Blown Film Internals

D.R. Joseph, Inc. Blown Film Process Systems & Consulting

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Ludolf Bakhuizen

Lean, Fast and Strong

Depending on where you are in the world, many of you may feel the worst is over. India has just raised interest rates slightly and some think this signals an "all clear." China seems to be benefiting from that government's business stimulus efforts. While India and China may be doing well, I personally don't think it signals good times ahead for everyone. The reason is that there are two 800 pound gorillas in the room (USA and Europe) that are still taking on water and yet adding more weight to their respective ships. The added weight comes from the credit issues in the EU and incredible ineffective accumulation of national debt in the USA. Even folks in times of old knew that when the big storms came, you tossed the extra weight overboard.

If a ship's crew thought the captain was sending the ship and crew to their demise, they would affect a mutiny. Fortunately, there are democracies (of sorts) in place that prevent either region from experiencing full out mutinies. At the same time though, this means that the corrective action is painfully slow to be put into place.

Ok, so what am I trying to say? Well, first, that the worst may not be over. Be ready for the USA or Europe to put additional drag on the world economy. Self-imposed regulations to curb global warming, the emissions of carbon dioxide, and new entitlements will probably bury the USA in political and financial obscurity if the administration stays on its current course. Europe has serious problems dealing with the debt of Greece, Italy, Spain and Ireland. These countries have their hands tied monetarily which prevents them from devaluing their currency to make exports and investment more attractive to outsiders. In a nutshell, both regions have some serious work to do to lighten their boats. This will probably mean that other areas of the world will do better in comparison. Companies in the US and Europe can do well by focusing on making products acceptable for export markets.

The recommended posture is to stay light on your feet, keep your best people and keep your eyes open for new opportunities that arise. You may be surprised to see some opportunities come from holes left in the market by those who didn't make it. Sometimes, it is the worst of times that cause those that are small but well positioned, to become strong and vibrant in the market. The main thing I want to iterate is not to hope you are stronger than the storm. Storms have a way of wiping out the very ones who arrogantly think they are stronger. Instead hope that you are able to see opportunities and be courageous enough to stay upright as you get tossed about. There is a lot of material in this newsletter, so take some time to read it carefully. We've been doing a lot of work the last year to be lean, fast and strong and our goal is to pass these new capabilities on to you.◆

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New 3G IBC System

The most powerful and efficient IBC system started shipping in November of 2009. Auto valve calibration, auto tuning, ducting failure assist and optional remote control station are just some of the features you will find on this system.

The new system has fewer components, takes 27% less space to install, takes 50% less energy to operate and has a wide variety of data management tools including remote control with a second touch screen or a PC compatible computer. (See the WinIBC article on page 3).

We even have an economy version to help keep costs down when DRJ quality and service is required, but not all the bells and whistles. There are too many features to describe them all in this newsletter. The most significant features are described here, but for a complete set of details, go to this link: http://bit.ly/3rdGenIBC

All New Features

Auto Valve Calibration

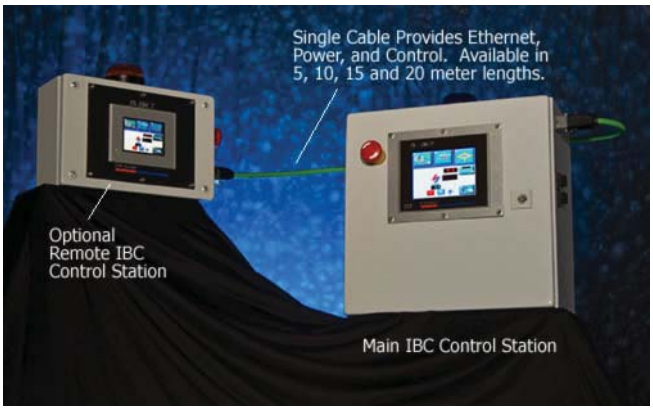
By far, the most standout feature is the automatic valve calibration (AVC) feature. This feature allows a technician to calibrate the valve with a push of a button. The whole process takes less than 60 seconds. To enhance it even more, we made it possible to automate the decision of when to do the valve calibration. We call this new feature automatic AVC or A²VC . The decision process can be configured to best coordinate with your operating procedures.

