

**A complete systems solution for the high output laundry.**



**SEA-LION  
AMERICA**

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Discover the advantage of Sea-lion's vision . . .

**Keeping a creative mind,**

**To be internationally advanced,**

**To be world-class brand,**

**To be centurial Sea-lion.**



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**High end laundry equipment campus at  
Sea-Lion Industrial Park**





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**Local Presence**



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Established in 1969, Jiangsu Sea-lion Machinery Co., Ltd. is the oldest manufacturer of industrial laundry machines in China with a wealth of experience in research and development and manufacturing. Sea-lion's main laundry disciplines are automation, washing and finishing technologies offering a complete systems approach to high output laundries. Core disciplines offer solutions from individual machines to integrated systems. Machines are built to world class quality standards and certified to global standards using first rate components to assure quality results and reliable operation.

In 2019, Sea-lion America Company was launched as the new sales and service center for the North American, Mexican and Caribbean markets. It is the natural progression of Sea-lion's international expansion. During its successful history, Sea-lion has become one of the most respected brands in the laundry industry and Sea-lion America Company is committed to continue the outstanding customer experience associated with the Sea-lion brand.

Let us show you how *together*, we create a clean world!



# Automated Material Moving Systems



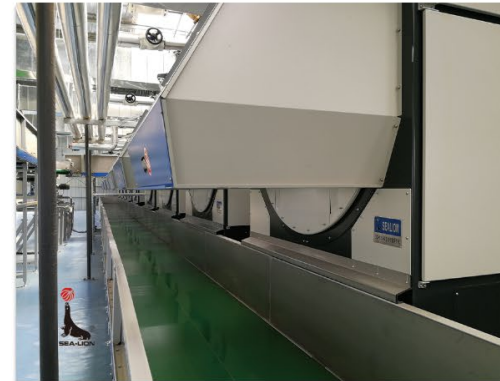
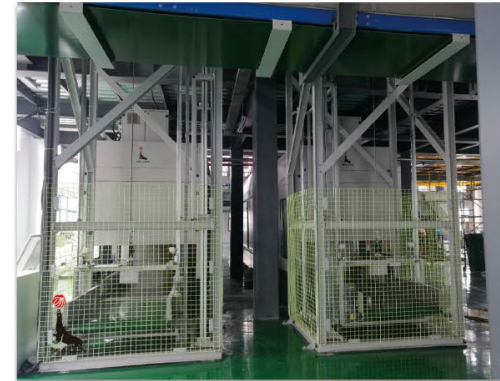
## TOMORROW'S LAUNDRY TODAY

Automation is the future of processing volumes of laundry. To this notion Sea-lion has developed a tremendous portfolio of devices designed for the movement of laundry between machines without human interaction. AI based software architecture in the SCADA control system makes the best use of the available machinery while the CAD designed system layouts make the most efficient use of space.

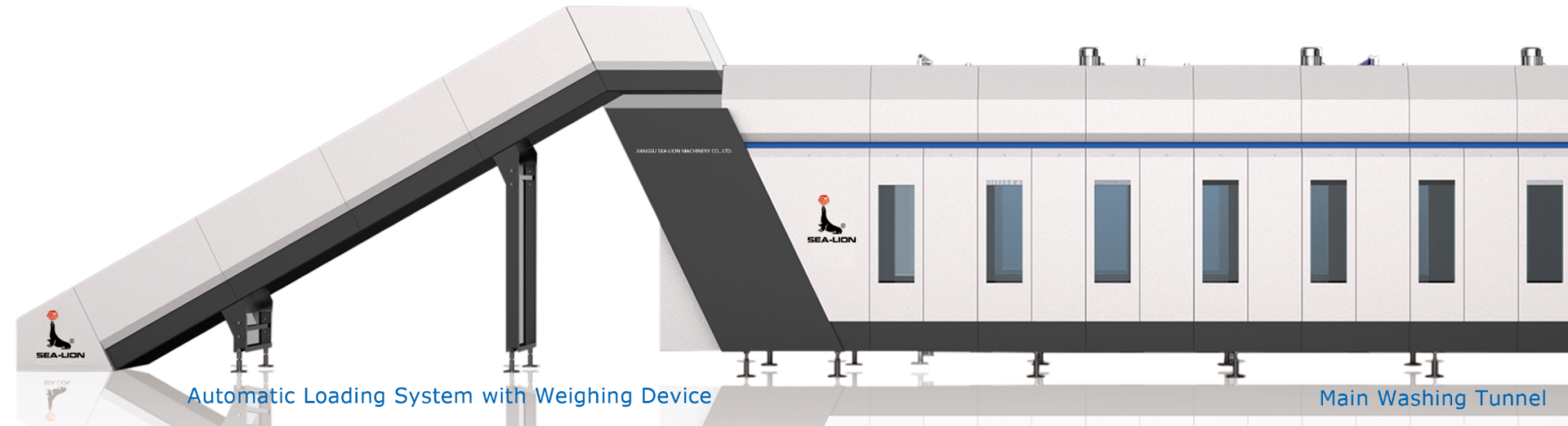
Starting in the soiled sorting area there are weight sensing loading conveyors and intelligent overhead monorail sling systems. In between water extraction and drying are conveyors, elevators and shuttles. Between the dryers and finishing stations are shuttles, conveyors, vacuum tubes and monorails. All designed to facilitate the progress of the laundry and eliminate repetitive motions for humans.

