

Blown Film Internals

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

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K'98 Show

by Trevor Grossklaus

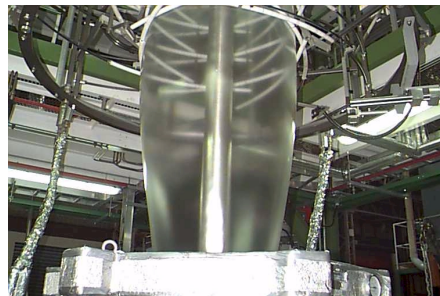
Once again, it is time for the K-98 show in Dusseldorf, Germany. The show promises to be another great success. D.R. Joseph, Inc. will be represented at the show by four blown film equipment manufacturers. The IS-IBC1 Internal Bubble Cooling system will be running on two show lines and one off-site line. Please do not hesitate to contact us if you would like to see our equipment in action. We look forward to seeing you there.

Did You See Us?

by Trevor Grossklaus

In the August 1998 issue of Modern Plastics was an excellent article featuring internal bubble cooling. The featured article starting on page 58, "Internal Bubble Cooling Boosts Film Production," discusses the latest technological advancements in IBC control systems and the important role they will play to compete in today's marketplace. The article mentions DRJ's second generation "automatic blower balance control system." The

article shows a 3 layer line using the IS-IBC1 system (pictured below). Also, there are many different blown film machinery manufacturers mentioned in the article, many of which use the DRJ IS-IBC1 Internal Bubble Cooling system exclusively. The ma-



chinery manufacturers understand the need for a consistent and dependable IBC control system to maintain high production rates, especially with the influx of new metallocene and metallocene blend structures being produced today. This is highly recommendable reading material for all blown film processors.

You Can Use a Credit Card!

by Trevor Grossklaus

Retail businesses flourish on credit card sales. Mail order essentially exists because of the availability of credit cards. However, in most industrial businesses the purchase order is the most common form of payment. While this is true today, there may be a change on the horizon. Large companies, like General Motors, are turning to credit cards to help their supervisors avoid the arduous trail of paper required to get a vendor paid. Plastic

companies also are beginning to pay with a credit card. So, the standard question of "Do you have a P.O. number?" may be changing to "Which credit card would you like to use?"

One obvious concern with credit card use is credit card abuse. There is actually a stronger measure of control with a credit card because you can decide which key employees get the card and how much they can spend each month. You also have an advocate in the form of the Credit Card Company when services received are not par with what you expected. The Credit Card Company will get your money back for you (provided you have the required evidence to prove you were shortchanged).

(continued on Page 4)



Table of Contents

K'98 Show.....	1
Did You See Us?	1
You Can Use a Credit Card! ..	
Pulling it All Together	2
Tech Tip/What Does Bubble Size Have To Do With It?.....	4

Pulling it All Together

by Daniel Joseph

The past two newsletters have been devoted to bringing you the latest information about new products we offer. The most visible products have been the Automatic Blower Balance feature (October 1997 "Automatic Blower Balance is Smart") and the Color Touch Screen (May 1998 "Making It Easier").

We have other products in process; however, in this issue we would like to discuss the value of these new technologies to your film producing operation. The value of any technology has to be measured in the effectiveness of the technology and also the effectiveness of the company delivering the technology. This article will discuss these issues with a focus on a company's ability to deliver the technology and will close with recommendations on what IBC technology is best for you and what you can expect from it.

Sales Process Slows Technology Utilization

With the passing of time comes the improvement of technology. The plastics magazines bring us news about the latest and greatest products. Trade shows must debut new technology in order to survive. We have salesmen calling us attempting to get us to try new items. We are aware of new technology; however, we do not act on it. Are we too busy to do anything about it or are we hindered by the normal sales process? Even the best blown film technology advancements tend to trickle into use. So why does it take so long for a technology to penetrate the market?

Let the Vendor Help

Time management courses teach us to use our resources wisely. One resource listed for managers and engineers is the vendor. The idea is to

ask the vendor to help you sort out technology advancements and to provide plans of implementation. The problem with this approach is you need a vendor who is genuinely interested in doing the leg work. To many salesman, "legwork" is to be avoided and the "repeat order" is desired. This mentality actually works against selling new technology. New technology inherently generates new issues that must be researched. Since the sales process does not promote this activity, a wall forms between the new technology development and the widespread use of this new technology. Let's take a closer look at the elements of new technology.

Elements of Technology

There are two main elements of new technology: the technology itself and the company delivering the technology. The technology itself has certain costs, but it is the company delivering the technology that most affects the bottom line cost of implementation. Here are the elements of technology that depend on company delivering the technology.

Quality Documentation

A company's commitment to quality documentation for both the installation process and the operation will directly affect the time required to install the technology. D. R. Joseph documentation includes installation instructions, operational instructions, maintenance instructions, equipment calibration procedures, electrical prints, diagnostics tools, and 3D drawings of service parts for easy identification. We can provide manuals in French and Italian with other languages to follow.

