Automatic High Speed Rotary Filler

US Bottlers Machinery Company

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For over seventy years,

U. S. Bottlers Machinery Company has been designing and manufacturing equipment for the drug, pharmaceutical, food, beverage and chemical industries.

In a continuing effort to better serve its customers, U. S. Bottlers Machinery Company has been a consistent leader in the development of rotary filling machinery. Depending upon the customer's needs and desires, current technology can utilize sophisticated electronic and computer hardware, or a simple gravity feed system. Unlike many manufacturers, "gingerbread features" are not added to U.S.B. equipment for effect. Our machinery is simple, basic, concise. With over 1000 high speed rotary fillers in the field, U. S. Bottlers knows how to build a "proper machine."

The new 50,000 square foot Charlotte facility of U. S. Bottlers reflects the employees' pride in this well-run organization. Using the latest available computerized design-assist equipment together with numerically-controlled machine tools and an outstanding group of employees, U. S. Bottlers produces some of the industry's finest machinery.

U.S.B. employs its own field sales personnel, service technicians and field engineers in order to provide the customer with the most technically competent assistance. During initial discussions, design development, laboratory testing, manufacturing, and field installation, a select group of U.S.B. personnel will be involved with the customer. This team of experts works closely with the customer to define the exact job. When the filler is finally installed and operating properly, the U.S.B. spare parts and service department will be available to help in maintaining that "like new" condition. Rapid shipment of standard spare parts can be made from the $2 million U.S.B. stock inventory. Customized parts usually are designed, built and shipped within four weeks.

All of these services are directed toward customer relationships guaranteed to assure peace of mind and satisfaction. The U.S.B. filler is a very special machine. You will not find one on every filling line, but satisfied customer confidence in U.S.B. is reflected by a repeat order ratio of nearly 85% for first-time customers.

When the customer has more than one type of U.S.B. machine in his packaging line, standardization of parts between machines assures easier maintenance of equipment, interchangeability of parts and stocking of fewer spares. Maintenance personnel can better perform their jobs when there are fewer design variations. All U.S.B. machines apply the same standard concepts and make use of similar hardware when possible. Service personnel costs are reduced since one U.S.B. engineer can analyze several machines during his visit to your plant.

Engineering Design Concepts;

No matter what style, type, or size of filler being considered, certain engineering concepts apply to all U.S.B. rotary fillers:

1. Rotary bottle movement on fixed horizontal plane.

All U.S.B. fillers are designed with the rotary platform in a fixed horizontal plane. Engineering studies have proven this to be a better system for high speed bottle handling than with one using a raising table concept.

2. Efficient station use.

There are more filling heads on every U.S.B. rotary automatic that actually dispense product in the containers because fewer stations are out of action during the infeed and discharge of containers.

3. Superior bottle control.

U.S.B. fillers offer the finest bottle control. No tipping, no slipping, no damage due to sloppy bottle handling. The stem penetrates the bottles before they emerge from the infeed star. Most fillers are built on a pitch line for controlled tube penetration. U.S.B. uses computer-assisted bottle handling attachment designs. The parts are produced on numerical control machine tools capable of position accuracy of .001 inch. Several models of fillers for large mouth containers can be produced with a tangential discharge system or an extra large discharge star.

4. Hose-down construction.

With the "easy access" streamline weldment base completely enclosing the motor drive mechanism and auxiliary equipment, these important parts are better protected. All U.S.B. fillers can be hosed down for clean-up and product change-over without fear of damaging the mechanical parts. If required, steam clean-up can be incorporated.

Since 1912

U. S. Bottlers Machinery Company develops, designs, and manufactures the most flexible basic series of automatic filling machines and systems. Changes in packaging line requirements are no problem as custom-engineering each filler for users' needs allows for versatility of operation and flexibility of use.

5. Customized construction.

Common to all machinery is strength in machine design and heavy-duty construction built to last. Corporate philosophy dictates designs stressing customer ease of operation, maintenance, and clean-up. Many semi-custom design variations can be added due to the background experience available to U.S.B. engineers. These special modifications can be provided to develop a competitively priced custom machine.

6. Less waste.

The easily accessible drainage system on U.S.B. fillers improves clean-up and the flushing of the liquid system in preparation for change-over to new products. Current models are constantly being revised to provide new hardware capable of using new "clean in place" technology.

7. High speeds.

Few packaging lines can fully utilize U.S.B. rotary automatic filler super-speeds. Basic designs contribute to excellent handling efficiency which permit higher speeds with lower costs per package. Better package control and efficient product flow are the key elements. U.S.B. fillers are easily synchronized into your line operations. All U.S.B. machinery is designed to withstand the unique problems present in high-speed packaging lines. Speeds in excess of 500 B.P.M. are possible on larger models. All models can be provided with split conveyor sections to allow better control of the critical conveyor speed needed for higher line speeds.