**A constantly moving laundry is most efficient and productive. Sea-lion has the tools to make it happen.**





# Tunnel Washer Systems



## MARKET LEADING DESIGN AND CONSTRUCTION

Jiangsu Sea-lion Machinery Co., Ltd. produced the first tunnel washer system in China a decade ago. Several hundred units have since been manufactured and field proven. The construction process is unrivaled as CNC laser cutters and machines, and robotic welders assure a top quality product while the mechanical and software design is of the most technologically advanced in the world.

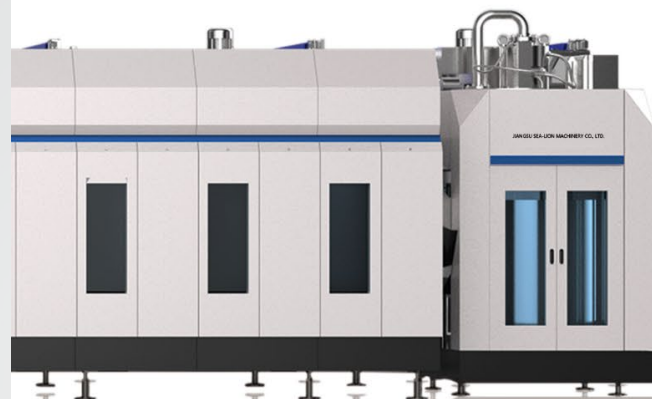
The process starts with the weight sensing loading conveyors or integrated overhead intelligent rail system in soiled sorting area. From here the SCADA based control system architecture takes over utilizing computers, networked data communications and graphical user interfaces for high-level process supervisory management. All system functions are continually monitored to allow for peak performance.

The main tunnel washer design consists of the perfect combination of single drum and double drum technology. Modules are fitted with chemical ports, water and drain

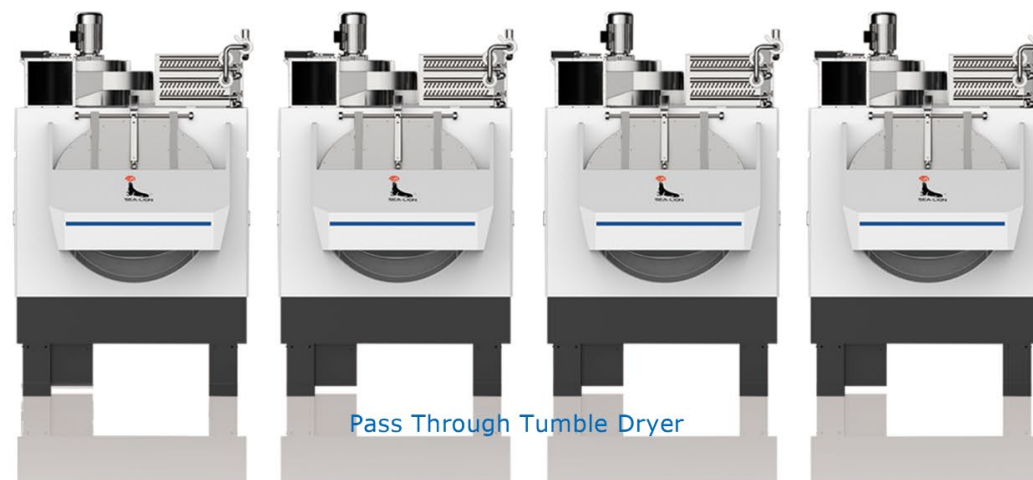
valves to create the right liquor ratio, as well as strong lifting ribs for excellent mechanical washing and bottom transfer action. This setup allows for the processing of a wide variety of soil classifications. Sight glass monitor ports provide for easy access to view water levels. For optimizing water consumption, there is a simple, built in water recovery system. A strong chain drive system on roller bearings maintains a consistent transfer of power to move the goods through the tunnel.

