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H.E.L.P. NEWSLETTER

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LATEST TECHNOLOGY

By David White, National Sales Manager SGI

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Remote resets for flame safeties eliminate the need to open the panel protecting the maintenance guys from high voltage.

DON'T GET SHOCKED!

Are your maintenance guys complaining about having to open the panel doors to reset the flame safeties? They are reaching into potentially dangerous high voltage areas. Because one slip up and they can get hurt! There could be 24 volts DC – 480 volts AC inside some furnace control panels and extreme care should be taken anytime you reach into these panels. We have started using a remote reset station on the outside door of the panel so that you do not have to reach inside the door to reset the flame safeties. This, in combination with our new IDEC displays, helps pinpoint problems quickly and makes the furnace easier to work on. Your existing panel can be retrofit with this option.

Honeywell Control Motor and Linkages

Tired of having those control linkages slip on the Honeywell control motors? Change to a variable speed blower and eliminate that potential problem area all together. The variable speed blower slowly ramps between low and high fire making the transition a lot smoother and you save energy by not having the blower running at 100% all the time. The system still works of impulse pressure from the blower it just relies on the variable speed drive for control of the gas feed instead of the control motor and linkage. Variable speed drives have gotten vary reliable in the last few years and once the set up is complete they usually do not give you any issues.



Furnace panel with IDEC Display

FILTRATION OR DEGASSING?

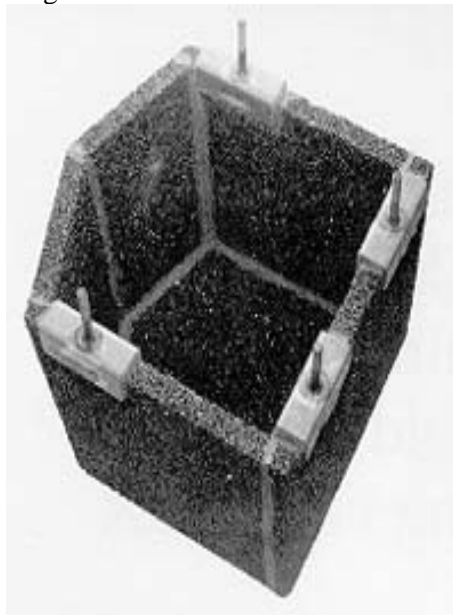
Whether you are a die caster, permanent mold or sand foundry the question is always going to come up... Should I filter the metal or degas or both? So let's put this to bed right now. If you are a foundry and are trying to obtain a specific gravity of let's say 2.62 chances are you are going to degas to get you there (depending upon the alloy). If your customer's specifications demand it, then you had better degas.

If you are a high pressure die caster and your customer demands it then you have to degas. If your machining end is experiencing hard spots then you need to filter. If your cut castings are showing signs of porosity you may not have to degas. Let me explain. If your dies are vented correctly then well dispersed hydrogen will go out the vents in the die when the die cast machine slams shut. However if you have inclusions in your metal you may trap hydrogen in a particular area of the part and that is your porosity issue not the hydrogen.

In some rare cases where you are in a very high humid area then you could end up with a large amount of hydrogen in the metal that filtration may not take care of. If you are casting above 1300 degrees F. (which as a die caster you should never do) you can be absorbing more hydrogen into the metal. If, as a foundry, you are above 1400 degrees F then you are acting like a wick and really pulling the hydrogen into the metal.

There are several other reasons hydrogen and inclusions can be finding their way into your castings. If you tap metal into a transfer ladle, then pour it into a holding furnace and then ladle it into the shot hole you have just committed three very turbulent acts with the molten aluminum. These molten metal pours will pick up more inclusions, trap more air and hydrogen in the aluminum. This might cause you to have to degas and filter. I have seen companies actually raise the temperature of the metal to get better fluidity into the die on hard to cast parts. If they just tried filtration first they may not have had to raise the temperature as much or at all.