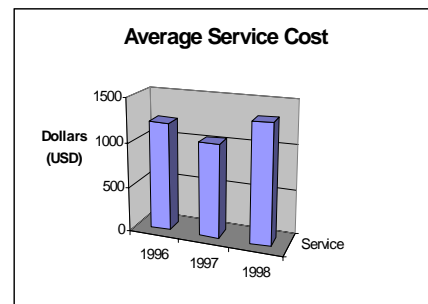
Clear Upgrade Path

The company's commitment to providing an upgrade path significantly impacts the final cost of the equipment. The clear upgrade path saves the customer money and time when upgrading to new technology.

A lack of an upgrade path forces the customer to repurchase many components, adding to the cost of implementation. To upgrade our most basic IBC system to our most advanced system utilizes over 75% of the components originally purchased and costs only 28% of what a new system would cost.

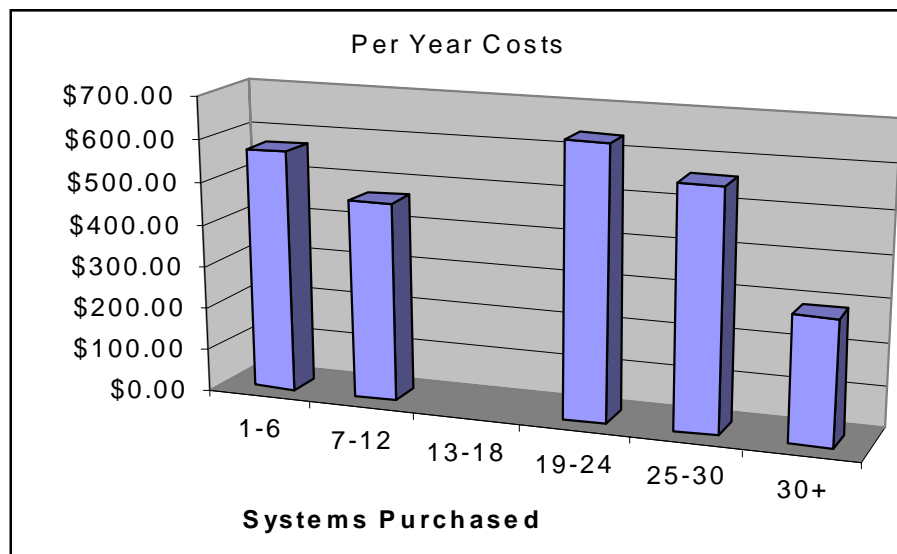
Near Instant Service

When providing technical support through the use of a modem, a company's commitment to providing near instant service has a big effect on lost production time and service costs. Here's an example of the cost savings a customer in New Zealand experienced. The total amount paid to D. R. Joseph for check-out, commissioning and startup service for a new IBC System was \$0.00. All of the system check outs, setups and performance monitoring and tuning were performed by the D. R. Joseph staff during the customer's normal working hours via the modem that is included with every system. Each time our customers utilize the Remote Diagnostic Interface (October 1997 "Remote Logging through the Modem"), they save over \$1000.00 USD.



Understanding the Side Effects

Finally, does the company understand how this new technology will affect your process? Do they understand the interaction between the new technology and existing technologies already in operation? Not understanding these interactions often leads to misdiagnosis of problems, delays



in repairs, and increases the overall cost of maintaining the system year to year.

Often we are called with problems first thought to be IBC issues. Many times the problems are caused by process settings of other equipment. For instance, bubble instabilities can also be caused by improper air ring setup, unsteady melt flow, fluctuating nip speed, clogged air flow passages, and chiller failure, just to name a few. With the proper interaction data, D.R. Joseph is able to properly diagnose the problem often without the customer purchasing anything. We feel the result is one of the lowest yearly operating costs per system on the market. The above graph shows actual yearly costs to keep the IS-IBC1 system running. The data is arranged by the number of systems purchased by a customer. These costs include the purchase of recommended spares (as preventative maintenance) and normal wear service parts.

Taking Down the Wall

The company providing the technology has to provide a means of integrating the technology into existing operations. This is done by ensuring each new piece of technology comes with quality installation and operation documentation; considerations for upgradeability; an ability to easily

service from remote locations; and accurate data on the interactive effects the technology has on the process.

Recommendations

Automatic Blower Balance

We are currently recommending upgrades from our standard IBC system to the very successful Automatic Blower Balance system. The upgrade path is defined and very cost effective. Conversion can usually be made in a few hours and improvements to the operation are immediate. The entire process of starting the line is reduced to the following: turn on inlet blower, pull bubble up to the nip, close nip, wait until bubble flares pass through the nip, turn on outlet blower. The system automatically keeps the blowers synchronized until both blowers are up to speed. Then the system automatically tunes the inlet blower speed to match the flow of the outlet blower.

The major benefit the system provides is consistency in startup time and production rate - operator to operator. It also provides the same tight layflat control and high production rates that come with the IS-IBC1.