Water extraction is available with either a robust extraction press or centrifugal extractor. The press is a precision machined part fitted with the highest quality components to assure exacting reliability. The extractor is based on the proven Sea-lion XGQ washer-extractor series design. A shuttle system transports the goods to the pass through tumble dryers automatically. Tumble dryers feature a balanced air flow and temperature ratio to quickly dry goods to the desired level. Goods can exit the tumble dryers through multiple configurations of shuttles to the desired finishing station. Strategically located sensors continually monitor movement and individual loads can be tracked from soiled sorting to shuttle exit to finishing stations.





Extraction Press



Pass Through Tumble Dryer

## DESIGN LAYOUT PROCESS

Each Sea-lion tunnel washer system is custom configured to meet exact customer requirements. Full inhouse design services match machines to site requirements assuring the perfect utilization of resources and optimal results. Space savings design layouts include loading conveyors or overhead slings in monorails, multi-level shuttle transports, and combinations of exit points from the extraction process.

## SCADA CONTROL ARCHITECTURE

Control platform provides for full wash system programming, complete system monitoring and customer load tracking. It is further linked throughout the site on multiple system monitor points, as well as remote access for owner management and direct factory support diagnostics.



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Available in 130 & 175-pound batches and 5 to 20 batch modules.

## Tilting Washer-Extractors



Available in 225 & 450-pound loading capacities

**INDUSTRIAL DESIGN ENGINEERED SMART**

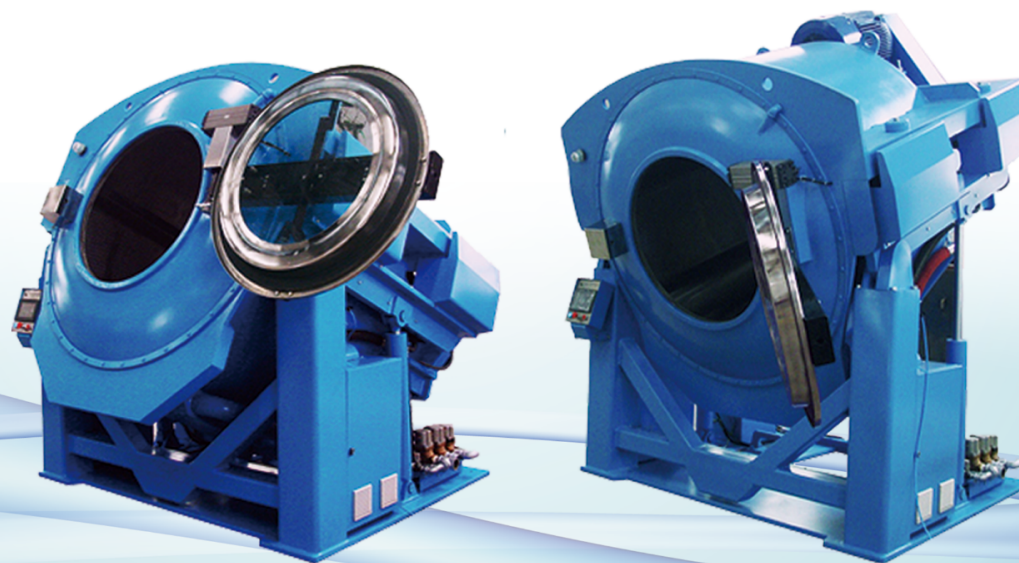
Sea-lion tilting open pocket washer-extractors are rugged work horses engineered to last. They have a low total cost of ownership and produce superior wash results. The no nonsense, smart automation design saves time in the loading and unloading process, while its open structure aids in access for maintenance and repairs.

