



Letter From The Chairman

Since 1976, Quantum has kept to its mission of solving Container forming problems. Our unique solutions to age old problems have improved the quality of every container produced on our equipment. The advanced sealing technology, air flow pathways, and long life materials continue to provide the best return on investment for the very heart of the IS Machine.

The development of the TWT provides clean air to produce pristine containers in Blow & Blow. This has also provided the basis for the electronic enhancement such as the CPMS/TFA systems.

Finally, the ability to have a real time process control (TFA) that shows what is going right and what is going wrong... is being used and appreciated. Quantum's TFA has the capability to "see inside" the blank side forming process. This data can then be used for automation, seeing the intended plunger motions, and to "solve blank side forming problems".

As Founder and now Chairman, I am proud of the service and support Quantum's skilled and experienced team of mechanical & electronic experts provide to the Industry.

I am equally pleased with the long term relationships of our Global Representatives and Distributors providing seamless support, enhancing our products value to the many producers using Quantum's products and services.

We look forward to the coming new decade and beyond, and continuing our research and refinement of our products and services. We thank you for your continued support and belief in our commitment to the World Wide Glass Container Industry.

My very best,

Joseph W. Kozora
Founder & Chairman



Customer Testimonials:

Company: Vidriera Centroamericana
Name: Luis Mata Barquero
Title: IS Machine Maintenance Supervisor

"My experience with the use of Quantum's plunger mechanisms and its equipment has been more than satisfactory, for many years these equipment are responsible to increase our productions because almost never failed, reducing the dead times."

Company: O-I Mexico **Location:** Guadalajara
Name: José Adan Marrero Murillo
Title: IS Machine Manager

"The piston mechanism makes an indispensable function in the formation of the glass container is related to a host of characteristics of the container and as such the mechanism and its accessories such as the cartridge and the piston holder fulfill a key function so that these characteristics of the container do not alter"

Get to Know...



Franklin Wilson

What's your day to day like as an employee of Quantum?

My responsibilities change from day to day as determined by the needs of the business. Whether inspecting parts or assembling them into larger mechanisms, each day presents opportunities to solve problems and collaborate with peers, in order to drive efficiency and productivity all while working in a fun and fast paced environment.

What do you like to do outside of work?

I enjoy spending time with my girlfriend Erin and my dog Daisy. We love exploring and experiencing nature and local parks. We are in the middle of building our first home together and can't wait to settle down.

Do you have a bucket list? If so, what is one item on your bucket list?

I love seeing all of the great things nature has to offer. Something I would love to do is see the northern lights in Iceland. I recently was able to cross two things off my list. We have gone to both the Grand Canyon and Joshua Tree National Park in the past year.

People would be surprised to know that I _____.

People would be surprised I know I am a vegetarian and run marathons.

Who is your favorite historical figure?

Neil Armstrong



Quantum Agent Training 2019

Quantum has been providing training both at its headquarters in Pennsylvania, USA and at our agents' locations around the world. Training is key to our success and is a key part of our mission statement: believe strongly that its agent network is some of its best assets. Investing in training on a regular basis will give Quantum a competitive edge and boost morale, confidence and ownership into our products and services.

Quantum is fully committed to providing outstanding customer service. Knowing the importance and positive impact that proper training has on a company's success, By providing personalized training seminars to our customers, the company ensures that its clients receive an overall high return on investment, with proper training on its mechanisms; factories will effortlessly experience more productivity, less down time and a better bottom line as a result of providing the education that is so needed for employees to do their best.