Auto Tune for Blower Balance

This feature eliminates the need for a maintenance technician to set the final blower balance tuning factor. We have found that this step is often missed by the commissioning engineer and we found that automating it keeps the system running like new for a longer period of time.

Ducting Failure Assist

By far, the largest source of problems with IBC systems is air flow issues



(see the article on page 4, "3000 Calls".) Often, ducting has become clogged, damaged, or disconnected in an area not easily located. Statistically, these problems take the longest time to locate and the shortest to repair once located. Our solution was to add fifteen new faults that help the technician locate air flow ducting faults more quickly.

Management Beacon

A feature developed after a customer requested a way to alert the production operator when the system was not in automatic layflat control mode. We decided to make it configurable so management could decide what conditions would trigger the beacon and even made it so system faults could be annunciated as well.

Data Management Tools

With data from your process comes power to validate and improve. The 3G IBC system has more data management tools available than any other system on the market. To make it even more capable, we've added a new five port Ethernet modem. Three ports are available for customer use to communicate via industry standard Modbus/TCP protocol. Other custom protocols are also available.◆

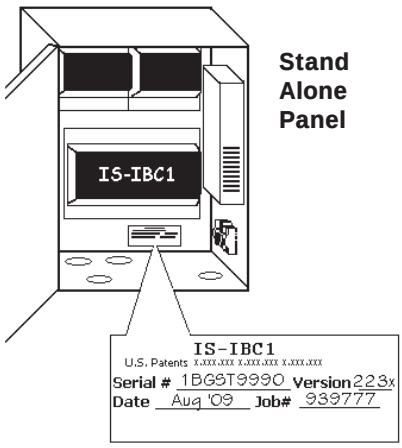
How to Upgrade to 3G IBC

After reading about the features available in the 3G IBC system, the first question people are asking is, "what does it take to upgrade what I have to 3G IBC?" There are certainly upgrade paths for nearly every system; here is a quick overview:

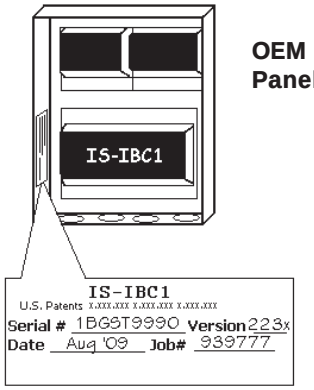
For those with 8 Bit systems: the entire control panel has to be replaced including replacement of the 8 bit processor with a new 32 bit processor and associated hardware to make features like auto valve calibration function. Remember there is a $2000.00 credit for the return of your 8 bit controller until 12/31/2012.

For those with 32 bit systems, the best case scenario is only the touch screen need to be replaced. Worst case, the main control enclosure will need to be replaced, but the 32 bit processor and field device interface will be reused.

To make it easy to determine what needs to be done for each system, email us your system serial numbers and we will develop a quotation and scope for the upgrade of your system to the 3G IBC system.◆



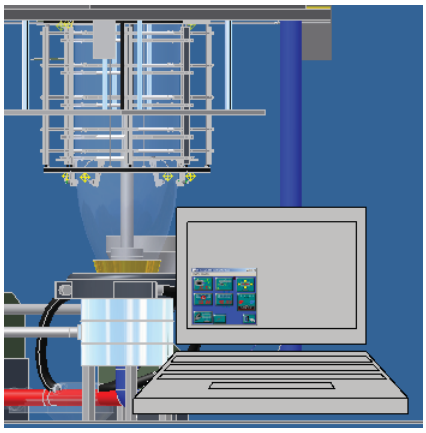
Stand Alone Panel



OEM Panel

WinIBC™ Provides Easy Integration and Data Management Features

While the trend with today's blown film lines is to have a single operator interface, at some point, the OEM you bought the line from will not want to add the latest extrusion technology to the line. As a result, you will be forced to add a second, third or fourth operator interface.