XGQ-CFSQ washer-extractors have a small and compact footprint that incorporates a slight 2 degree backwards washing angle. This tilt back along with integrated lifting ribs optimize mechanical wash action. Inverter with single motor drive is energy efficient, has fewer parts, and provides smooth power at all speeds. In concert with the programmable control, 4 independent extract speeds up to 335G's can be selected for the best results on a wide variety of linen classifications.

The multi-language full color touch screen control is mounted on a convenient pedestal. It features full programmability of all machine functions including interfacing up to 13 signals to external chemical systems. Its simple graphical interface displays machine operating data and includes a full array of maintenance and productivity reports.

The machine's open structure design incorporates an innovative spring and shock suspension system located higher on the frame to better reduce vibration. The pillow block bearing design has a dry zone between the backplate and bearing to physically separate the wash water from the bearings. The seal design is sturdy and easily serviceable. High quality, pneumatic operated water, drain and steam valves are used for performance and reliability.

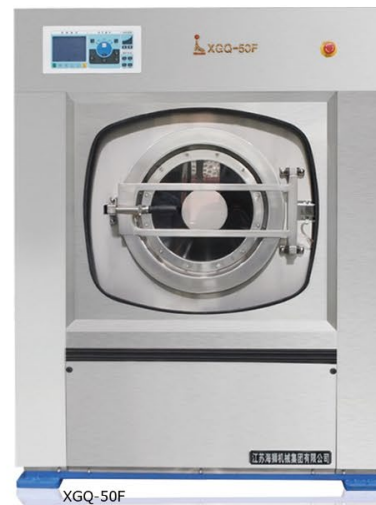
A robust hydraulic tilting mechanism provides for an 18 degree tilting angle coupled with large diameter door opening facilitates loading and unloading of goods.



Hydraulic tilting system with automated swing door to assist in loading and unloading.

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## Economy Washer-Extractors



XGQ-50F



XGQ-100F



Available in 55, 110, 175, 225, 285 & 350-pound loading capacities

## FIELD PROVEN DESIGN

Sea-lion XGQ-F series open pocket high speed washer-extractors combine economy and performance into a reliable, field proven machine design. Features like extra-large door openings into baskets with smooth, dimpled perforations highlight the machine's design quality and build craftsmanship.

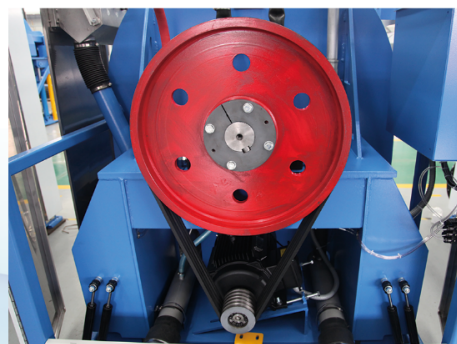
XGQ-F washer-extractors have a full spring and shock suspension system that effectively isolates vibration transmission to the floor allowing for installation where the foundation need only support the static weight of a fully loaded machine. The tubular steel frame is a solid structure housing all electrical and control components, and the suspension system that encloses all moving parts. Machine is finished with high grade, corrosion resistant stainless steel.

The drive system is an efficient direct v-belt setup fitted with an inverter with single motor. It provides smooth power at all speeds. Working in concert with the programmable touch screen control, 4 independent extract speeds up to 320G's can be selected for the best results on a wide variety of linen classifications.

The multi-language full color touch screen features full programmability of all machine functions including interfacing up to 13 signals to external chemical systems. Its simple graphical interface displays machine operating data and includes a full array of maintenance features and productivity reports.

The pillow block bearing design has a dry zone between the backplate and bearing to physically separate the wash water from the bearings. The seal design is sturdy and easily serviceable.

Machines are available in a large range of capacities to meet the requirements of many different types of laundry operations.



Simple and efficient  
direct v-belt drive system



Robust springs and shocks suspension system  
for vibration free operation

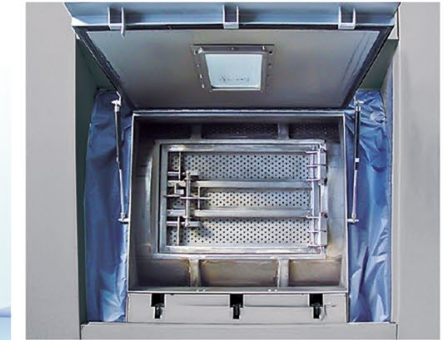


Large door openings  
for easy loading and unloading

## Barrier Type Washer-Extractors



Double Bolt Locking System



Available in 110 & 225-pound loading capacities

## PASS THROUGH DESIGN FOR HOSPITALS AND CLEAN ROOMS

Sea-lion barrier type, pullman style washer-extractors provide the necessary separation between soiled and clean sides of the laundry operation with a fully enclosed frame and protective seal. Linen to be washed is loaded on the soiled side and unloaded on the clean side once the wash is complete eliminating any chance for cross contamination.

