

what's best for the food



SILVERLINE

PRESENTED BY HYDRO-THERMAL CORPORATION

STEAM INNOVATION IN YOUR KITCHEN

what we build



Hydro-Thermal has an 80-year heritage of steam innovation and knowledge. This has positioned the company as the premier manufacturer of heating equipment using steam in industrial and sanitary applications.

Our patented designs are simple, beautiful and more effective than any other cooking solution on the market.

The heart of the SilverLine™ system is the Infuze™ cooker. Its predecessor has enjoyed a long history in the industrial world, but it was redesigned with food in mind. This cooker is precision machined from 1.4404 (316L) stainless steel and utilizes elastomers conforming to FDA requirements for food contact. Also featuring a 3-A certification, the Infuze™ is completely cleanable inline through normal CIP processes. The SilverLine™ is a streamlined, self-contained, polished stainless system designed to cook recipes exactly as specified. **What makes it so good at cooking?**

We understand how steam works.

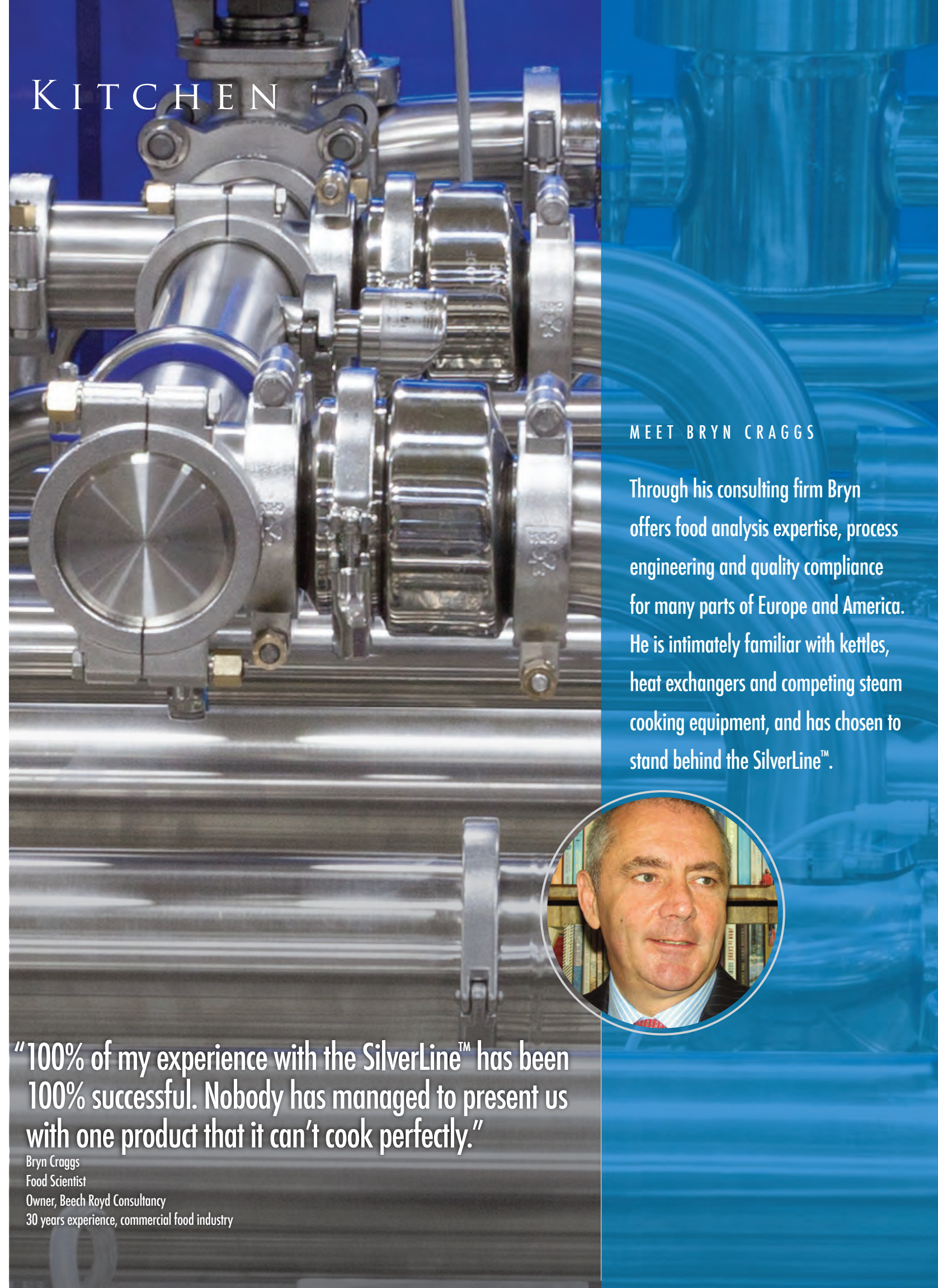
Eighty years of experience has taught us a few things about how to cook with steam. Through this knowledge, we have developed the Infuze™ to very accurately cook to a specific temperature in a variety of different conditions. Flow rate changes, pressure variation, 300 different recipes - can all be handled on the same SilverLine™.

