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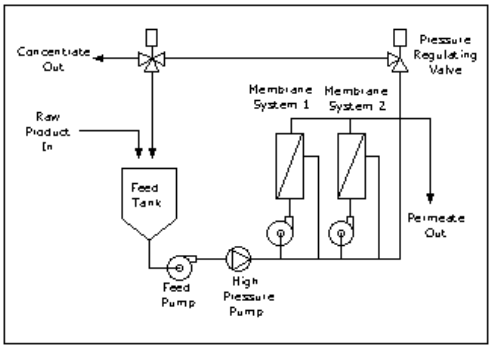
EQUIPMENT AND ENGINEERING FOR EGG PROCESSING

ULTRA FILTRATION AND REVERSE OSMOSIS CONCENTRATORS



WHERE TO USE THE SYSTEMS

Ultra Filtration and **Reverse Osmosis** systems are very useful and profitable tools for companies breaking eggs, as well as those drying egg products. Various applications for Ultra Filtration - Reverse Osmosis systems are outlined below:

I. PRODUCT RECOVERY

Shrinkage is referred to as the weight difference between gross weight of eggs received at the dock and the net weight of finished or packaged product. At least one-third of the average twenty percent shrinkage is attributable to rinsing of pasteurizers, tanks, and product lines. In a plant with two pasteurizers and four egg breaking machines the amount of product pumped to floor drains daily could be as much as 3000 lbs. of product per shift or approximately three percent of the gross daily liquid egg weight.

Recovery of this liquid is accomplished by diverting first equipment rinses to a centrally located tank. This product may then be re-concentrated by removal of water through ultra filtration systems.

Annual Savings can reach several hundred thousand dollars when consideration is given to added revenue from liquid recovery, reduction in sewer charges, and recovery of all costs that were involved in processing the lost liquid.

II. EQUIPMENT UTILIZATION

Concentration of albumen or whole egg by reverse osmosis prior to drying or prior to delivery by tanker between plants will reduce transport costs by thousands of dollars annually. For example, nearly two times the amount of solids can be transported by concentrating albumen up to 20%. Inedible liquid can also be concentrated prior to shipment. Solids from 11.5%-18% can be increased up to 33-35% total solids. Whole egg containing 24.5% solids when concentrated to 35% increases the pay load per tanker by 32%.

III. DRYING UTILIZATION

Utility costs in drying are directly related to the amount of water being removed. Water reduction by reverse osmosis will be approximately 20% of the cost of water removed in the spray drying process. Strong consideration should therefore be given to water removal by Reverse Osmosis as an economy measure. Efficiency and tonnage throughput will also be dramatically increased in related drying equipment.

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TYPE: RO500

Capacity:	*up to 500L/h*
Electricity:	*3ph.400V+N+PE 15 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*7500L/CIP cleaning*
Glycol:	*15000kCal/hr, 83L/min*
Steam:	*during CIP 59,4kg/hr @ 3bar (heating time is half hour)*

TYPE: RO1000

Capacity:	*up to 1000L/h*
Electricity:	*3ph.400V+N+PE 20 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*10000L/CIP cleaning*
Glycol:	*30000kCal/hr, 166L/min*
Steam:	*during CIP 61,2kg/hr @ 3bar (heating time is half hour)*

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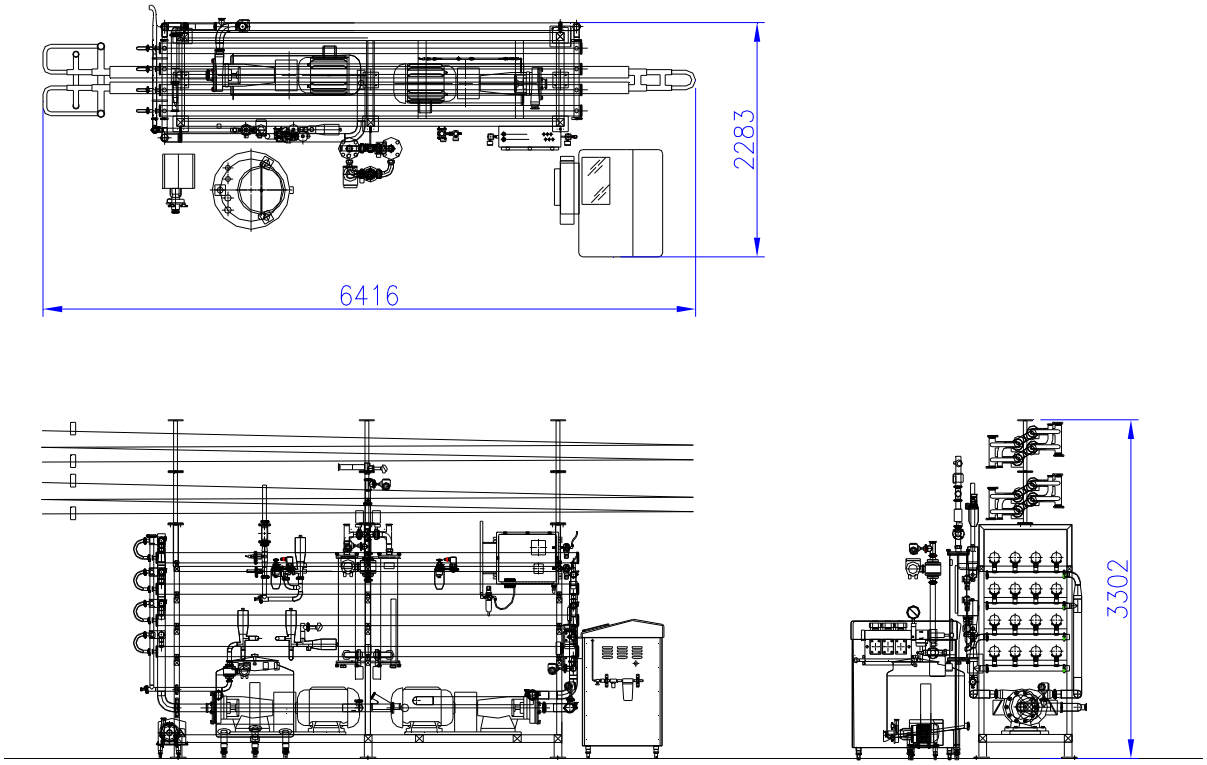