Quantum agent training July 2019



Quantum training in Turkey, June 2019



Quantum

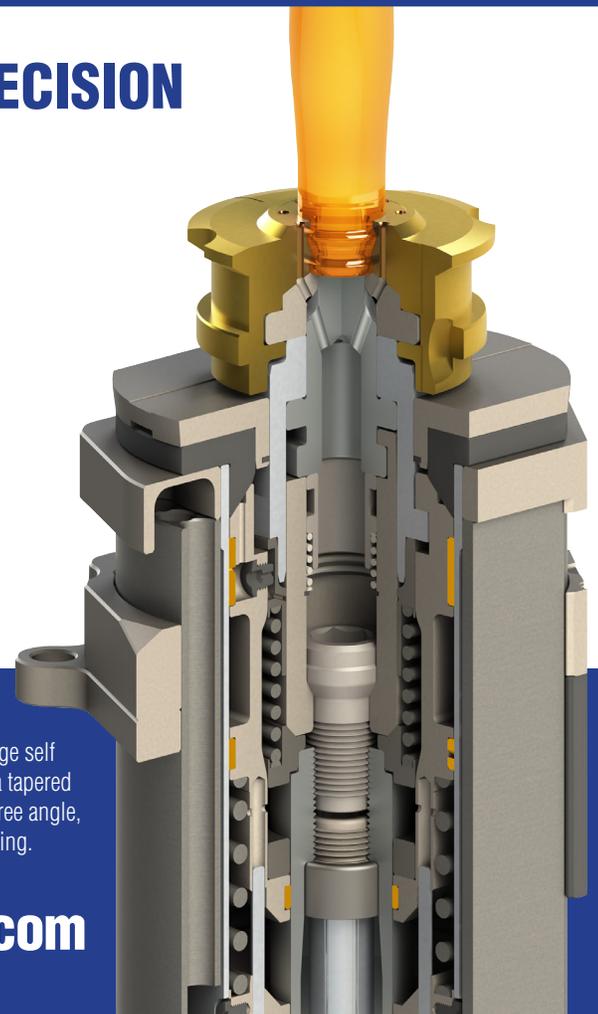
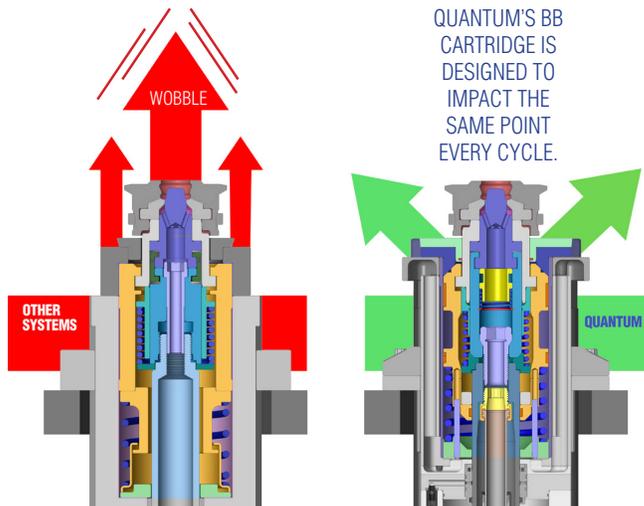
TFA™



Quantum's Total Forming Analysis process controller offers a wide range of blank side forming information. Visualization of all possible positions of the cylinder are possible, regardless of the forming process used. Operators can see the exact position of the mechanism before, during, and after the gob has been loaded into the cavity. This information greatly improves the ability to identify potential problems before bottle defects begin, and ensures smooth operation.

Utilize the TFA sensor in Blow & Blow production. Parison formation depends on proper positions of the Quantum Blow & Blow cartridge. The sensor inside our equipment tracks all cylinder movements during blank side forming. Although mechanical movements will be small, visualization of the plunger position is worthwhile information. Ensure proper loading heights are reached, and witness the impact counter-blow may have during the forming process. See for yourself the Quantum equipment in motion.

BB PRODUCTION WITH NNPB PRECISION



ACCURACY BY DESIGN

The Quantum designed lightweight and tapered BB cartridge self aligns and reduces impact on the cartridge bolts. Having a tapered impact area sends the force of impact outward at a 45 degree angle, away from the critical areas around the plunger and neck ring.



 **QuantumForming.com**

Pittsburgh Community: Glass Recycling alternatives in our community

Pennsylvania Resource Council (PRC) is the oldest grassroots environmental organization in Pennsylvania. Since March 2019, in response to the sudden removal of glass from many residential recycling programs in the Pittsburgh area, PRC launched a network of pop-up glass recycling events.

Pop-up glass recycling events is an alternative to traditional curb side collection and yields significant volumes of high quality materials to the glass recycling industry. Continuing to put glass in your curbside recycling bin when instructed not to may result in rejected loads at material recovery facilities or the glass may be used as landfill cover. To ensure your glass is being recycled properly, please participate in PRC's Glass Recycling Collection Events.



What "glass" looks like after it is sorted at a single stream recycling processing facility.



What glass looks like coming from a glass only drop off facility.

You can learn more at:
<https://prc.org/programs/collection-events/glassrecycling/>



Market Spotlight: Turkey

The Turkish economy contracted by 3 percent in the fourth quarter of 2018. Annual inflation rate rose to almost 20 percent in March 2019.

This is all good for the Container Glass industry that, thanks to export, is growing at 2 digit figures.

With two new companies in the last five years, Gürallar Cam and Baştürk Cam, the glass container industry is blossoming. More than 30% of all production is exported. In Turkey, main demand is for sparkling mineral water bottles.

Anadolu Cam is the market leader with about 58% of market share followed by Park Cam and Gürallar Cam.

All producers have projects to increase capacity in the near future increasing the country capacity by more than 2,300 tpd.

Upcoming Trade Show Appearances



Visit Quantum at:



10-12 OCTOBER 2019



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Great Containers Start Here.