The Infuze™ cooker is a simple design featuring only one moving part. Despite its simple appearance, there are thousands of hours of engineering experience behind this device. Some foods need high heat and high shear force to create a perfectly cooked and homogenous texture, like ketchup. However, cream of mushroom soup needs lower amounts of shear to prevent damage to fragile mushrooms. Broths need extremely low amounts of shear and low heat to prevent emulsification of the chicken fats, which create a cloudy product. **The Infuze™ was designed to control steam in a specific way, giving you a versatile solution to properly cook all of your recipes.**

Steam has been safely used to cook foods for more than half of a century. The understanding of how to correctly prepare steam for food is built right into the SilverLine™ system, and our steam experts will help ensure that your boiler water treatment meets food safety requirements. The SilverLine™ is both food smart and food safe.



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MEET BRYN CRAGGS

Through his consulting firm Bryn offers food analysis expertise, process engineering and quality compliance for many parts of Europe and America. He is intimately familiar with kettles, heat exchangers and competing steam cooking equipment, and has chosen to stand behind the SilverLine™.



"100% of my experience with the SilverLine™ has been 100% successful. Nobody has managed to present us with one product that it can't cook perfectly."

Bryn Craggs
Food Scientist
Owner, Beech Royd Consultancy
30 years experience, commercial food industry

FORM

DELIVERS FUNCTION

why it's better

We challenged ourselves to design the most advanced liquid food cooking system on the planet. One that could replace heat exchangers and kettles by actually fixing their three biggest problems. The form it took ended up solving a whole lot more.

We started by brainstorming all of the issues that commercial kitchens have in producing liquid foods. What are your challenges? What do you have to give up in order to get something that is more important? We came up with eight specific needs, with three representing the top issues.

Quality

Simply put, there is nothing more important than the quality of the food you make. However, traditional production machinery can only impart one quality profile onto your food. This is a problem if you want to improve the mouth feel of tomato paste, or make whiter clam chowder. These also prevent you from making gradual changes over time. **What if you want to control the quality profile of your product?**

"I think that the most meaningful benefit of the SilverLine™ is the increase in productivity it provides. You can cook more food with less equipment, time, maintenance and floor space."

Bryn Craggs

Cycle Time

The speed in which you can cook a recipe, clean and then set-up for the next run determines the total amount of food you make. Heat exchangers are sized by a very specific flow rate in order to function properly. Changes in the flow rate will affect the temperature of the food. At worst this food would be destroyed, but at best it locks your process into that speed. **What if you want to cook more food?**

Versatility

To cook many recipes, kettles have traditionally been the only choice but you have to cook in batches. Heat exchangers can cook continuously, but don't handle particles, scraped surface exchangers do not work well for smaller quantities and shell-and-tube exchangers can't add high shear. All of them have reduced efficiencies, are hard to clean and cannot cook a wide range of recipes.