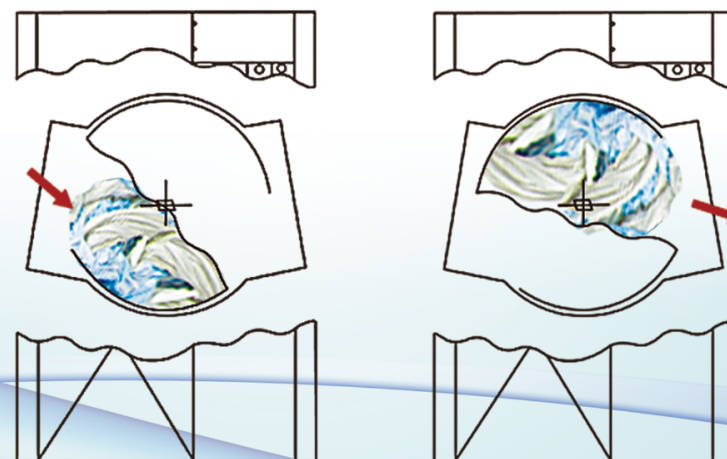
BW washer-extractors have a compact air bag suspension system that isolates machine vibration transmission to the floor for smooth, quiet operation. The drive system is an efficient direct v-belt setup fitted with an inverter with single motor providing smooth power at all speeds.

For safety, the inner door lock consists of a double bolt locking system. With redundancy built in, it is safe and easy to properly secure the door lock for machine operation.

The multi-language full color touch screen features full programmability of all machine functions including interfacing up to 13 signals to external chemical systems. Its simple graphical interface displays machine operating data and includes a full array of maintenance features and productivity reports. The control is interlocked to prevent simultaneous operation and inadvertent errors.

The pullman style cylinder design utilizes gravity to assist with the loading and unloading process. At either position, the dividing floor of the cylinder is tilted in the direction of the desired movement. Furthermore, cylinder positioning is controlled by a proximity switch so that the inner door is automatically located in the correct position for loading and unloading operations. A time saving feature that avoids unnecessary jogging.

BW machines are ideally designed for clean room industries and hospital laundries.



Gravity assist load and unload with split pocket design.

## Tumble Dryers



GZZ-100



SDGH-120

Available in 55, 110, 225 & 265-pound loading capacities  
with gas, steam and electric heating options



## AIR FLOW AND HEATING BALANCED

Sea-lion tumble dryers are used to prepare various types of garments for the ironing and folders finishing operations after washing and extracting.

SDH series automated tumble dryers are fully integrated with the tunnel washer system. Controlled by an industrial Ethernet, the dryer can be programmed for up to 99 programs. Fully automated with loading and unloading doors, it seamlessly integrates with the shuttles and conveyors via the SCADA control network.

Drying efficiency is optimized by constant monitoring of the airflow back pressure so that lint can be timely removed, as well as dual temperature readings of the air inlet and output to prevent over drying. The dryer jacket is fully insulated for maximum heat retention. CFM can be adjusted by the controller to adjust back pressure, as well as basket speed and rotation.

GZ series stand alone tumble dryers are available with gas burner (GRZ), steam (GZZ) or electric (GDZ) heating elements. They are designed to have the perfect balance of CFM air flow and heat transfer for optimal drying. The microprocessor control is simple to use and features programmable time and temperature settings. A reversing motor system gently tumbles the goods in both directions to prevent tangling.

Access to the lower lint screen panel is simple making quick work for filter maintenance.

Loading door features a tempered glass window which allows for a visual check of the goods during the cycle. The door opening is oversized to allow for easy loading and unloading. 225-pound model can be fitted with a pneumatically operated loading door and forward tilting device to better assist with unloading.

Machines feature a stainless steel, dimpled perforated basket to eliminate snags. Outer panels are made of corrosion resistant stainless steel finish.



