

# Blown Film Internals

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

2125 S. Great Southwest Parkway, Suite 101, Grand Prairie, Texas 75051 USA (972)-641-7711



New smart sensor (shown left) has integrated microprocessor, temperature compensation, on board diagnostics and three communication modes. The unit has more power than our previous model, a tighter beam angle, and is tamperproof.

quickly. This feature is a great improvement for all lines as it improves long term layflat stability for any die.

## Automatic Cage Control

We have been asked repeatedly to provide a fully automatic cage controller to our system. We call it Auto Cage Control (ACC). Operators can now enter desired layflat and continue with other setup issues while the system properly sizes the bubble. While we were developing ACC, we learned that the sizing cage was often a critical element in maintaining bubble stability. ACC maintains the proper relationship between the bubble and the cage during the size change process. It even coordinates the size change request with the blower speeds to keep the process as smooth as possible.

## Popping the Cork Early on New Century Technology

By Daniel Joseph

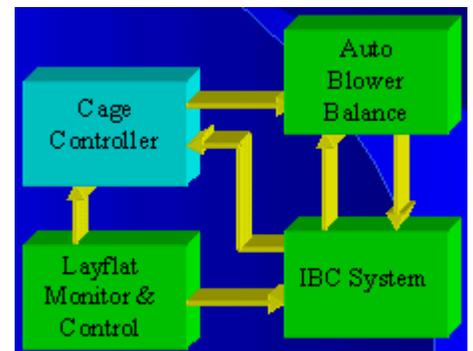
The new century is less than 100 days away and everyone from car companies to computer companies is expected to introduce innovative products for the new century. At D. R. Joseph, we are no different. We are launching seven major enhancements and features to our IS-IBC1® Control System. The increase in features is due to multiple new challenges brought to us by our customers. In the theme of providing solutions, not just answers, we would like to introduce the following:

### True Layflat Controller

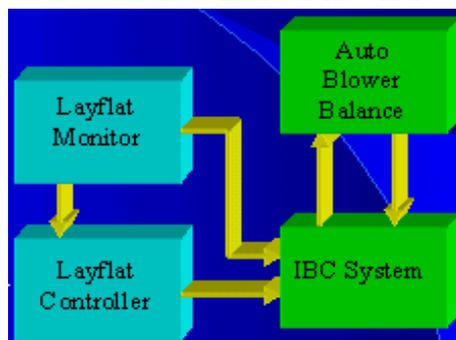
Our first challenge was to find a way to restore the operation of oscillating dies with uneven air flow in the IBC supply and exhaust chambers. As a point of reference, these chambers have fixed and rotating members that

take air from a fixed position and distribute it to the moving die. Some of the older designs failed to account for the cyclic alignment of the fixed passageways with the moving passageways. This resulted in sudden changes in air pressure, which caused the bubble to grow or shrink.

Until recently, these problems have been too much for any IBC system to handle. To solve the problem, we added another control loop that checks the bubble size a second time. It uses the measured size and the desired size of the bubble to generate an opposite signal to a disturbance caused by the air chamber. The canceling signal is then injected into the IBC system to allow it to compensate for disturbances in the air flow more



(Continued on Page 2)



## Table of Contents

New Century Technology.....	1
Kundig Control Systems.....	2
Our Network is Growing.....	3
Y2K.....	3
Upcoming Events.....	3
Tech Tip - Vector Drives.....	4
Save Three Percent!.....	4

### High Stalk Neck Height Control

Another feature added is the Neck Height Controller for high stalk high-density bubbles. This device measures neck position and modifies the cooling temperature of the air ring and IBC to keep the neck position stable. The system can be interfaced with a variety of chilling/heating units available on the market today.

### IBC System Gets Improvements

We have not lost sight of IBC control. There have been several significant enhancements to the IBC controller to make it a faster and more accurate system. We have also improved the startup routines to provide a much smoother and trouble free startup. Many of these enhancements can be added in the field. Call us and we will be glad to review your system and provide you with the costs and benefits of upgrading.

### New Sensors

Our biggest IBC enhancement is the introduction of new microprocessor based ultrasonic sensors. The new family of sensors provide more power, better accuracy, and a lower cost of ownership. The units are tamperproof as internal configurations are programmed and permanently saved in the sensor. We also developed a new smart sensor multiplexor that allows up to four sensors to be combined for any sensing task. The multiplexor is "smart" because it automatically detects which sensors are functioning properly and reconfigures on-the-fly. The sensors and the smart multiplexor are upgradeable to even our oldest IBC systems.