What if you want recipe versatility, but want to cook continuously?

COMPARISONS

	SilverLine™	Heat Exchanger	Kettle
CLEANING	ELIMINATES BURN-ON	★	☆
VERSATILITY	COOKS MOST LIQUID FOODS	☆	★
CYCLE TIME	CLEANED QUICKLY REGARDLESS OF RUN TIME	★	☆
CONTINUOUS	CAN COOK CONTINUOUSLY FOR WEEKS	★	☆
COST	PAYS FOR ITSELF IN USUALLY LESS THAN 12 MONTHS	★	☆
GREEN	REDUCES ENERGY USE UP TO 20%	★	★
MAINTENANCE	REDUCES UPKEEP UP TO 50%	★	★
FOOTPRINT	SIGNIFICANTLY REDUCES FLOOR SPACE	★	☆
QUALITY	CAN MEET OR EXCEED QUALITY PROFILES	★	★

- ★ STRONG
- ★ AVERAGE
- ☆ WEAK



NEW BENCHMARK OF HYGIENE

what's best for the food

These are just some of the reasons why the SilverLine™ creates a new benchmark for internal and external hygiene:

Levelers



Featuring both EHEDG and 3-A certifications, these NGI levelers are strong, elegant, and completely cleanable. They seal against the frame and the support bar to keep water out and leave no exposed threads that can harbor bacteria near the floor line.

Cabling



SilverLine™ cables are made of FDA approved elastomers, are chemical resistant, and do not degrade in wet environments. They penetrate the completely welded stainless steel cabling harness through IP68 rated hygienic cable glands in order to maintain the most sanitary cabling system on the market.