In another scenario, perhaps your favorite IBC system comes from D.R. Joseph but your OEM claims it cannot be integrated into their system and forces you to purchase a system your operators don't like.

For either case, with our new WinIBC™ family of products, it is now as easy as loading an application to your existing operator interface to get 3G IBC control technology added to your line. There are three products in the WinIBC family to chose from:

WinIBC Operate

This product provides a fully functioning version of the touch screen running on the main control screen for the extrusion line. There is no requirement for a separate touch screen with this solution. It is an ideal solution for OEMs who are required to integrate 3G IBC technology into their extrusion line package.

WinIBC Viewer

This product is similar to WinIBC Operate except that it does require a physical 3G IBC touch screen be present. This product would be used where there is a distinct need for two operator control points for the IBC system. It also allows a supervisor to monitor as many IBC systems as there are on a network without disturbing the screen any operator is looking at. Another example for use of this technology would be to load new setpoints to an IBC system without interrupting what the operator is doing. The WinIBC Viewer can operate 100% independent of the physical touch screen.

WinIBC – BackView

Last but not least, WinIBC BackView allows an operator using a 3G IBC touch screen to see and operate the extrusion line's main control station. In other words, the operator could be working the IBC system, and then from the same touch screen bring up the main control console screen, read or change a value and then go back to running the IBC system.

In all these cases, the extrusion line's main operator interface must be a windows compatible PC running either Windows 2000 (SP3), Windows XP (SP3), Windows XP Embedded, or Windows 7 (32 bit).◆

Do you know about RoHS?

If you have not seen the RoHS symbol before, you might not know that countries are working toward elimination of harmful substances from electrical and electronic products. The main substances targeted for elimination are lead, cadmium, chromium (hexavalent), mercury, PBB and PBDE.

Europe's RoHS regulations currently exclude industrial machines, controls and monitoring systems from oversight, but these exclusions may be eliminated as there is discussion currently occurring about this very thing. RoHS regulations from China, Japan, Canada and other countries are also in force, so it is wise to find out how these regulations may affect your business.

What does this mean to a blown film producer? If you are not located in a country with an existing RoHS rule in place, it means little unless you wish to be a good citizen and reduce the introduction of these materials into the environment. Keep in mind that the main purpose is to keep the materials out of the waste stream and environment at end-of-life.

If you are in a country with RoHS directives, it is good to be thinking about compliance before it becomes mandatory for industrial machines. This means you need to be thinking about preferring vendors who are taking an active role in reducing the harmful substances from the production of their machines.

D. R. Joseph, Inc has been working towards RoHS compliance in all of our products since 2005. We are communicating to our vendors about the potential legislative changes and even funneling their comments back to Society of Plastics Industry (SPI) who have been on top of RoHS changes as they occur (see http://www.plasticsindustry.org/search/Results.cfm?Q=RoHS). Even connectors and cables are a part of the RoHS legislation (see: http://www.rohs.gov.uk/FAQs.aspx#37) so we are replacing every connector and cable, as they become available, with RoHS compliant items. Currently all of our ultrasonic sensors, new sensor junction box, sensor cables, and power supplies are RoHS compliant.

The bottom line is to take a good citizen approach and work toward elimination of harmful substances for the sake of workers and generations to come who will be forced to use waste streams as a raw material supply. Specifically, ask your machine suppliers about their RoHS efforts. Mention RoHS in your request for proposals. If it is important to you, it will be important to them.◆

Sealing Very Thin Gauge High Density Film

All machine direction sealing systems are not created equal, particularly when you are talking about the SealCut™ from D R. Joseph Inc. Customers routinely tell us that as a result of using the SealCut, they are reducing their return rates for failed seals to near or right at zero percent.

This past year we have developed a new sealing element that is designed to handle very thin high density films run at high speeds. While it does not seem like running thin films should be much of an issue, running very thin materials (on the order of .00036 inches) has some special problems associated with it. Of these problems, the main issue is machine direction gauge variation (assuming tension control is managed properly).