GZZ-100Q

Available forward tilting on 225-pound model



# Spreader Feeders & Flatwork Ironers



## FAST AND ACCURATE

Sea-lion spreader feeders make quick work of preparing linens to be properly positioned for the ironer or folder. Available in three and four stations, ZBQ series spreader feeders provide high efficiency and require less labor to process goods. Models are capable of spreading a variety of flatwork items up to 130 inches.

## SMART DESIGN

Innovative clamp design is robust and need only latch onto corners to position flatwork linens on the belts. For accuracy a positioning servo motor assures a repeatable process and strong vacuum airflow for suction holds the flatwork securely against the belts maintaining the desired position for the ironer.

For convenient measurement of worker productivity, each station is outfitted with a simple, digital counting display to calculate items processed. Four station model features moveable loading station to allow for feeding of small items from front of machine.

No need to move the machine for small items because the output table can be easily adjusted in and out automatically.

Multi-lingual full color touch screen control features 20 programs and can be easily networked to the ironer line.

Intelligent rail design option facilitates production bottlenecks by preparing and holding linens to be processed available in custom design with multiple feeding stations.



ZBQ-3400IV with Intelligent Rail



ZBQ-3400IV

Available in 3 and 4 station configurations



## SUPERIOR FINISH

Sea-lion flatwork chest type and serpentine ironers provide a crisp, superior finish to flatwork linens. Thanks to laser cut, precision machined and robotic welded parts and assemblies, YZ and YZS series flatwork ironers are built to tight tolerances to assure for precision performance. Models available in widths up to 130 inches and from 2 to 6 rolls.

## PREMIUM FEATURES

Robust drive system, driven by a combination of belts and chains, delivers accurate consistent speeds. And throughput speeds are fully programmable for optimal processing of a variety of linens.

Steam pressure is supplied through the rolls so that the ironing surface area is evenly heated and most effective. Steam inlets are sealed with rotary joints to avoid leakage and ensure a long service life.

For smooth transfers between rolls, spindle tape is used instead of canvas.

A fully programmable control with 20 programs can be networked to a spreader feeder or folder device.



YZIV-3400



YZSIV-3400 (950)

Available in flatwork chest type and high speed serpentine configurations



## Double Chest Ironers & Flatwork Folders



### EXCELLENT PERFORMANCE

Sea-lion YZC series double chest ironers are high performers thanks to the precise structure of the double chest, springs and heat proof felt which ensures the rolls keep adequate elasticity and spring cushion for maximum surface contact with the chest. A unique lever device is introduced on the cylinder creating precise balance between the working rolls and chest for high quality ironing. The device has positions for pause, repair and inspection. The connecting plate is heated by a steam diffuser creating a whirlpool effect to maximize heated coverage of the connecting plate. Speed and quality of ironing is markedly improved because the flatworks are ironed through the hot surface of the connecting plate.



### HIGH EFFICIENCY & ENERGY SAVING

The chests arced surfaces have large angles to maximize heating area and surface contact. Driven by an inverter with single motor, energy consumption is reduced. Through the programmable control, inverter speed settings can be adjusted between 25 and 140 feet/minute to accommodate different temperature settings, types of linen, and moisture content. Thanks to the unique design of a heat recycling system and fully insulated chest, steam in the chest is fully utilized. Fans are installed on each roll to exhaust moisture keeping the chests dry for high speed ironing.

### SAFETY & RELIABILITY

A safety plate is installed across the front of the machine to keep hands from entering inadvertently and there are multiple emergency stop buttons at each corner of the machine. A pressure controlling system for steam and compressed air is installed to ensure the machine is running within normal parameters. Rolls can be lift up and locked onto the machine in case a sudden loss of power.

Excellent for processing sheets, linens, quilt covers, duvets, and other large items.



**PRECISION FINISH**

Sea-lion ZD series flatwork folders provide the final touch to the flatwork process. Fully automatic and networked with the spreader feeder or ironer it delivers a fine end product. It has low noise, low energy consumption, outstanding performance, and beautiful appearance all in a well thoughtout design. Available in single lane and four lane configurations.

