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How to Increase Your Profits with LowWater Cutoffs on Hot Water Boilers

Most gravity steam boilers operate at 2 psi or so, and every one comes with a low-water cutoff. You probably can't imagine a steam boiler operating without that essential safety control. What would happen if the boiler ran out of water and the burner continued to fire? If you've ever seen a burned-out steam boiler, you know that the stakes are very high. And that's why every steam boiler comes with a low-water cutoff.

But now consider a hot water boiler. Most operate at six times the pressure of the typical steam boiler, yet many have no protection against a dangerous low-water condition. Some hot-water boilers have that crucial protection, but these are typically larger boilers, 400,000 BTUH and higher. Why boilers of this size? Because it's code. Contractors usually install these boilers in multi-family housing and commercial buildings places where there are lots of people.

M&M low water cutoffs: RB-122 (120V - left) and RB-24 (24V - right)

But what about smaller hot water boilers? You know, the kind you find in single-family homes. Plenty of people living there, but many don't have low-water cutoffs, do they? Why? Because in some states, there's no law that says you have to install them or you've chosen not to comply with your state's code. Be aware that most states now require low-water cutoffs on all boilers regardless of size or type. At about $100.00, a low-water cutoff is an inexpensive insurance policy protecting you and your customers.

What's causing this shift in policy? We suspect it may have to do with the rapid growth of hydronic heating in certain areas of the United States. Did you know that the radiant-floor-heating market has been growing at a steady rate of about 30% a year for several years now? Many newer hydronic heating systems include at least some radiant floor heating. And when all or most of your system piping winds up below the boiler, the boiler manufacturer requires you to install a low-water cutoff. It's time to start thinking seriously about potential system leaks, and about the people who are going to live in that house.

Even a simple baseboard-loop system can have several feet of piping that dips under a concrete slab to clear a doorway. That piping's out of sight and prone to corrosion and leakage; in most homes, there's nothing to protect the boiler from a low-water condition. Maybe you're thinking the feed valve will protect the boiler if something goes wrong? If you are, consider this situation.

Suppose the burner locks into the firing position and doesn't drop out when it should. Anything from a stuck-open gas valve to a faulty control can cause this problem. Once the burner locks in and keeps firing, the temperature and pressure inside that boiler will build until the relief valve opens. In most homes, this happens at 30 psi.

So the relief snaps wide and unloads a furious blast of steam. Once the immediate danger passes, the valve quickly seats itself. In most homes, they seat at about 26 psi. But remember, the burner continues to fire.

And then in a few moments, the relief valve roars open again, dumping even more steam into the boiler room. Unless someone notices, this will continue until there's little or no water in the boiler.

Now consider this. While this is happening, the system pressure never drops below 12 psi. Because it doesn't, the feed valve can never feed. And if the feed valve shot water into the boiler, there's no telling what could happen.

Can you see how low-water cutoffs are in the best interest of your hot-water heat customers? It's to your great advantage to mention them to your customers, especially if you're replacing their boiler. When they realize a low-water cutoff is in their best interest, most homeowners say, "Sure, install it!" This is especially true when you're replacing their boiler, because the cost of the low-water cut off seems modest compared to the cost of the complete job.

Think about it. If you mention it to them as an option, explaining the facts about feeders and boiler protection, they might just say "Yes!" And if they do, you'll make more money on that job while you're protecting that family from potential danger.

And if they say "No," you're still better off. You've raised an issue with a solution that's in their best interest. You've shown you care about their safety.

When you sell with your customers' best interests in mind, you separate yourself from other contractors in a big way. This caring approach and awareness of the workings of hydronic systems make you more professional in the customer's eyes. And the best part: you'll probably increase your profit on every job you do.

For more information on boiler controls or answers to any steam or hot water heating question, contact your local McDonnell & Miller/Hoffman Specialty representative or visit our websites at www.mcdonnellmiller.com or www.hoffmanspecialty.com.

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