TECNA (Tecnologie Alimentari) Srl

THE MARKET LEADING VORTEX

- Maximum Return on Investment
- Ultimate Water Savings
- Lowest Operating Costs
- Fast Product Changeover
- Total Hygiene

- 200 to 4000kg per hour
- Consistent Product Quality
- Highly Versatile
- Free Flow Product
- Maximum Yield

Perfectly cooked

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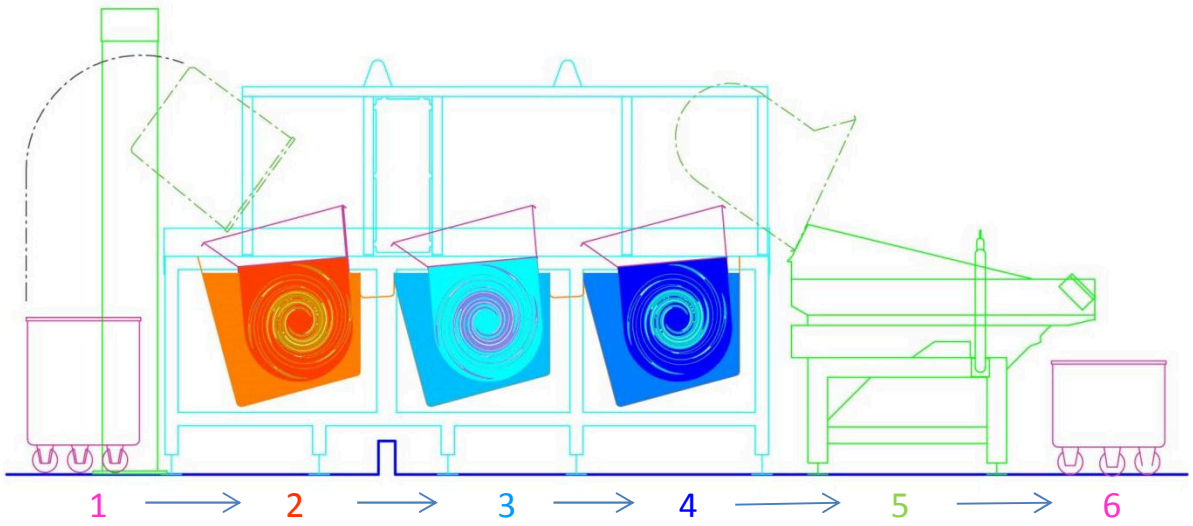
The Vortex



The Continuous Process

1. **INFEED** – Precise product loading by tote bin or conveyor with automatic weight control.
2. **VORTEX COOK** – Unique vortex water rotary action blanches or cooks every piece of product evenly and without clumping.
3. **VORTEX QUENCH** – Chilled water with vorticity to immediately stop the cook process and remove bulk heat.
4. **VORTEX CHILL** – Reduces the temperature of every piece of product down to typically less than 3°c.
5. **DEWATERER** – Vibratory dewatering conveyor removes surface water.
6. **DISCHARGE** - Simple transfer into tote bins or trays.

It is an art to cook pasta and rice to perfection and it takes expertise to design equipment to reproduce this on an industrial scale. Our designers are experts in pasta making and thermal processing equipment and have over 30 years experience in the dedicated development of cooking systems with unparalleled performance and versatility. Our worldwide references prove the Vortex outperforms all other systems on the market.

The Vortex cooks, quenches and chills up to 1.25 tonne of product simultaneously in one cycle as a continuous process ensuring minimal downtime. The Vortex can also be used for blanching, sous vide and thawing applications.

The revolutionary Vortex, which takes its name from the uniquely generated flow of water, guarantees every piece of product is evenly cooked and chilled for consistent high quality and ensures zero clumping, no damage and therefore maximum yield.

The Vortex range offers the largest capacity systems for all products, e.g. up to 4,000kg of spaghetti per hour, delivering exceptional product quality with the lowest cost of ownership.