Standard Blade Design

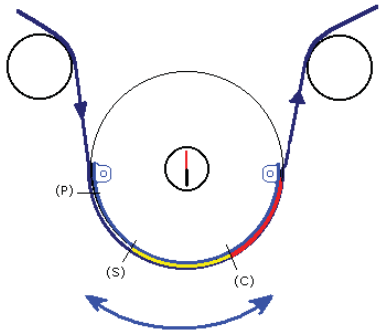
The patented SealCut standard blade design has two or three segments spread evenly across eleven inches (280mm) of contact surface. Each segment has a different profile height that is similar to stair steps. In other words, as the film goes over the seal element, it is like climbing stairs in that each section is higher than the proceeding section. This concept is in contrast to a normal slit-seal blade that cuts and then seals the cut material using extremely high temperatures. People familiar with standard slit-seal devices recognize the exposed cables and red-hot glow of the blades that are often the source of small fires after a sudden stoppage of the line.

Exposed Slit-Seal Power Cables

The big problem with slit-seal devices is that the high temperatures literally crystallize the polymer leaving a strong but brittle seal.

Since the SealCut uses a temperature that is closer to the melt temperature of the material and uses a much longer dwell time to create the seal, the result is a flexible, strong, and aesthetic looking seal.

When using this design on very thin films, we found that slight variations in machine direction gauge caused the film to change the sealing position such that it would appear to jump back and forth across the blade. Referring to the following figure, the cutting point would jump from point S to point C and back again. This would cause a small defect in the resulting seal.



Sealing Point Movement with Standard Seal Element

New Blade Design

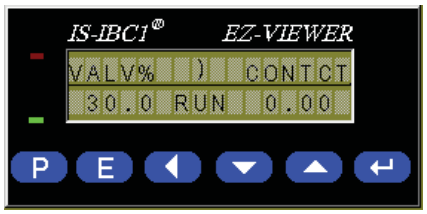
After considerable work aimed at improving the machine direction gauge variation, we concluded a more economical tact would be to redesign the seal element to handle the variations without causing the small seal defects. We decided on a new blade design that used a single profile over the entire length of the blade. This new design did nothing to prevent the film from jumping back and forth on the blade, but it did eliminate the small defect caused by film transitioning across a profile height change on the standard blade. As a result, we were able to provide the customer with the same high quality seal we provided on their linear low density lines.

If you are interested in sealing thin gauge high density materials, we can certainly help you out. If you already have a SealCut and want to try the new blade, give us a call and ask for part# **SEH5-50**. We have also developed a slightly higher profile blade for lines with less than adequate tension control that are running standard thickness materials. That part# is **SEH6-50.**◆

TFT Touch Screen Replaces EZ-Viewer

Another benefit of the new 3G IBC technology is that every system, regardless of the options, will come with a color TFT touch screen. This means each system is supplied with an easy to use operator interface which includes access to all system parameters.

The economy systems will use a 4" TFT touch screen and the standard systems will use a 6" TFT color touch screen. As a result of the new interfaces, there will no longer be a need for the LCD EZ-Viewer.



Obsolete EZ-Viewer Interface

EZ-Viewer interfaces will still be available at least until 2013 and we can still provide upgrade kits for those of you who have no technician interface on your older units. Remember, on 8 bit IBC systems, the End-of-Life date is May 31, 2013.◆

3000 Support Calls

As of March 5, 2010 we handled our 3000th phone support call. It does not seem that long ago that we started our Helpdesk support software system on January 1, 2002. I bet you would never guess the number one problem we deal with when servicing the IS-IBC1 system. Hold onto that thought.

One of the big reasons customers work with D. R. Joseph, Inc. as

(Continued on Page 5)

3000 Support Calls (Continued from Page 4)

opposed to one of the cheaper systems on the market is that we actually service our equipment. We provide detailed installation and operation documentation, as well as highly trained service personnel who understand blown film extrusion.

Each of our systems has the built-in ability to be supported remotely, either by analog phone modem or the Internet. Easily 95% of our support activities are done over the phone, bringing our expertise to your factory in a matter of minutes instead of days.