8. Versatility.

Gravity, pressure, vacuum, volume, weight, or level-sensing filling systems can handle the widest range of glass, plastic, fiber or metal containers for liquids and semi-liquids. Each standard model is custom-engineered to your packaging line requirements. All frame sizes can handle containers up to 6½″ in diameter and up to 12″ in height. Special models are available for use with containers outside of these ranges.

9. Reduced maintenance.

Latest industry requirements emphasize ease of maintenance and the use of as much stainless steel and chrome as possible to reduce maintenance. U.S.B. is capable of providing the customer an almost "paint-free" machine. In addition, simplifications in machine design provide for ease of maintenance by all service personnel. U.S.B. design engineers are required to provide routine service on field machines that utilize their design concepts. This field work results in equipment which is simpler for the customer to service.

Customizing Your Machine

U.S.B. fillers are bought by discriminating packagers. Repeat business accounts for 80-85% of our annual filler sales.

Choosing the proper machine for your application: With the experience of over 1000 rotary fillers in the field, U.S.B. is in the unique position of being able to say, "We have seen that problem before."

Some of the more common variations include:

Manufacturing variables allow for providing material substitutions: steel, stainless steel, nickel, titanium, hastalloy. U.S.B. machinists have broad experience working with the most exotic materials.

Evaluate a single machine or consider a complete turn-key operation including cleaner, filler, capper, conveyor equipment, synchronization and electronic controls.

Attachments (stars and worms) are designed by computer-assisted engineering techniques. They are sized and shaped to the contours of your bottle or package.

Various filling systems: gravity, pressure, vacuum, volumetric, weight, level-sensing.

Synchronization with other U.S.B. equipment or with the equipment of other suppliers.

Frame sizes can be selected to accommodate the needs of your product and packaging line.

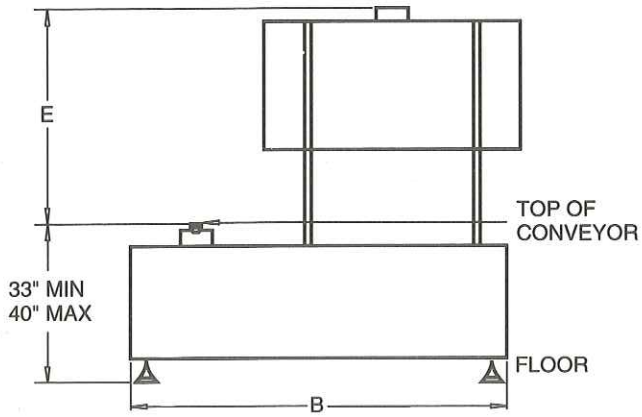
Ability to adjust design due to special problems that arise related to the type or shape of the container, product being filled, viscosity, fill temperature, foam, speed of fill.

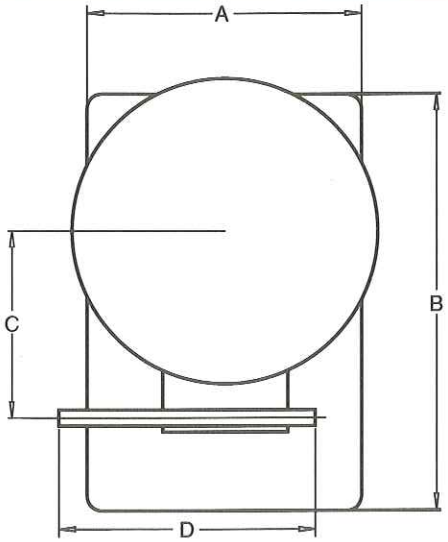
For every liquid bottling need

Choose from U. S. Rotary Automatic Fillers—Pressure, Gravity Vacuum, Level, Weight, Volume

U. S. Rotary Fillers are built on four Frame Sizes. A, C, E, F with 8 to 80 Filling Heads

"W" = ESTIMATED DOMESTIC SHIPPING WEIGHT IN LBS.





NOTE: All dimensions subject to change.