The Vortex is unequalled in energy savings, water savings, hygiene and ease of cleaning , in addition to low maintenance costs.

The Vortex - Delivers What The Others Claim

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Cost Effective Ownership

The Vortex is <u>the</u> most efficient means of achieving perfectly cooked and chilled product, and offers a lower cost of ownership than any other system.

In addition to using less combined steam, glycol, electricity and air than any other CQC or continuous process for its throughput, the Vortex also delivers the most impressive water savings.

Evolved and proven over twelve years, innovative design, high quality components and construction, all combine to guarantee reliability and low maintenance costs - typically less than £1,500 per year.

Reducing the amount of water your business uses will also reduce the amount of waste water produced, thus saving on both fresh water and grey waste charges.

Built for maximum throughput, twenty four hour operation, 365 days a year. Heavy duty robust construction, stainless steel manufacture and IP67 wash down ensure the Vortex is built for longevity and performance.

Fast product change over, speed and simplicity of use, accessibility, efficient hygiene and cleaning routines and a minimal amount of operators time required all equate to optimum labour efficiency. Time is money.

Comprehensive 12 months parts and labour warranty, UK based same day despatch spares service and instant access to our specialist engineering team make the Vortex the safest long term investment.

Contact us for a comprehensive review of the water and energy savings you could achieve now with the Vortex.

The Vortex – The Most Cost Efficient Solution

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Water Optimisation

Some of the ways we save more water than any other continuous or batch system whilst never compromising on product quality.

Cook water fully utilised

Whilst cooking, at the optimum water to product ratio, the Vortex ensures that the quantity of cook water does not become overly starch loaded and therefore minimises water replacement frequency.

Cook water change minimised

Overflow weirs with programmable settings enable adjustment of the surface starch to be skimmed to suit the product. This maintains water purity in the cook tank.

Controlled water levels

Complete controllability on our water levels ensure our system monitors every drop. For example the Vortex cook tank only calls for water once the basket is down and product is loaded.

Zero water loss

The robust and powerful hydraulic basket lifting system with programmable variable speed drive gives smooth and controllable action to ensure zero water loss during the lifting and return cycles of the baskets and product transfer.

Fresh water rinse

The programmable rinse uses fresh, not starch loaded, water. Therefore from cook to quench, and quench to chill, we recycle clean water, never compromising on product quality.

Quench managed starch removal

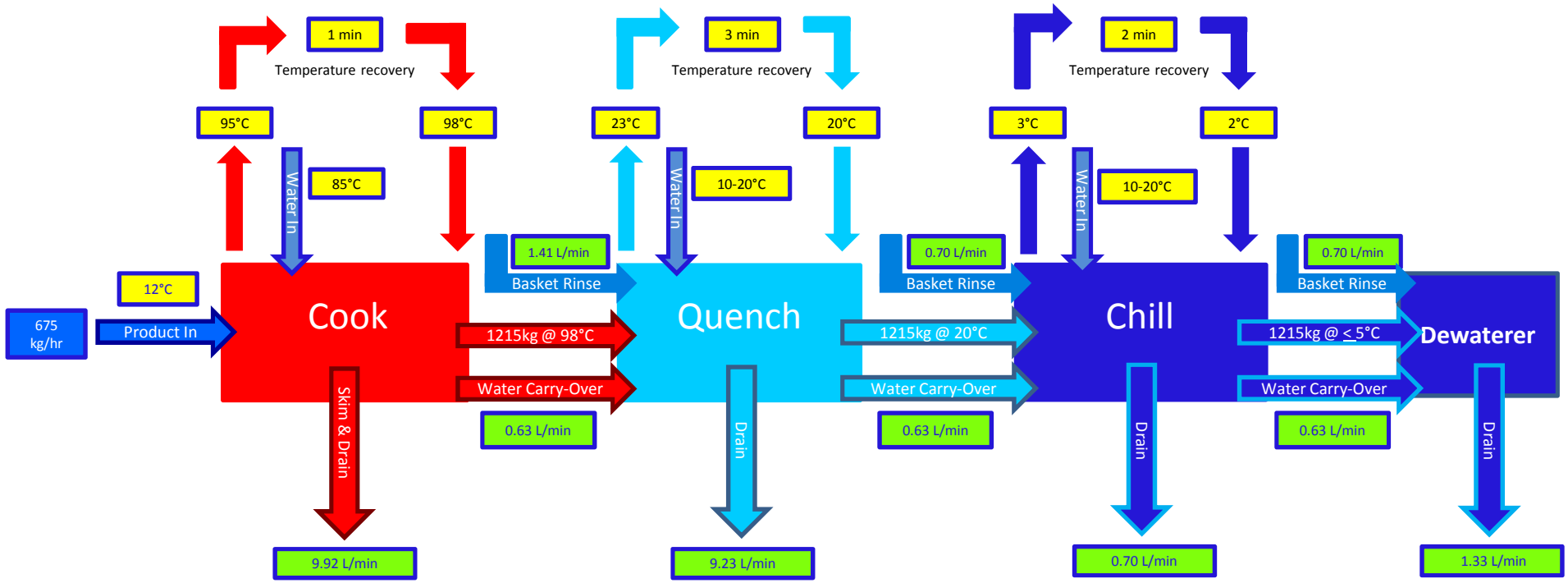
Programmable time and strength of vorticity allow for the removal of the preferred level of surface starch for product application and/or filling line requirements.