Number One Issue

What has been the number one issue that causes customers to call in for service? Believe it or not, it is not the IBC system. It is the air flow ducting that supports the IBC system. Anything from a clog to a damaged duct, to a blower rotating the wrong direction, to IBC hardware parts missing, these issues seem to baffle people more than anything else. We've found that these problems take the longest to find but are usually the easiest to fix. That is why the new 3G IBC system has Ducting Failure Assist technology to speed the person working on the system to the ducting problem as quickly as possible.

PASS Service Contracts

If you were not already aware, we have complete contract service programs for each product line. In a nutshell, phone support is provided free-of-charge during the warranty period. After warranty, service can be provided on an hour by hour basis, or on an annual basis. Our annual PASS contract also comes with a 5% discount on all spare parts, onsite service and PASS renewals. You also receive a 3% discount on all new system purchases made during the service contract period. Free software updates are also provided to our PASS members. If you need more information about the PASS program, please contact or visit our web site at www.drjosephinc.com/pass.html.◆

LF-Sizer Layflat Control

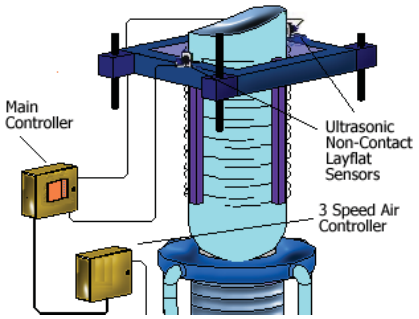
As resin prices continue to fluctuate in this volatile market it is extremely important to be able to control the bubble size and hold the layflat as accurately as possible to keep from oversizing or undersizing the product.

For blown film dies without internal bubble cooling (nonIBC) and without a width control system, operators tend to oversize the bubble to allow for bubble shrinkage throughout the shift. This overage creates runaway resin resulting in lower yields and higher manufacturing costs. Conversely, if the operator does not check the layflat size from time to time and the layflat becomes undersize there is a chance your customer will be the one who discovers the problem.

Regardless of which issue is more important to you, D.R. Joseph has a solution with the LF-Sizer automatic layflat control system for non-IBC applications.

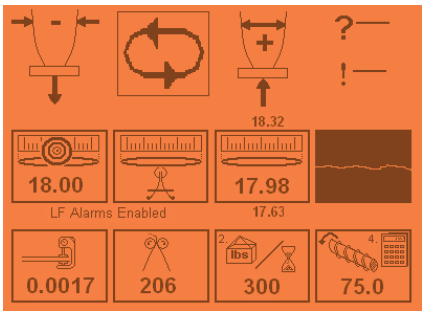
How the System Works

By measuring the bubble soon after the frost line, the system can achieve the proper bubble size without waiting for the film to pass through



Functional Layout of LF-Sizer

the top nip rollers and can perform even when running gusseted film. This greatly increases the efficiency of the system and reduces the time it takes to get a bubble on size. The LF-Sizer provides the operator with a simple touch screen interface that allows entry of the target layflat width. The system can be supplied with 2, 3 or 4 bubble diameter sensors used to calculate layflat. A special air flow nozzle is also supplied to ensure that rapid inflation does



Touch Screen Operator Interface

not unlock the bubble from the air ring during startup. The separate 3 speed inflation control box has adjustable fast fill, slow fill, and exhaust modes of operation. Once the bubble is on size, the LF-Sizer maintains that size at all times. For size changes, the operator simply enters a new target and the bubble is sized automatically.

Features and Benefits

The LF-Sizer has other benefits such as process trending, configurable layflat deviation alarm and bubble break outputs. It also has a statistical analysis reporting tool for layflat control performance. Trends can be viewed in normal or zoomed mode for 10 minute, 1 hour or 12 hour intervals. The system includes a spare serial port and Ethernet port for integration and data collection requirements. Each unit can be equipped with an optional modem so DRJ technicians can connect to the system and perform remote diagnostics. For more information about the LF-Sizer layflat control unit please visit our website at www.drjosephinc.com/lf-sizer.html.◆