Valves

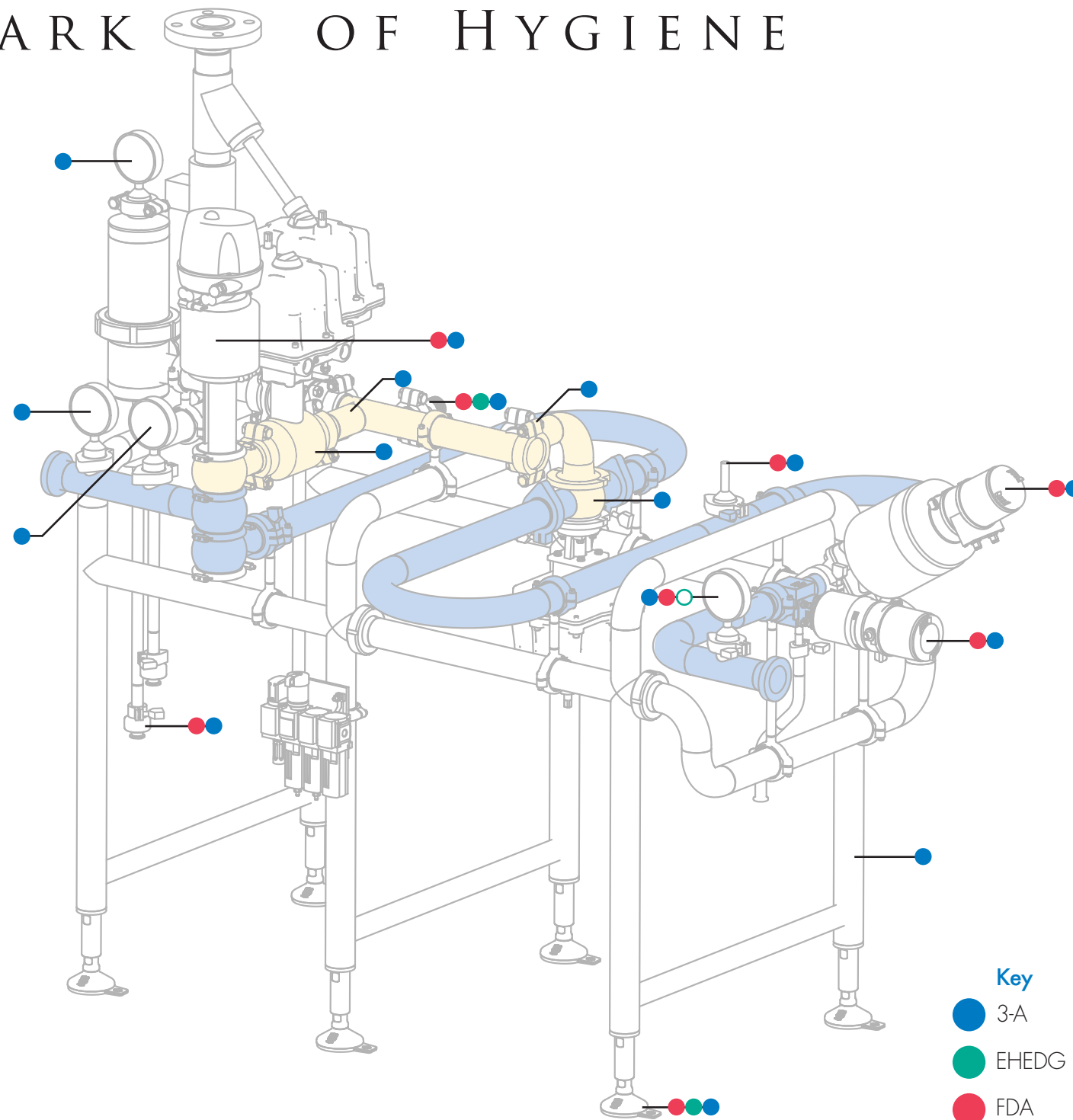


Only the most hygienic valves were selected for inclusion into the SilverLine™. These valves were chosen for their ability to be effectively cleaned, 3-A certification, FDA elastomer conformance, and acceptance in the food and beverage industries.

Every component, every connection, every idea had to pass this simple litmus test to be included in the SilverLine™. From the piping to the valves and from the panel to the frame, everything had to work together to become what's best for the food.

This often led to sacrificing components that were less expensive in order to gain cooking stability or hygiene. It forced us to rethink everything we know about steam cooking design, retool our production and assembly facilities, and re-engineer our manufacturing process.

The culmination of these efforts is the SilverLine™ cooking system, winner of the 2014 IQ Innovation award.



- Key
- 3-A
 - EHEDG
 - FDA
 - EHEDG PENDING



Food Pathway

One of the many advantages of the SilverLine™ is the completely piped design. This allows for variable flow rates and ease of cleaning after a production run, but not all pipes are created equally. 3-A Sanitary Standards specify an internal finish of Ra 32 for piping, but does not require internal ground welds nor does it regulate outside radii (e.g. ports for instruments). The SilverLine™ was designed to exceed 3-A specifications by incorporating pulled ports instead of welded ports, which offer a very cleanable and smooth outside radii. It also features Ra 20 finish piping plus internally ground and polished welds.



Steam Pathway

There is no way around the fact that all steam cookers leak. While this is not a concern for heating food, it creates a cleaning problem because food can leak back into the steam core. Most equipment manufacturers do not clean the steam line to prevent food build-up in the steam core. 3-A has addressed this problem by requiring a culinary check valve in the steam supply line to limit how far back food can make contact. The SilverLine™ was designed to exceed 3-A specifications by incorporating a steam-side CIP bypass to actively clean the steam line, check valve and steam core.

It is not enough to simply meet a benchmark. We believe that exceptional design should push the boundaries of current standards and drive them to be better. The SilverLine™ was made to exceed expectations in all possible ways and provide a direction for ultra hygienic food equipment in the future.



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