Model No.	A	B	C	D	E	W
A- 16, 20, 24, 28, 32, 36	42"	57"	27.3"	54.75"	61" *	3350
C- 28, 32, 36, 40, 44, 48	58"	79"	39.1"	66.6"	64" *	4500
E- 24, 30, 33, 36, 39, 42, 45, 48, 54, 60	68"	100"	51.4"	76.25"	64" *	6000
F- 36, 40, 44, 48, 52, 56, 60, 64, 72, 80	82"	112"	84.0"	91.6"	66" *	8000

** Approximate, depends on bottle height requirements*

ALL STANDARD FILLER MODELS WILL HANDLE FILL HEIGHTS FROM A MINIMUM OF 4.5" TO A MAXIMUM OF 12" SPECIAL DESIGN EQUIPMENT IS AVAILABLE UPON DISCUSSIONS WITH ENGINEERING DEPARTMENT.

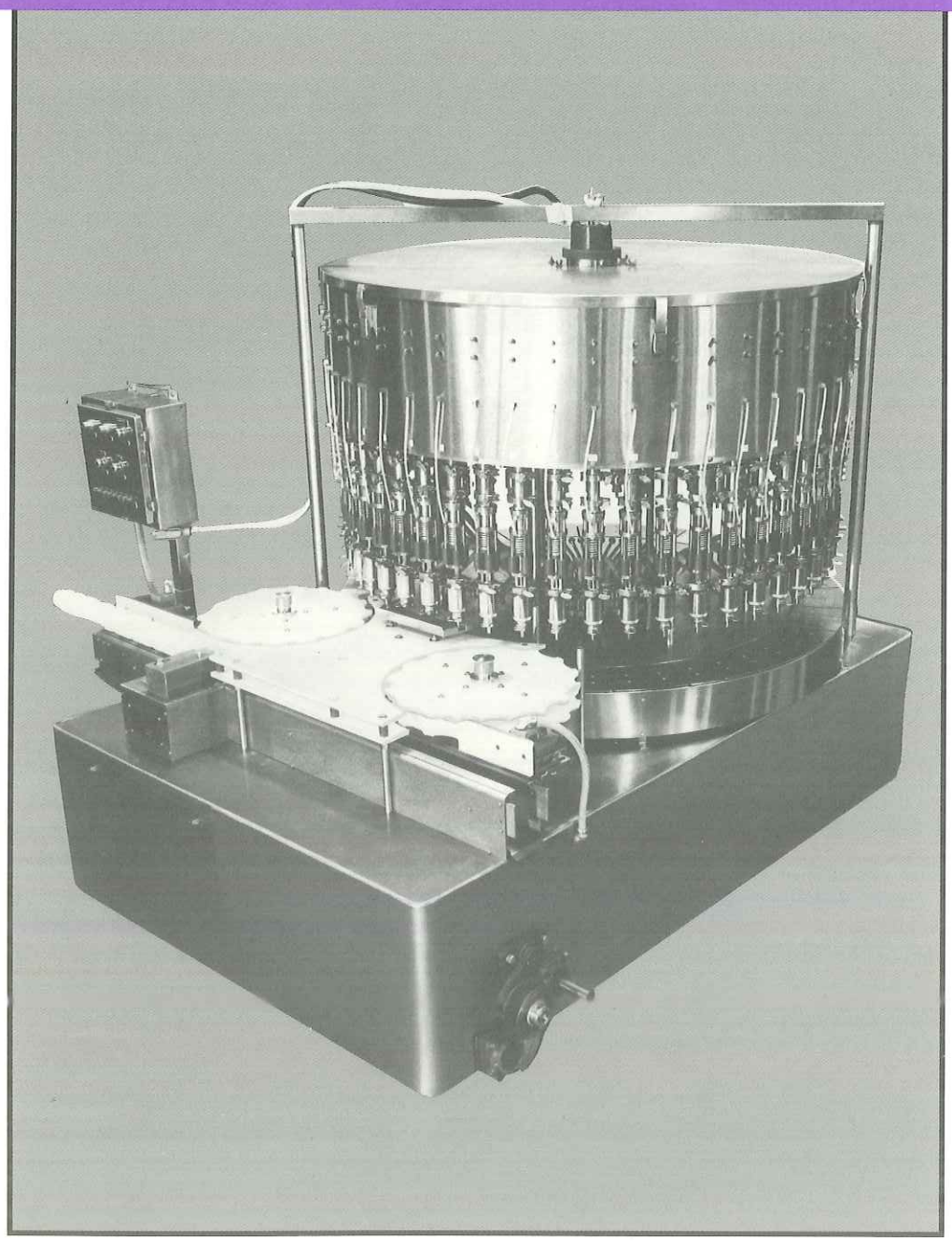
When writing to us for information or quotations, your interests will be served best by sending a complete set of containers to be filled. We can then determine your exact requirements, make the proper recommendations and quote accordingly.
Our engineering department offers this service without any obligation on your part. Container samples should be sent to the main office in Charlotte, North Carolina.