TYPE: RO2000

Capacity:	*up to 2000L/h*
Electricity:	*3ph.400V+N+PE 29 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*12000L/CIP cleaning*
Glycol:	*60000kCal/hr, 333L/min*
Steam:	*during CIP 63kg/hr @ 3bar (heating time is half hour)*

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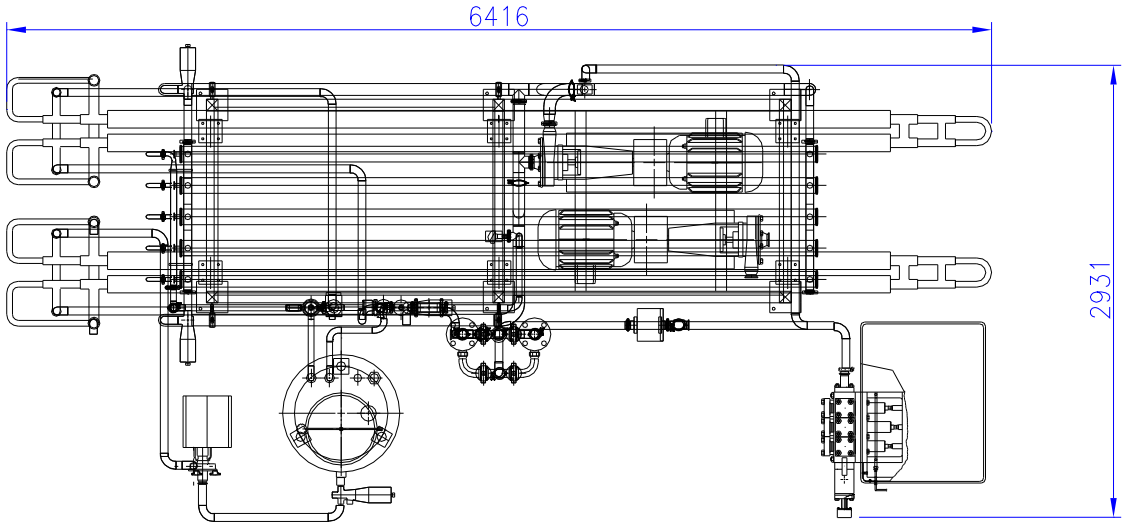

TYPE: RO3000

Capacity:	*up to 3000L/h*
Electricity:	*3ph.400V+N+PE 30 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*15000L/CIP cleaning*
Glycol:	*90000kCal/hr, 500L/min*
Steam:	*during CIP 72kg/hr @ 3bar (heating time is half hour)*

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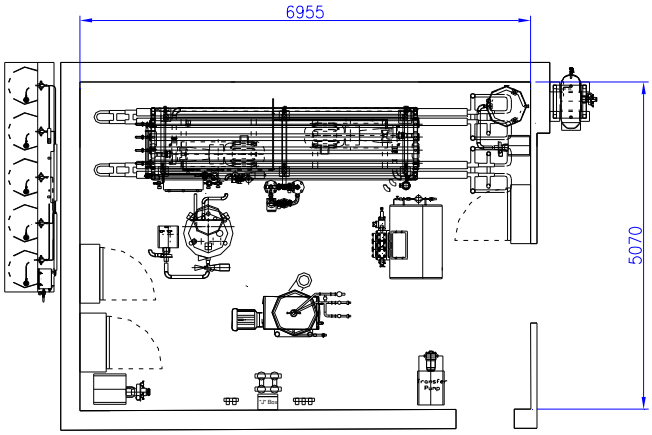