Chill water never replaced

The highly efficient starch removal in the Quench stage preserves a clarity of the chill water thus eliminating the need to change the chill water throughout the production.

The Vortex – Where Every Litre Counts

Water Usage & Energy Requirements



Vortex D1 Mono 900 (3 Stage) – 1,215 kg/h cooked pasta output

Steam – Cooker	Per 1215kg
Hourly Average - Continuous Running	145 kg/h

Glycol – Quench/Chill	Per 1215kg
Hourly Average - Continuous Running	156 kw

Total Water Usage	Per 1215kg
Litres - per minute / per kilo	20.48 / 0.996

Data based on 90kg batch of 6mm Fusilli pasta. Cook time 7 minutes. Drain and transfer time 1.0 minutes. Yield 1.8. Product water take-up not included.
Cook water replenished every 12 cycles. Quench water replenished every 10 cycles. Starch skim on every cook cycle included.

The Vortex – Maximum Throughput With Minimum Cost

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Technical Benefits

Shell in tube heat exchanger for quench and chill. The most efficient system for eliminating water wastage whilst reducing product temperature to less than 5°c.

Touch screen recipe driven management of all process parameters.

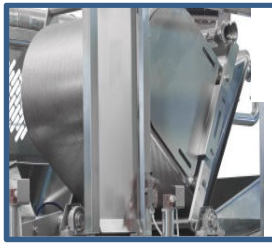
Programmable hydraulic basket lifting system facilitating smooth movement of baskets during lift, transfer and return cycles.

Unique Vortex rotary flow pumps in all three stages for even cooking, quench and chill of the product. Closed circuit for temperature accuracy.

Quick release lift out safety guards optimises access.

CIP with self validation and Scada data capture for operational safety, reducing downtime and water usage, whilst guaranteeing repeatable quality assurance. Fully demountable pipework with SMS and clamp fittings

Automatic product feed by tote bin or conveyor optimising througput.



Polished, dimple finished baskets with programmable fresh water rinsing. Minimises surface area contact assisting discharge of product without retention.

Integrated shell in tube heat exchanger for cook section. Enables fast heat up times and highly accurate temperature control .

The Vortex – Engineering Excellence

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Products & Performance

Short Pasta	
	Long Pasta
Rice	
	Noodles
Pulses	
	Grains
Potatoes	
	Vegetables
Seafood	
	Water chestnuts & Other

The Vortex was expressly developed to overcome the previous capacity and quality limitations of continuous belt and screw type systems associated with the cooking and chilling of short and long pasta, noodles and rice.

