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The Advantages Of Multi-Speed Hydronic Circulation

Even a state-of-the-art hydronics system can have downstream issues. A few years after this radiant heat system was installed in a Pennsylvania home, the owners put in a call to installer Dave Yates, owner of F. W. Behler Inc., a York, Pa.-based plumbing and mechanical firm. He learned that mid-winter temperatures of the master bath and great room floors were uncomfortably cold.

Yates tested the system and found that the bathroom's circulator "had issues" and would be replaced. He found that heat to the great room could be increased by either stepping-up the heat, or increasing the speed of water circulation within the floor.

But because the room wasn't separately zoned, increasing the water temperature would not be the easiest solution. So, increasing circulation speed would entail replacing the existing circulator with one that would do the job.

One of the newest developments to enter the world of hydronics is the concept of multi-speed circulation. Not variable speed, but multi-speed. Now offered by Grundfos, new SuperBrute wet rotor circs are available at essentially the same price point as single-speed pumps. They've quickly gained the attention of hydronics pros nationwide, including Yates, who's been installing hydronic systems for more than 25 years.



Advantages include: Variability or adjustability of the pumps; suitability for later system retrofits or changes; better overall system performance, making callbacks less likely; and fewer pumps in shop and truck inventory.

One of the most important facets to optimal circulation for hydronic systems is for contractors to match a pump's performance, or flow characteristics, to the specific job that it needs to perform within the system. A

single-speed pump has one performance curve — a measurement of head (ft.) and flow (gpm) — and operates at that level only. But these new circulators offer a much broader range of performance. With the flick of a switch, various speeds can be chosen, easily changing head and flow to meet the specific needs of the system.

The performance of a SuperBrute circulator has a flow range of 0-17 gallons per minute and a head range of 0-19 feet. The three-speed pump has a two-pole, single-phase motor, integrated (removable) check valve, and can handle closed-system fluid temperatures of up to 230 degrees F, and all the way down to 36 degrees F.

"I always do the math and calculate heat loss, flow rate and pressure drop for each zone," says Yates. "I use this information and the manufacturer's pump curve to select the proper pump for each zone. In the past, we might have three or four different pump models on one job, all selected to match the exact needs that we've determined. With the multi-speed SuperBrutes, I can use one pump and select the speed to match the flow and head that we want.

"We now have far fewer pumps in the shop inventory and on the trucks," adds Yates. "It's allowed us to reduce our inventory, and the supply house is doing the same thing. It's a definite win-win."

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