Fast News from Twitter

Whether or not you have ever used Twitter, it provides an easy way to get news out to the public quickly. We publish news items on Twitter 1-2 times per week. Items are often published on Twitter 3-4 weeks before they hit our web site. If you want to keep up with D. R. Joseph, go to www.twitter.com/drjoseph1. You can also get Tweets sent to your phone if you live in a predominately English speaking country. Send a SMS text message to the country code specified on the Twitter home page at www.twitter.com.◆

8 Bit IBC Systems Approach End of Life

End of life sounds like a pretty dismal phrase, but in fact, it is how a company manages obsolete products or services that can no longer be supported economically or because replacement components are no longer available. As we have been providing IBC systems to the blown film industry for more than 20 years, the older 8 bit controllers are fast approaching end of life.

32 Bit Controllers Started in 2003

Starting in 2003 we converted our entire product line over to the current 32 bit processor. At that time, we also ceased production of the 8 bit processor (shown below). Our goal has been to continue

8 Bit Processor with EZ-Viewer

servicing the 8 bit controllers for up to 10 years after 2003 which takes us to 2013. Since 8 bit controller hardware is no longer manufactured (which is a big reason we changed to the 32 bit controller), we only stock refurbished 8 bit hardware.

To maintain a stock of exchange parts, we provide all customers who do upgrade their 8 bit controller to a 32 bit controller with a $2000.00 credit when they return the 8 bit controller to us. Exchanged controllers are put through an extensive diagnostic test sequence that identifies which boards can be repaired. Repaired boards are retested and put into the exchange stock. You know you are getting an exchange board when the suffix –EXCH appears at the end of the part number. The warranty on exchange parts is 90 days instead of the normal 1 year. **AVAILABILITY OF EXCHANGED PARTS IS NOT GUARANTEED.**

The exchange program will continue until 12/31/2012 with limitations. Actual 8 bit service support will continue until 5/31/2013. We encourage all our customers to consider upgrading to the new 3G IBC system (see page 2 for an introduction of this new system or go to our web site and visit the NEWS section for more details. – www.drj1.com).

End of Life Impact

After a product reaches the end-of-life date (in this case June 2013), all internal documentation will be moved to the Archive Section of the D R Joseph Service web site to allow customers to resolve issues with discontinued products. However, when a product has reached its end of life, the following conditions apply:

1) DR Joseph will not fix defects. If customers report a defect which has been fixed in a later version of the product, they will be encouraged to upgrade to the later version.

2) No future minor or maintenance releases will be delivered. The final versions are 1.12L6 for non-touch screen systems and 1.14Z8C for touch screen systems.

3) No workarounds will be investigated or provided by D R Joseph.

4) D R Joseph will no longer train it's employees on how to support the discontinued product.

5) D R Joseph will no longer provide training classes or materials (other than what is kept online in our Archive section).

At the end of each year we will remind all of our customers of the end-of-life date and steps to take to ensure a graceful conversion to our 32 bit processor platform. Our hope is that with three years to go, customers can budget in the necessary upgrades and little or no negative impact will be felt by anyone.◆

UPGRADE CORNER

Upgrades are on everyone's mind when times are tough because they provide improved performance with little additional cost. The most often supplied upgrade is a software enhancement that fixes one or more issues with the product, or adds new features. For both our 8 bit and 32 bit controllers, software updates may be available.

If you are still using our 8 bit controllers, the final software updates have been produced for this product line. If your unit does not have a color touch screen, the final software update is version 1.12L6 which may also require an upgrade to the operating system EPROM. Please note that if you are using D2 Diagnostics software to support your system, the latest version will require you also upgrade to the IBCViewer Diagnostics software or add the EZ-Viewer Interface. Contact our sales department for details.

If you have a touch screen interface on your 8 bit system, the latest version is 1.14Z8C. Keep in mind that some of the very old touch screens also need software updates when upgrading to 1.14Z8C. Upgrading the older touch screens can be done, but usually requires a swap out.

For those of you with 32 bit controllers bought before November 2009, the latest version is 2.23d. On 32 bit systems, software updates can be done over the phone or via the Internet as there are no EPROMS to replace. Contact us for documents on how to set up for a remote software update.