### Bigger Color Touch Screen

The color touch screen has undergone some improvements as well. A new six inch screen provides 50%

more viewable area which makes it much easier to read and use. The bright colors are easily viewed even from an angle. To make it upgradeable to users of our smaller 5" color touch screen, the 6" unit uses the exact same cutout as the 5" unit. Upgrading takes about 15 minutes. We've improved all of the system calibration routines, and have added graphical help screens to make it easier for the operators to understand.

### High Performance Pneumatics

Our pneumatic systems have also undergone major enhancements. We have much faster responding proportional valves. This makes high-density bubbles easier to run and benefits customers with very large dies. Even the pressure regulators are being upgraded to units that offer more flow rate and better overall construction.



### Statistical Process Control

We now have a software tool that runs on an IBM-compatible, personal computer that provides Statistical Process Control analysis of the IBC operation. The program uses a variety of well-established statistical methods. Long term trending, XBar Chart, R-Chart, Histogram are the most common methods provided. You can use some or all of these methods to review how well your process is operating over a prolonged period. The only limit to how long you can monitor is how much disk space is available on your computer.

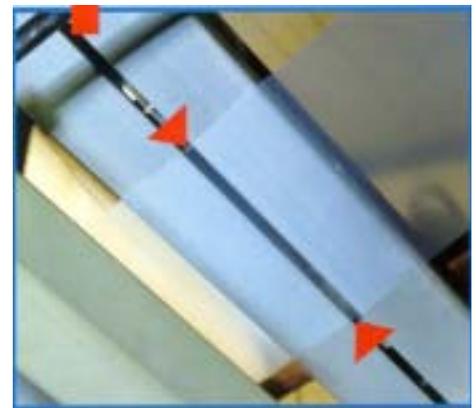
### Final Thought

Overall, our objective is providing a complete solution that grows with your blown film processing requirements. We are committed to meeting our customer's needs and will continue to provide solutions... not just answers. If you are not currently a D.R. Joseph, Inc., customer, we look forward to providing a solution to you!

### Kundig Control Systems

D. R. Joseph, Inc. now offers Kundig control and measurement devices. Kundig International is based in Switzerland and has offices in Boston. Over the last 11 years, we have found Kundig to be a very reputable company with equipment that is of the highest quality.

Kundig's specialty is quality control through precise measurement of film width and thickness. Their products include on-line and offline measuring devices. They also have control and Statistical Process Control systems.



If you are looking for absolute accuracy in film width measurement, you need to consider a FE7 Film width measurement device. Call today for more information or a quotation on the complete line of Kundig control systems.



## Our Network is Growing!

**D.** R. Joseph is committed to providing sales and service representatives around the globe. Our existing representatives include I.Kato & Associates, Falcon Machinery, and ESA.

I. Kato & Associate covers sales and service support for the Pacific Rim. I. Kato & Associates represents European/American plastic processing machines and relevant equipment. They are an exporter of Japanese-originated blown film and pouch making machines. Contact: I. Kato (81) 35-610-2908

Falcon Machinery covers sales and service support of blown film machinery for the entire Scandinavian region. Contact: Ole Manscher (45) 459-40-630

ESA has service responsibilities for the UK region and surrounding countries. Contact: Tim Hook (44) 1329-664733

D.R. Joseph, Inc. is proud to announce our latest addition to our service representatives. D-TEK Auto-

mation has service responsibilities for the entire Canadian region. Contact: Dale Williams (519) 938-9289

We also plan on adding further representatives in various locations throughout the world in the near fu-

# Y2K

## Y2K Compliant

**W**e at D.R. Joseph, Inc. are ready for January 1, 2000, February 28, February 29, all other leap years, and special dates in the new century.

Many of you may be concerned about the Y2K compliance issue with the IS-IBC1® Internal Bubble Cooling system or the LFC1 Layflat Control System. There are no Y2K issues with any IS-IBC1® or LFC1™ products produced by D. R. Joseph, Inc. If you require a Y2K compliance letter for your records, please contact Tamara Handley at 972-641-7711 to obtain this information.