Quality

The revolutionary Vortex guarantees every piece of product is evenly cooked, quenched and chilled for consistent high quality with zero clumping, no damage and therefore maximum yield.

Versatile

In achieving this, the highly versatile Vortex is equally suitable for numerous other products such as potatoes, pulses, vegetables and seafood.

Capacity

An extensive range of systems for all output requirements up to 3000kg and more.

Proven

With many multiple installations throughout the UK and further afield, our results on all these products are proven. The figures below are actual, not theoretical, results realised by our customers every day.

The Vortex – No.1 in Versatility

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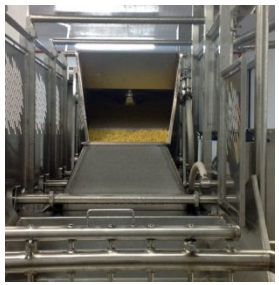
Vortex D1 Mono



A fully automatic system where all operational sectors, Cook, Quench and Chill are mounted on a single frame specially designed to enable high and low care separation.

Both the D1 Mono and the D2 Duo are offered with a choice of three basket sizes, 40kg, 90kg and 135kg to cover capacities from 250 kilo up to 4000 kilo per hour and with 3, 4 and 5 stations.

The Vortex - Single Frame High/Low Care Simplicity

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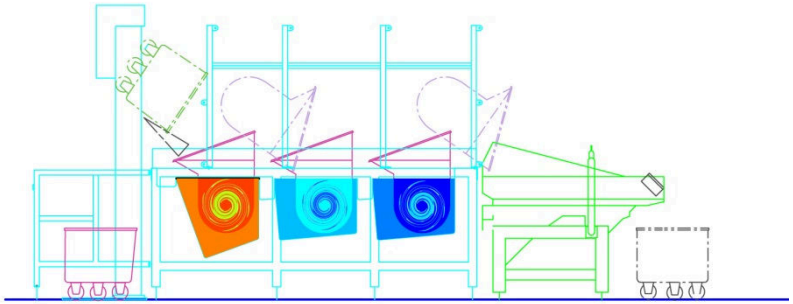
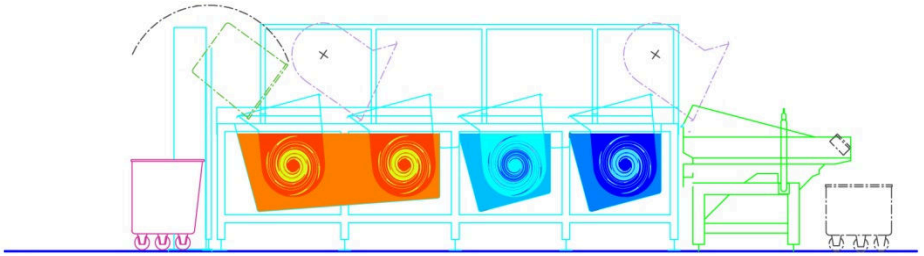
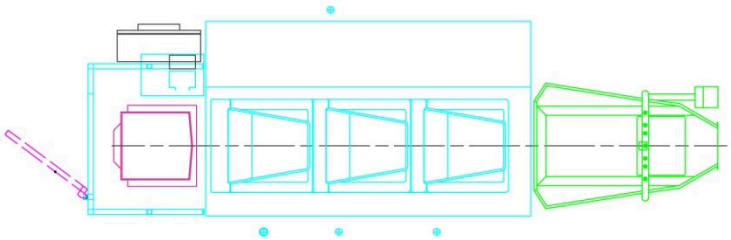
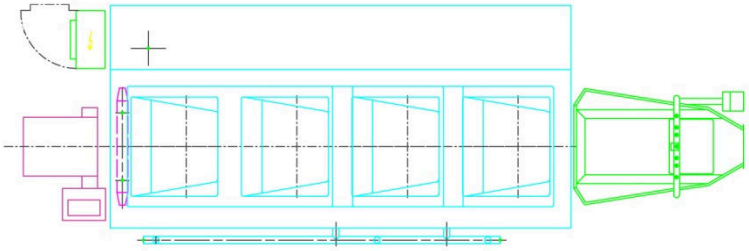
Vortex D1 Mono