Remember, if you have a current PASS Connect service contract, software update are free of charge – another value of having a PASS Connect service contract.◆

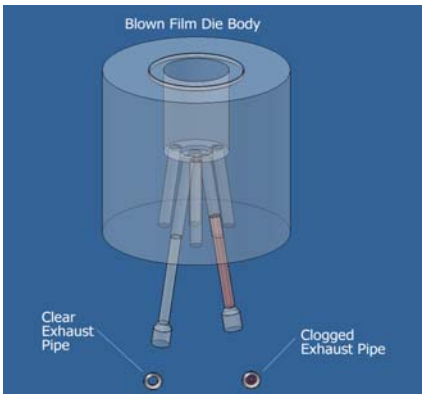
TECH TIP

Reducing Reclaim Resin Residue

We visit many factories around the world and have the opportunity to see success stories and difficult issues. One difficult issue we run into is with factories that seem to have a much higher than normal incidence of clogged IBC pipes. Normal would be once a year, abnormal is something on the order of every three months. When these pipes clog to the point where even the ISIBC1 control system can no longer compensate, bad things happen with the bubble. Namely, the bubble over inflates and nothing the operators do seems to help. The one thing we do find in common with facilities having this problem is that they run a very high percentage of reclaim resin.

Reclaim resin comes from post industrial scrap or from post consumer waste. The former is preferred because it is generally clean while the latter has all sorts of contaminates (from a plastics extrusion point of view). Many reclaim operations grind up anything that comes their way so there is no way of controlling the resin contents of the material stream (I am assuming that all non-plastic materials have been removed). Further, during the recycling process, operators tend to turn up the heat on the pelletizing extruder so they can achieve a higher production rate. Unfortunately, the higher heats cause all sorts of havoc with the material including partial decomposition of the material into paraffin and oily substances. Normally, extruder vents allow these substances to escape to atmosphere, but more often than not the vents are not maintained and become clogged. This causes the contaminates to remain trapped in the reclaimed resin.

When the reclaimed resin is subsequently used in the blown film process, the trapped contaminates are released as a gas when the material exits the die. Half is released to atmosphere and the other half is trapped inside of the bubble. For blown film dies with internal bubble cooling, the gas gets vacuumed out and as it leaves the bubble, some of the gas condenses inside the pipes within the die and also in the main ducting. Over time, the condensates within the die tend to cook and build up, slowly choking off the air flow required for proper IBC control. Operators begin to notice they are making more than the normal adjustments to keep the bubble stable. At some point, the available adjustments cannot compensate for the fact that the exhaust path is substantially clogged. The call to maintenance is pretty much the same every time: "the bubble keeps over-inflating!"

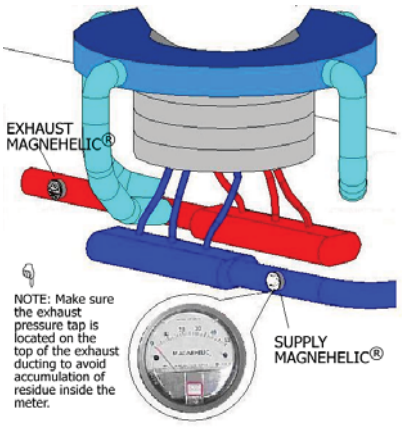


After the pipes are cleaned and everything is back to normal, we usually get one of these three questions: Can I eliminate the problem of clogged pipes? Is there a way to filter the residues out of the exhaust before it has a chance to clog the pipes? Is there a way to predict when the pipes will need to be cleaned?

Unfortunately, the answers to the first two questions are "No." The best course of action is to first develop a maintenance schedule for cleaning the pipes before production is affected. Then look at reducing the amount of contaminates trapped within the resin during the repelletizing process. This entails two main steps: 1) Don't overheat the reclaim melt and 2) keep the reclaim extruder vents clear to allow contaminates to escape from the resin.

Because cleaning the pipes is not an easy job, developing a schedule that minimizes the frequency of cleanings per year while maximizing production time is important. The new 3G IBC system has duct failure detection technology which basically tells you when it is time to check the ducting and pipes.