**FOLDING FEATURES**

An intelligent control system is used and includes a diagnostic troubleshooting guide. Folding programs can be selected according to different types of linens. Folds are belt driven with pneumatic valves for fast and reliable performance. Folder can be seamlessly networked with the spreader feeder or ironer and the folding speed can be adjusted according to the ironer speed. A positive-reverse control is adopted for folding 4th and 5th folds which ignores the size and thickness of the linens, as each fold is measured by optical sensors to ensure the folding line is done accurately in the middle of the linen.



ZD3400-VD



DM-1000

**AUTOMATIC HIGH SPEED STACKER**

Sea-lion DM-1000 automatic high speed stacker is the matching equipment to the folder, which counts, stacks and transfers the folded linen to final packaging. It is controlled by a programmable computer to count the number of goods stacked. Compact design with a small footprint. Belt driven, it runs smoothly without noise, optimizing its surrounding work space.

ZD-VE flatwork folders are equipped with builtin high speed stacker with single or dual discharge.

A choice of 2, 3, 4 or 5 folds can be programmed in single and four lane configurations.

## Tunnel Finishers & Robotic Folders



### ACCURATE, EFFICIENT AND QUALITY OUTPUT

Sea-lion SDHG series tunnel finishers are very productive and reliable machines. The perfect fit for low, medium and high volume laundry operations. Featuring up to 4 chambers and configurable conveyor rails, they fit seamlessly into most finishing line production flows. Three different models allow for production rates of 600, 900 and 1200 pieces per hour.

Units feature an intelligent multi-lingual touch screen control. Control allows full programmability of all system features and contains useful diagnostics for maintenance.

The extended tunnel area with multiple steam injection points has superior steam heat transfer resulting in consistent quality and allowing for high throughput. Cabinet is fully insulated for excellent heat containment and maximum efficiency.



SDHG-1200

### Faster and more consistent than manual pressing

### TOWEL FOLDER

Sea-lion ZDMJ automatic towel folder features an intelligent control system with large, multi-lingual touch screen display. Its sensors automatically detect the size of the towel and adjust the width accordingly. The lateral fold is done with a folding plate. The encoder installed on the shaft measures the length of the towel, then selects the folding method accordingly. The first cross fold is done via a positive-reverse run and air blow.

The innovative machine design will adjust its template to suit the thickness and weight of the towel to ensure high quality initial folding and execution of the second cross fold. The second cross fold is performed by a special positive-reverse run and air blow, and an adjustable transport knife is added to ensure good quality.



**UNIFORM FOLDER**

Sea-lion ZDGY automatic uniform folder features sensors and folding plates that accurately and precisely fold uniforms to exact specifications. Intelligent multi-lingual touch screen control has a wide variety of options to meet the demands of custom folding requirements.

Full automation and easy operation for a wide variety of folding functions. Return conveyors with multiple location outputs make for easy customization into customer specific requirements. Units can be used as stand alone or seamlessly integrated into automated systems.

Folding robots and automatic towel folders eliminate human interaction in performing simple, menial repetitive tasks.



ZDGY-1500



ZDM1920-1200

Discharge is precisely positioned, automatic and fast. Intelligent multi-lingual control is fully programmable and can be used in automatic or manual modes. An autostretch device is installed for discharge which can stretch or retract so as to transfer the stacked towels to the next conveyor belt for collection.

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# Wastewater Treatment Systems



## BETTER FOR THE ENVIRONMENT

Sea-lion Dissolved Air Flotation (DAF) is a water treatment process that clarifies wastewater by the removal of suspended matter. The removal is achieved by dissolving air in the wastewater under pressure and then releasing the air at atmospheric pressure in a flotation tank basin. The released air forms minuscule bubbles which adhere to the suspended matter causing the suspended matter to float to the surface of the water where it is then removed by filter media.

The system is capable of removing significant suspended matter allowing for a massive reduction of pollutants from entering the sewage system while making the resulting water available for re-entry into the laundry.