Mono 3 Stage

Mono 4 Stage

Model	400 3	900 3	900 4	1350 3	1350 4
Typical Line Length (mm)	5,600	6,100	7,486	10,000	11,400
Height (mm)	2,850	2,900	2,900	2,900	2,900
Width (mm)	2,100	2,345	2,345	2,450	2,450

The Vortex - Single Frame High/Low Care Simplicity

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Vortex D2 Duo

A fully automatic system where the cook section is mounted on a separate frame to the Quench and Chill sections further enhancing high and low care separation. Additional features to the D1 Mono include uniquely shaped water vessels, dual skim overflows and optional conveyor infeed & cooker lid. Both the D1 Mono and the D2 Duo are offered with a choice of three basket sizes, 40kg, 90kg and 135kg to cover capacities from 250 kilo up to 4000 kilo per hour and with 3, 4 and 5 stations.

The Vortex – Twin Frame High/Low Care Separation

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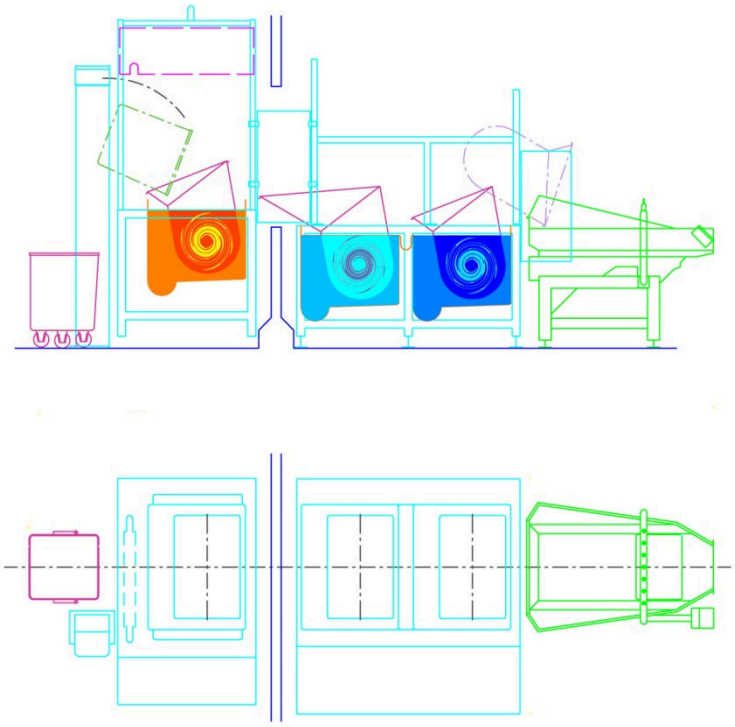
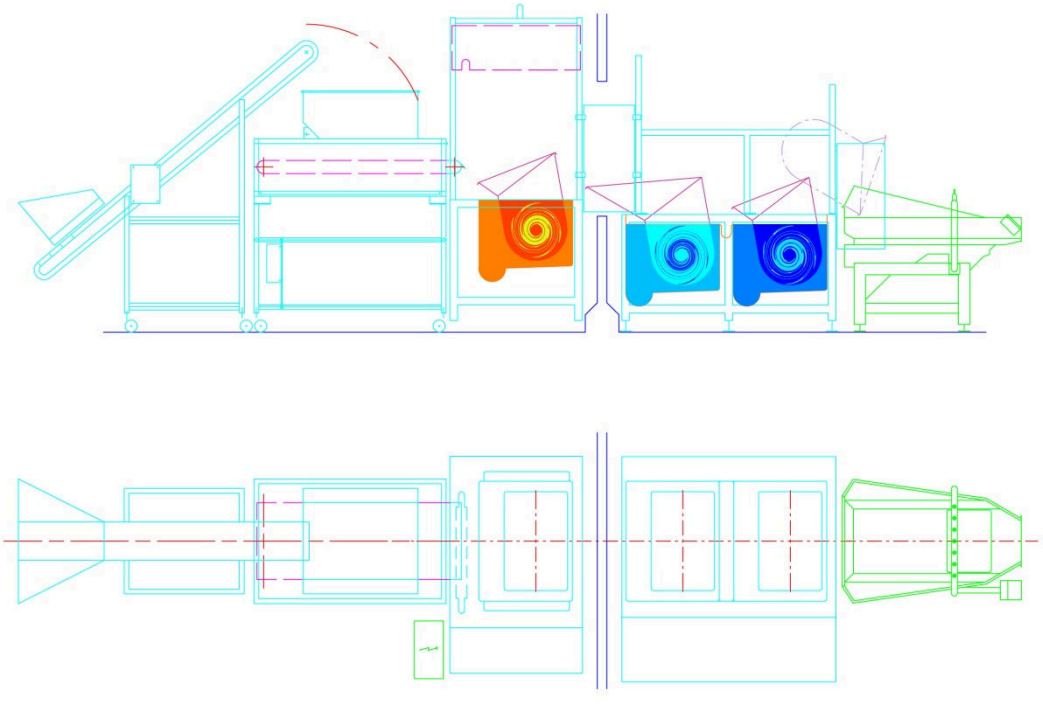
Vortex D2 Duo