When you don't have this technology, the best bet is to install static pressure gauges (included with all IBC systems from D. R. Joseph) and keep track of the average readings for the supply and exhaust duct. When the readings start to climb beyond the norms, the pipes are becoming more restricted. One quick tip when locating an exhaust static pressure tap on a horizontal duct; make sure the tap is NOT on the bottom of the duct. The bottom of the duct allows residue to accumulate quickly in the tap and thereby prevents a proper exhaust reading.



Remembering to clean pipes and filters along with ensuring IBC ducts have no leaks are the main parts of keeping your IBC system running like it was new.

The Last Word

It's been a difficult act to sort out. The market, that is. How are we supposed to make a living when the costs of raw materials and transportation move faster than anyone can manage? As it turns out, those costs pale in comparison to the new costs coming from proposed health care, cap and trade, and new taxes. When things are moving this fast, every business tool and technique available seems inadequate. The hard work of managing a business in these times can't be understated. We try to capture the essence of what is going on by embracing key words and catch phrases. A friend tells me "Cash is King" to capture the sense that companies have a new objective of maintaining operating liquidity outside the normal support from financial institutions. Paring back, projects on hold and layoffs are all tactics companies use when switching from offense to defense.

To some extent, hunkering down and preparing for a season of reduced sales activity is a good thing. But you can't pull all your advertising, eliminate your product development or eliminate the travel budgets of your customer contact staff. Well you can, but it won't be good for you when things come back. That's because, when things come back you will be running on reserve. Your ability to jump back in the game will be hampered by the fact that you have nothing in the pipe, including cash. Your sales staff won't be on the front lines when things break loose, someone else will be. Your customers will be looking for solutions to new problems yet your products were designed to solve old problems. Your intellectual capital will be on reserve too as you let senior people retire early or laid off field support personnel.

Here's another popular phrase I hear: "Any fool can point out what is wrong; I'm looking for someone who can pull together feasible solutions to those problems." So let's take a look at some things that will help strike the right balance in tough times.

"One day you're fine, the next you're no longer responding to market demands."

Step one is to identify standout staff that make what your company does possible. I'm talking about people that know intimate details about your customers, products, and your market. Having a tough time deciding how to prioritize? If so, think about how long it would take to train someone else to reach that level of expertise. Managers tend to think about the external traits of a person (like how much they earn) and not so much about what they know. No amount of money can buy you company specific intellectual capital. It has to be grown. People who have been with you for 8-15 years are probably the most valuable to you long term. These are the folks that know intimate intricacies that allow your company to tackle the high value projects and solve difficult problems in their sleep. When the business levels come back these people will accelerate the company's position back to health and growth.

Step two is to identify and continue work on your best new product developments. If you have none, then get some of those key people thinking about the underlying issues in this downturn and how your company can address those issues. You don't want to be a premier player in the market before the downturn and end up in liquidation when things come back to life. A fork truck company in Georgia ended up in this boat. Think about everything you are good at and break it down into components of capability. Then think about how those components can be reassembled into something new and exciting for your existing customers. Short of that, then think about a new market that might benefit. The main thing is don't be afraid to venture into new markets, but at the same time be sure you can deliver and deliver well.

Step three is to keep your most productive sales staff out on the front lines. Don't do the company wide travel restriction thing. Remember your customers will find someone else to visit them if it isn't you. If money is that tight, find another way to keep your stars in front of the customers. There are so many ways to communicate with customers these days, but it takes time to develop the experience to use teleconferencing, net meetings, and web based advertising effectively.

That's it! Now get out there and embrace the tough times as an opportunity to expand existing markets, and develop new ones. If you skimmed the newsletter, go back and reread it and you'll see our take on the medicine I am prescribing.◆

Conferences & Shows

K-Show 2010 will be in Dusseldorf Germany from October 27th – November 3rd, 2010. Both Trevor Grossklaus and Daniel Joseph will be at the show at various times. We will have a 3G IBC system running at the show, so please contact us for an appointment if you will be attending.◆

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