## Upcoming Events

**D.** R. Joseph, Inc. would like to cordially invite you to stop by and see us at one of the following events.

### Film Conference 1999

We will be participating at Film Conference 99, the industry's most prominent technical conference. The conference is being held in the New Jersey area at the Doubletree Hotel Somerset, December 7-9, 1999. The three-day event will have nearly 30 presentations relating to flexible films and coatings given by the leading industry experts in blown film technology. There will also be opportunity for several plant tours.

Daniel Joseph will be speaking during the first day of the conference. There will be a table-top reception the evening of December 7th. Trevor Grossklaus will also be there to answer questions and demonstrate the most recent enhancements of the IS-IBC1®. The event is sponsored by Plastics Technology Magazine and Polymer Process Communications. For information about the conference, call Melissa Lynch at 908-709-0209/ email [ppc@eclipse.net](mailto:ppc@eclipse.net). You can also visit Plastic Technology Magazine's web site at [www.plasticstechnology.com](http://www.plasticstechnology.com)

### NPE 2000

The next big event is NPE 2000. Once again, D.R. Joseph, Inc. will be exhibiting at the show. Please stop by and visit our Booth # 11720 for the latest developments and advancements for the upcoming millennium. You can also visit the NPE web site and see our booth information ([www.npe.org/ex\\_search.cfm](http://www.npe.org/ex_search.cfm)). To view our booth information go to the site, scroll down to the Booth Number prompt, enter 11720, and click on Search. We look forward to seeing you there.

# TECH TIP

## Are Vector Drives Necessary for IBC Systems?

By William Jackson

**A**re you paying extra money to put vector drives on non-critical blowers? Does it make sense to use vector drives on blowers for the Internal Bubble Cooling (IBC) and air ring applications? Maybe; maybe not.

The main advantages to a vector drive are accurate speed and torque control, especially at low speeds. Some vector drives can even provide 100% torque at zero speed. The disadvantages are higher cost and more maintenance on models that have encoder feedback. Since most manufacturers offer a sensorless vector feature (no encoder), the main disadvantage can be cost.

Depending on the manufacturer, a vector drive may cost 40% more than a standard AC drive. Vector drives may be great for extruder and tension control applications where speed and torque control are critical. Blowers, on the other hand, are not normally operated at very low speeds, and, in most applications, you will not need 0.1% speed regulation on a blower.

For example, consider the supply and exhaust blowers that interface to the D.R. Joseph, Inc. IBC system. The system controls the speed of the inlet blower, based on the valve position, and a potentiometer on the front panel controls the exhaust blower speed. However, bubble size is totally con-

trolled by the valve. Therefore precise speed control that vector drives provide is really not needed. If the bubble changes size, the valve opens or closes to correct it. The blower speed is only changed for major changes in bubble size. So, unless you are using an IBC system that controls the blower speed, you probably don't need a vector drive on your supply and exhaust blowers.

Does that mean you should never use a vector drive on a blower? No. Some manufacturers may offer a vector drive at close to the same price as a standard drive. In this case, using a vector drive won't hurt you. Also, if you are installing 'Brand X' vector drives all over your lines, maybe you want to use Brand X vectors on your blowers too, so you don't have to keep another type of spare in stock.

So, be aware that vector drives sometimes cost more, and may not always be necessary. If you don't need highly accurate speed regulation (blowers), consider using a lower cost drive.

## Questions and Comments

**P**lease 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](#).

## Save Three Percent!

Just a reminder that D.R. Joseph, Inc. accepts payment by credit cards. We accept American Express, Mastercard, and Visa. When you pay by credit card for spare parts and services, you will receive a 3% discount (discount does not apply on full system orders). This is a great way to order those emergency spare part orders quickly without the hassle of issuing a purchase order. Don't delay, get the parts you need today.



### WHO'S WHO AT D. R. JOSEPH, INC.

#### **President**

*Daniel Joseph*

#### **Marketing/Sales**

*Trevor Grossklaus*

#### **Product Design Engineering**

*William Jackson*

#### **Production Manager**

*Perry Champagne*

#### **Shipping/Receiving**

*Ely Leos*

#### **Admin Assistant**

*Dena Fenton*

#### **Accounting/Sales Assistant**

*Tamara Handley*

Blown Film Internals is published biannually by D. R. Joseph, Inc., 2125 S. Great Southwest Parkway, Suite 101, Grand Prairie, Texas USA  
Email: drjoseph@sprintmail.com, 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; Managing Editors: Dena Fenton, Tamara Handley