## A BETTER DAF PROCESS

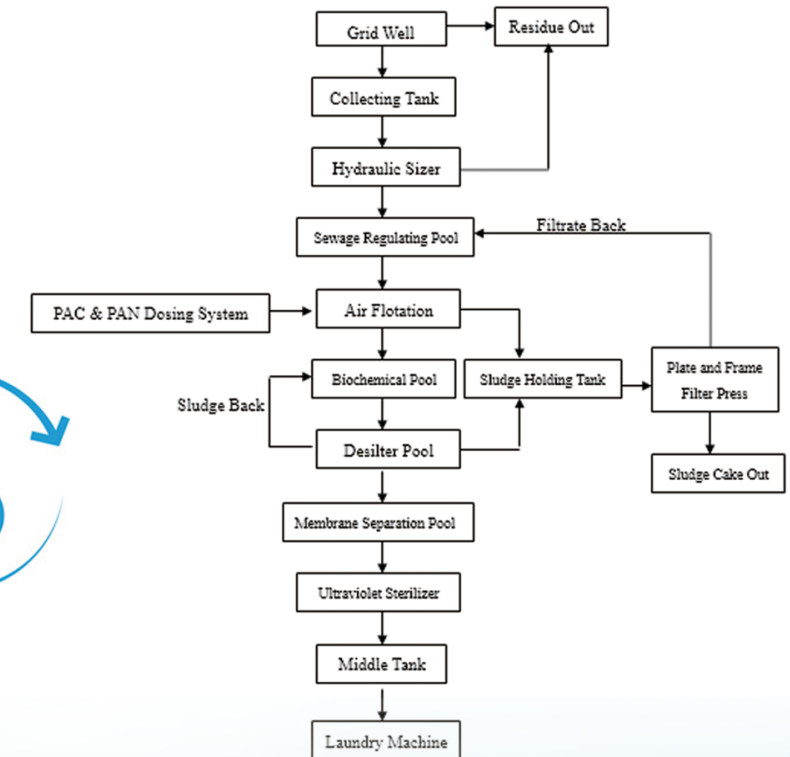
The unique Sea-lion compression and release method allows more dissolved air bubbles to adhere to suspended matter within the water, resulting in faster, more efficient treatment.

Sea-lion DAF's reduce virtually all COD, BOD, SS and Turbidity in treated water.

## WHY SEA-LION DAF?

The Sea-lion DAF is a strong system that is capable of clarifying high volumes of wastewater in one session. It is constructed out of high quality components and materials, and its design is very efficient as it can treat large quantities of wastewater with fast separation in a small footprint with low treatment cost.

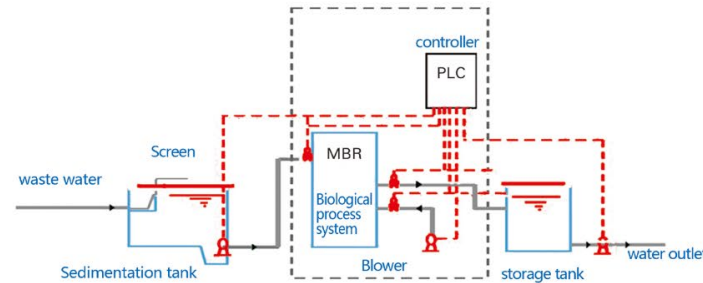
## PROCESSING TECHNOLOGY FLOWCHART



Eliminate waste water surcharges and enhance sustainability initiatives.

### ADVANCED TECHNOLOGY

Sea-lion Membrane Biology Reactor (MBR) utilizes both membrane separating technology and biology technology instead of traditional cyclic activated sludge and routine filtration unit which completely separates HRT (Hydraulic Retention Time) from SRT (Sludge Retention Time). The high efficiency of separating solid from liquid makes water clean by which there is virtually no suspended solid or mud and holds back biologic infectants, such as large intestine bacilli. After treatment, the water is capable of being directly reused.



### HIGH LEVEL MBR TREATMENT FEATURES

An advanced technology, the system features a combination of membrane separating and biological processes that is so effective and efficient it allows the water to be directly reused after treatment.

Membrane retains animalcule in the reactor, making running stable and reliable as a result of completely separating HRT and SRT.

Separates nitrobacteria, enhanced nitrification as well as denitrogen and dephosphorization.

Long time SRT enhance decomposing efficiency of organic matter and realize long cycle mud drainage.

Fully automatic control by PLC controller.

**Processing capacities from 20 m3/day up to 500 m3/day.**

Water Quality	Input	Output	Effective Removal
BOD (mg/L)	110-180	2-6	95-99%
COD (mg/L)	400-850	<50	90-96%
SS (mg/L)	300-600	<5	>99%
Turbidity (NTU)	50-800	<1	>99%
Total Bacteria Count (pcs/ml)		20	
E. Coli (Escherichia coli) (mg/L)		0	
NH3-N	10-40	<0.4	>99%





***Together, we create a clean world!***



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