Duo 3 Stage



Duo 3 Stage with Conveyor Product Infeed

Model	400 3	900 3	900 4	1350 3	1350 4
Typical Line Length (mm)	10,700	10,400	11,800	14,400	15,800
Height (mm)	3,400	3,400	3,400	3,500	3,500
Width (mm)	2,100	2,345	2,345	2,450	2,450

The Vortex – Twin Frame High/Low Care Separation

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Vortex D1 Mono / D2 Duo Throughput Data

Capacity Example	Cook Time	Transfer Time	Cycle Time	Cycles 400 3 Station	Cycles 900 3 Station	Cycles 900/1350 4 Station	Yield	Batch Size 400	Batch Size 900	Batch Size 1350	Output 400 3 Station	Output 900 3 Station	Output 900 4 Station	Output 1350 4 Station
	Mins	Mins	Mins	Per hour	Per hour	Per hour		Kg	Kg	Kg	Kg	Kg	Kg	Kg
Dry Short Pasta	7	1	8	7.50	7.50	15.00	1.8	40	90	135	540	1215	2430	3645
Dry Long Pasta	7	1	8	7.50	7.50	15.00	1.8	35	80	122	472	1080	2160	3294
Dry Noodles	4	1	5	12.00	12.00	15.00*	2.5	30	63	95	900	1890	2360	3562
Rice	18	2	20	3.00	3.00	6.00	2.5	35	80	120	263	600	1200	1800
Potatoes – 25mm Diced	19	2	21	2.86	2.86	5.72	1.0	65	150	225	186	429	857	1287
Baby Broccoli	6	1.5	7.5	8.00	8.00	16.00	1.0	40	90	135	320	720	1440	2160
Dry Lentils	17	1.5	18.5	3.24	3.24	6.48	2.5	30	70	105	243	568	1135	1701
Red Quinoa	15	1.5	16.5	3.64	3.64	7.28	3.0	30	70	105	327	764	1528	2293

* Cycles per hour determined by chill time

The Vortex – Industry Proven Performance

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Vortex D3 Mini

Semi automatic system packing the benefits of the larger Vortex into a versatile and compact cooker for lower volumes. Available as a single station cooker, or two station cooker with combined quench/chill, on a single frame.