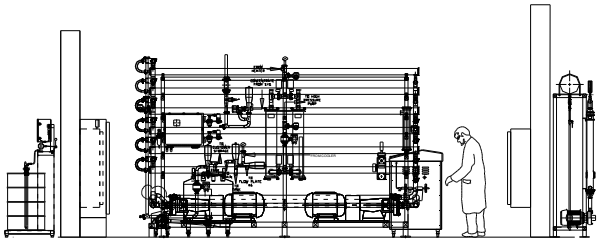

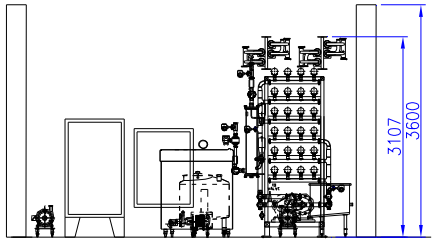

TYPE: RO4000

Capacity:	*up to 4000L/h*
Electricity:	*3ph.400V+N+PE 33 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*20000L/CIP cleaning*
Glycol:	*120000kCal/hr, 666L/min*
Steam:	*during CIP 81kg/hr @ 3bar (heating time is half hour)*

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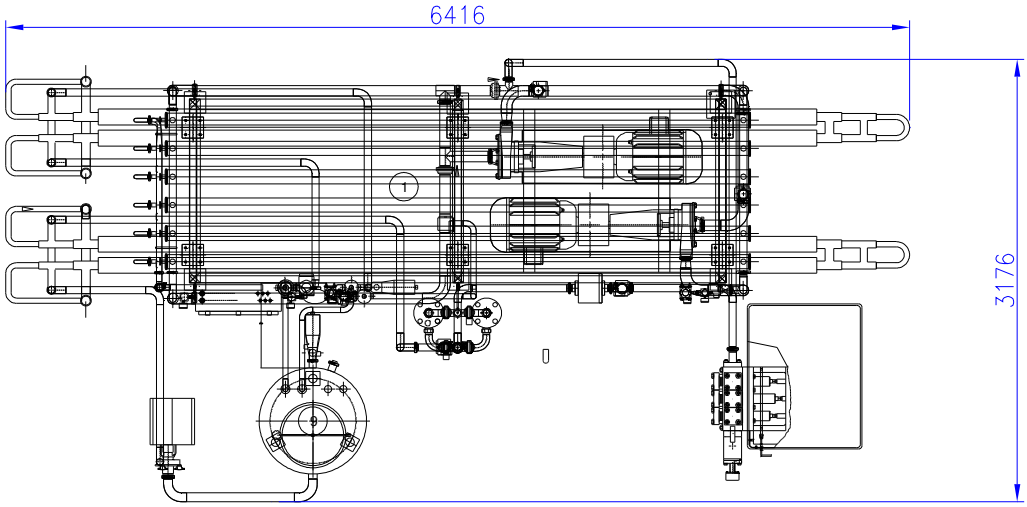

TYPE: RO5000

Capacity:	*up to 5000L/h*
Electricity:	*3ph.400V+N+PE 59 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*25000L/CIP cleaning*
Glycol:	*150000kCal/hr, 833L/min*
Steam:	*during CIP 90kg/hr @ 3bar (heating time is half hour)*

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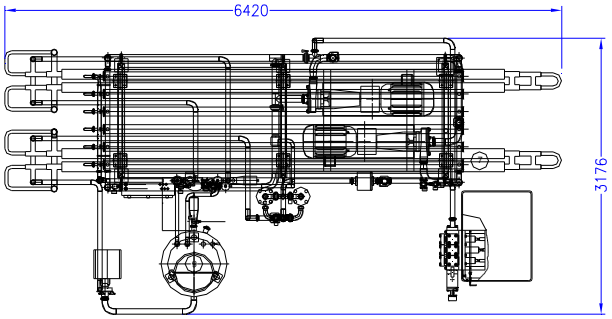

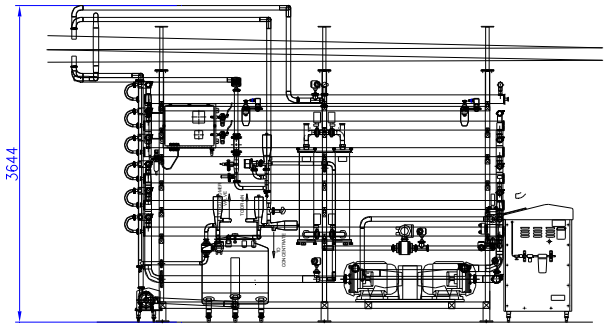

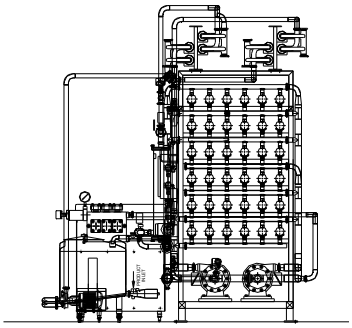

TYPE: RO6000

Capacity:	*up to 5000L/h*
Electricity:	*3ph.400V+N+PE 92 kW*
Air consumption:	*low consumption @ 6 bar*
Cold water:	*30000L/CIP cleaning*
Glycol:	*180000kCal/hr, 1000L/min*
Steam:	*during CIP 99kg/hr @ 3bar (heating time is half hour)*

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