighter vibration and alignment tolerances based on various Hydraulic Institute (HI) specifications. We can help you choose the appropriate specs for your application.
7. We take a static gauge reading to verify cold fill pressure is adequate.
8. Now we are ready to take gauge readings across the pump. We take the suction and discharge readings at the same gauge tappings the manufacturer provides. We use the same calibrated gauge for both readings so any gauge inaccuracy is cancelled out. We are interested in the differential pressure so we take the difference and convert from PSIG to feet of head. There are many issues to be aware of with this conversion. More about that in later articles.
9. We take the differential pressure reading at shut off which is with the discharge valve closed. It is important that this be done by a factory trained professional with the factory operation manuals in hand so there is no damage to the pump or build up of too much heat. Heat and pressure can cause a failure of components which may result in harm to you and people around you.
10. The differential pressure reading is compared to the published pump curves.
11. We now take gauge pressure readings with the discharge valve wide open and compare them to the design. In a retrofit project we would throttle the discharge valve or trim the speed to design conditions. In new construction we leave the pump throttled enough to avoid motor overload until the balance contractor arrives.
12. In parallel pumping operations we take several sets of readings.
13. A written report is created and, if specified, a copy is provided to the engineer.

Contact us today for a copy of our suggested specifications for pump check, test, and start-up service.

[*Click here to request specifications*](#)

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