The Vortex – For Even the Smallest Spaces

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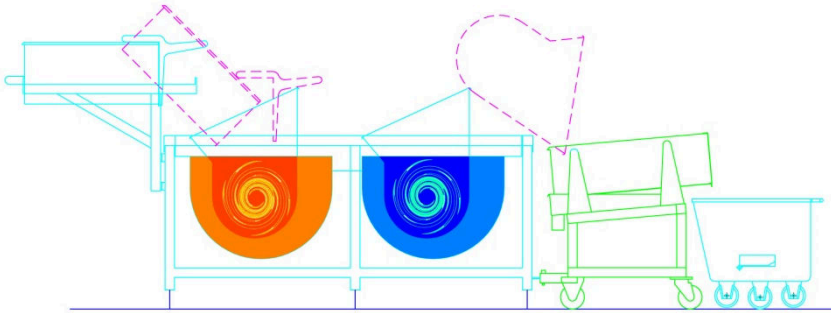
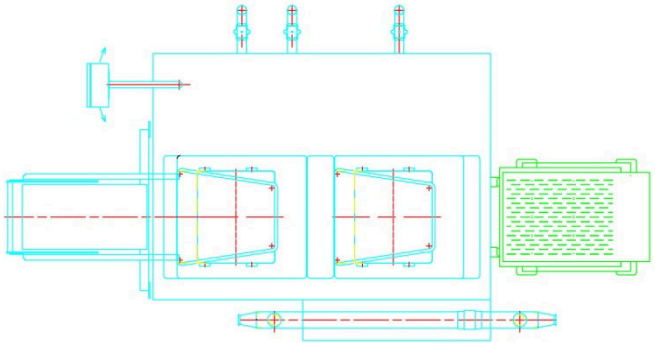
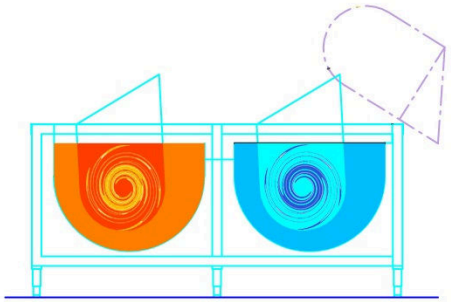
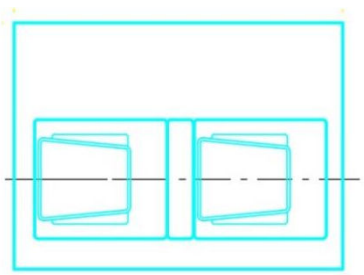
Vortex D3 Mini



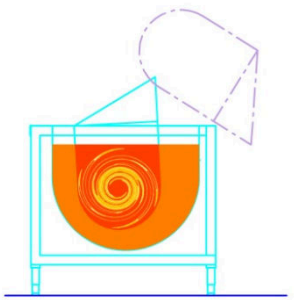


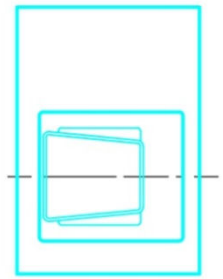
400 2 Cook, Quench and Chill Line





400 2 Cook and Quench





400 1 Cook

Model	400 1	400 2	400 2 Line
Typical Line Length (mm)	1,200	2,350	3,465
Height (mm)	1,730	1,730	1,730
Width (mm)	1,983	1,983	1,983

The Vortex – For Even the Smallest Spaces

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Vortex D3 Mini Throughput Data

Capacity Example	Cook Time	Transfer Time	Quench / Chill	Cycles * 2 Station	Yield	Batch Size 400	Output 2 Station
	Mins	Mins	Mins	Per hour		Kg	Kg
Dry Short Pasta	7	2	12	4.28	1.8	30	231
Dry Long Pasta	7	2	12	4.28	1.8	30	231
Dry Noodles	4	2	12	4.28	2.5	25	268
Rice	18	2	16	3.33	2.5	30	250
Potatoes – 25mm Diced	19	2	17	3.16	1.0	60	190
Baby Broccoli	6	2	12	4.28	1.0	40	171
Dry Lentils	17	2	15	3.53	2.5	30	265
Red Quinoa	15	2	15	3.53	3.0	25	265

* Cycles per hour determined by chill time

The Vortex – Top Performance on a Smaller Scale

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