Color Touch Screen

The color touch screen version pro-

vides the same features as the automatic blower balance system plus....

In its simplest form, operators only need to use one screen in order to access all of the system features. This eliminates training operators on how to navigate through multiple menus. For more experienced operators, full color trend screens are available for layflat, process control, sensor inputs, and system outputs. Trending screens

are useful for reviewing current and past operation of the system. For maintenance personnel, password protected system access allows diagnosis and adjustment of the system should the need arise. The system still supports the same remote diagnostic interface; however, with the color touch screen there is an additional option for getting technical assistance.

For blown film plants that have shop floor data collection systems, the IS-IBC1 can provide a wide variety of data in digital form and also provide layflat and bubble position in analog form.

We are always interested in your opinions. We have included a **Customer Satisfaction Survey** with this newsletter. Please take a minute to fill it out and fax it to us. We would appreciate hearing from you.

TECH TIP

What Does Bubble Size Have to Do with It?

by Daniel Joseph

Production rates are a very important part of profitability for a blown film manufacturer, given all other film specifications are properly met. Wide swings in production rates give company planners big headaches that they respond to by demanding the production department smooth out dips and run at a flat production rate. Some production departments are able to comply with applied diligence, but other production departments just don't seem to get it done. What is the difference? Is it the equipment, the manager, the operators, or something else?

The problem is the mix of orders being run on the line. More specifically, the problem comes from the blow up ratio being run on the die. Tom Butler of The Dow Chemical Company in a SME Blown Film Technology presentation states, "After thickness, the most important fabrication variable affecting properties is [Blow up Ratio]." The conclusions by Richard Knittel and Richard DeJonghe in their paper presented in Tappi Press, "Film Extrusion Manual", included the statement that production rate decreases linearly when BUR decreases. Wherever you turn in literature, the common point is that production rate suffers when the blow up ratio drops (a BUR of around 3.0 is optimum and generally accepted for standard bubbles).

Let's look at what to do about this problem. What causes this loss in production rate for smaller bubbles?

Basically, it is a loss of surface area contact with the cooling air stream from the air ring. Machine manufacturers have developed ways to improve performance with low efficiency blow up ratios by designing special air ring lip sets to increase the air contact with small bubbles. Blown film lines with IBC have an advantage as the internal cooling can be used to offset loss by the air ring.

For those of you who can schedule small orders for several days in a row, specialized air ring lip sets can be helpful. For those of you who are true custom order houses, the challenge is great. Once the equipment is set to produce the best possible range of products, the next area of optimization has to be in order selection. The objective is to balance the run time of jobs with optimum blow up ratios to offset losses that come with jobs that have small blow up ratios. It can help smooth out the dips.

(Credit Cards continued from Page 1)

There are some practical limits to the use of credit cards simply because of the dollar amounts involved. Credit cards save the most time and money when making small purchases. Purchases where the paper work costs rival the product costs. Purchases such as service contracts, small spare part orders, emergency service work, and remote service (a trend among machine manufacturers).

Credit cards significantly ease the problems of purchases made in foreign currency. Credit card companies generally charge between 2 and 4% above the prime inter-bank rate for currency exchanges. Shop around as some credit card companies charge more than others for these types of transactions. Credit cards also eliminate the cost of wire transfers that are in addition to the exchange rate fees.

Using a credit card will also save you money the next time you make a purchase of a DRJ product. DRJ offers a 3% discount on all purchases made with a credit card. The time value of money is not lost because payment to the credit card company is not due for 30-60 days depending on the time of month the purchase is made. Also, no control is lost because you get a detailed statement each month allowing you to set practical limits by employee for each month. The credit card company simply will not allow them to overspend. The accounting department batch processes all small purchases which saves time and money over doing each one as they occur.

Even if your company has a policy of the employee paying for the expenditures and then receiving reimbursement from the company, you can still take advantage of credit cards by allowing employees to submit the small expenses on their expense reports instead of limiting it to travel related expenses. Why not take advantage of the convenience and benefits of using a credit card?

D. R. Joseph now accepts VISA, Master Card, and American Express.

Questions and Comments

Please feel free to contact us with any questions, comments, or suggestions you may have for our newsletter. If there is a topic you would like us to discuss, please let us know and we will work to incorporate it in our newsletter.

If you know an associate who is interested in receiving our newsletter, please fax or write to us and we will add them to our mailing list. We hope you have enjoyed this issue of Blown Film Internals.

Blown Film Internals is published bi-annually by D.R. Joseph, Inc., 2125 S. Great Southwest Parkway, Suite 101, Grand Prairie, Texas U.S.A. Telephone (972) 641-7711 or (800) 767-4470, Fax (972) 641-8747 D.R. Joseph, Inc., manufactures the internal bubble cooling and layflat control systems for blown film extruders. President: Daniel Joseph; Executive Editor: Trevor Grossklaus; Managing Editor: Dena Fenton