We feel everyone should filter their metal. With the exception of electric melter and even those if you are returning scrap metal into them every furnace made to melt aluminum will produce some inclusion. Furnaces that have flames touching the bath or solids on a hearth will absorb more hydrogen and products of combustion than those furnaces where the flame never touches the bath of aluminum or the scrap, ingots or sows.



FUEL SAVING TECHNIQUES

Melting at rate capacity improves efficiencies!

Melting at rate capacity on any furnace is better than melting under rated capacity. In fact in radiant roof electric and gas fired reverberatory low headroom furnaces the harder you push them above rated capacity the more efficient they become to a point. You should be able to push these units about 20% above their rated capacity with minimal temperature loss. It really depends upon how you load the furnace. With any reverberatory furnace the loading of the scrap, ingots or sows is what makes the biggest difference in metal melt loss, sludge, BTU's/# of metal melted and metal quality. Let's go over the basics.

1. Your scrap to new ingots or sows ratio should be 40% scrap to 60% new.
2. You should load $\frac{1}{4}$ of its hourly rated capacity every 15-20 minutes
3. Rake off the Dross on the surface every 8 hours or when the aluminum dross build up gets to be $\frac{1}{2}$ inch or greater. If that happens in less than 8 hours you need to investigate why! Is the door not sealed, are the burners out of adjustment (excess air) or do you have your circulation pump spinning too fast creating turbulence that creates dross. Dross layers of $\frac{1}{2}$ " or more act as insulators to the heat and make the furnace work harder.
4. Controlling the furnace operations, loading and cleaning can result in 4-5% reduction in fuel usage. Just as important it can reduce metal melt loss in the dross and sludge with proper management of the melting operations.



Editorial:

When business finally picks up will you be ready? I know everyone is talking about cutting back. Budgets have shrunk to next to nothing. But, some major die casters and foundries are already starting to gear up for an upturn third quarter of this year. No, that is by no means a prediction, just an observation. The real question is will you be ready for the upswing or just trying to get ready when it hits. The advertisement below speaks to that very topic. Some of our very good customers are planning right now on being 95% ready when the customer calls and says I need this yesterday! I encourage all of you to rethink the position of knuckling down and shying away from spending money on the repairs you so desperately need. Because if everyone waits till the end, then there will be a long delay in getting everything repaired in time to actually obtain the new business.

Here is an excerpt of the letter from NADCA informing us of our outstanding safety award. Nothing wrong with patting ourselves on the back where safety is concerned!

Mr. David White,

It is a pleasure to inform you that The Schaefer Group, Inc. has qualified for a 2008 NADCA Safety Award. This award recognizes the company's Outstanding Safety Record during the previous year, as documented by the statistics submitted to us on the safety award application form.

This year, safety awards will be presented at NADCA's Recognition Luncheon which is taking place on Tuesday, April 7 - 11:45 a.m., as part of the 113th Metalcasting Congress <<http://www.metalcastingcongress.org/>> in Las Vegas, Nevada. Any awards not picked up at the luncheon will be mailed after the event. We invite your company to attend this luncheon, and will provide one complimentary ticket as well as a pass for the tabletop exhibits.

Additionally, your company will be acknowledged in the May issue of Die Casting Engineer magazine and June issue of Die Casting Industry LINKS.

Congratulations to you and your employees on this outstanding safety record.

Sincerely,
Daniel L. Twarog

Thanks!
David White
Editor

Ask about SGI's "*Halt Energy Loss Program*"! We can help you save energy. Visit www.theschaefergroup.com for more information.

**When business
picks up, will
you be . . .**

**. . . lean
and clean,**

**or left in
the dust.**



Now's the ideal time to refurbish melting, holding and heat treat furnaces, transfer ladles and thermal oxidizers.

Like-new performance and energy efficiency are yours when you re-start your furnaces — thanks to expert service from The Schaefer Group.

- Better designed and engineered linings pay for themselves in energy savings
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- Experienced, highly trained labor
- New aluminum furnaces, transfer ladles and pre-heat stations

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