US Bottlers Machinery Company

11911 Steele Creek Road • Charlotte, North Carolina 28273 • 704/588-4750 • FAX (704) 588-3808

Weigh Filler

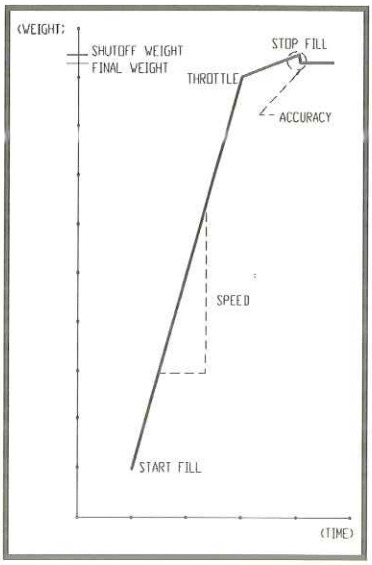
U.S. Pat. N. 4,582,102



Designed for speed and accuracy, a WEIGH SCALE FILLER is shown above with an all stainless steel construction and a clean-in-place liquid system.

WEIGH SCALE FILLING BACKGROUND

The first U. S. Bottlers WEIGH SCALE FILLER was built in 1981. This represented a culmination of design concepts for liquid fillers built by U.S. Bottlers over the past 75 years. Since then, dozens of rotary WEIGH SCALE FILLERS have been built and installed. This extremely accurate weight-sensing filler is built for non-circulating sanitary filling processes. Rotary machines with 8 heads up to 54 heads have been built for products as diversified as pharmaceutical medications to automobile lubricants. The WEIGH SCALE FILLER represents the most advanced filling technology available today in the world. It is modularly designed for ease of maintenance and operation. If your operating plant and product controls demand this type of sophistication, a U.S. Bottlers' WEIGH FILLER should be your machine.



The graph at right depicts the filling concept. The fill begins with a high speed liquid flow and then throttles to a slower flow to reduce the tendency toward turbulence, and to increase final fill accuracy at shutoff.

FEATURES

BOTTLE HANDLING

Bottle handling parts consist of standard hardware typically used on all U. S. Bottlers' filling, cleaning, and capping equipment. The bottles enter the machine from a feed screw that separates the containers for transfer into the center guide and infeed star assembly. These containers are then located on the individual station load cell tables. When speed requirements dictate, bottle locating devices are used to prevent the containers from shifting on the table during the filler process. Each filling valve cycle is individually controlled without the filling tube nozzle or other hardware touching the bottle opening during the filling process. This atmospheric fill allows for easy clean-up of the equipment, controlled sanitation of the container, and the ability to fill extremely viscous products in plastic, glass, and metal containers. Under certain conditions, the machine can be designed so that the valve remains fixed above the container throughout the machine rotation eliminating the need for filling nozzles..

USER FRIENDLY OPERATOR CONTROL

The WEIGH SCALE FILLER operator control panel is a pressure sensitive, monochrome input screen housed in a NEMA-4X enclosure. This Opti-Touch screen uses menu-driven prompts for operator input. The operator merely needs to respond to questions and touch the appropriately highlighted areas of the screen for entering fill data. This monitor allows changes in fill weights to be sent to individual heads or to the entire machine during machine rotation. Data can be retrieved for evaluation just as easily. An option exists to provide a signal should a valve not reach the target weight. Customers can use this signal to then track the container and have it removed from the line either automatically or by the line operator.

BATCH AND STRING DATA COLLECTION

The Opti-Touch screen has the ability to display string data during the filling process, but the WEIGH SCALE FILLER is extremely versatile in its ability to work with additional computers. Specifically, a batch data computer and/or a string data collection operator/maintenance computer can be added to the electronics of the WEIGH SCALE FILLER. The operator computer can be used for storing an infinite number of product filling parameters for those customers who fill a variety of products.

This computer can down load the filling information to the machine as well as retrieve filling parameters to update filler memory for a particular product. The batch data computer can be wired in parallel with the Opti-Touch screen for management use. Management can follow the filling process over the course of a run or as long as the machine remains on-line with the computer. Other customers have used such a computer to install an input-output device for bottle rejection, as well as the ability to signal other equipment on the line when certain conditions have arisen at the filler.

FLEXIBILITY

WEIGH SCALE FILLERS currently fill containers with product weighing as little as two ounces up to five gallons. Machines run from ten bottles per minute to over 600 bottles per minute depending on size. They range from 8 heads to 54 heads and fill containers in various heights, shapes, materials, and weights. These machines can fill chunky, pulpy, foamy, viscous, and water-like products.

ELECTRONICS

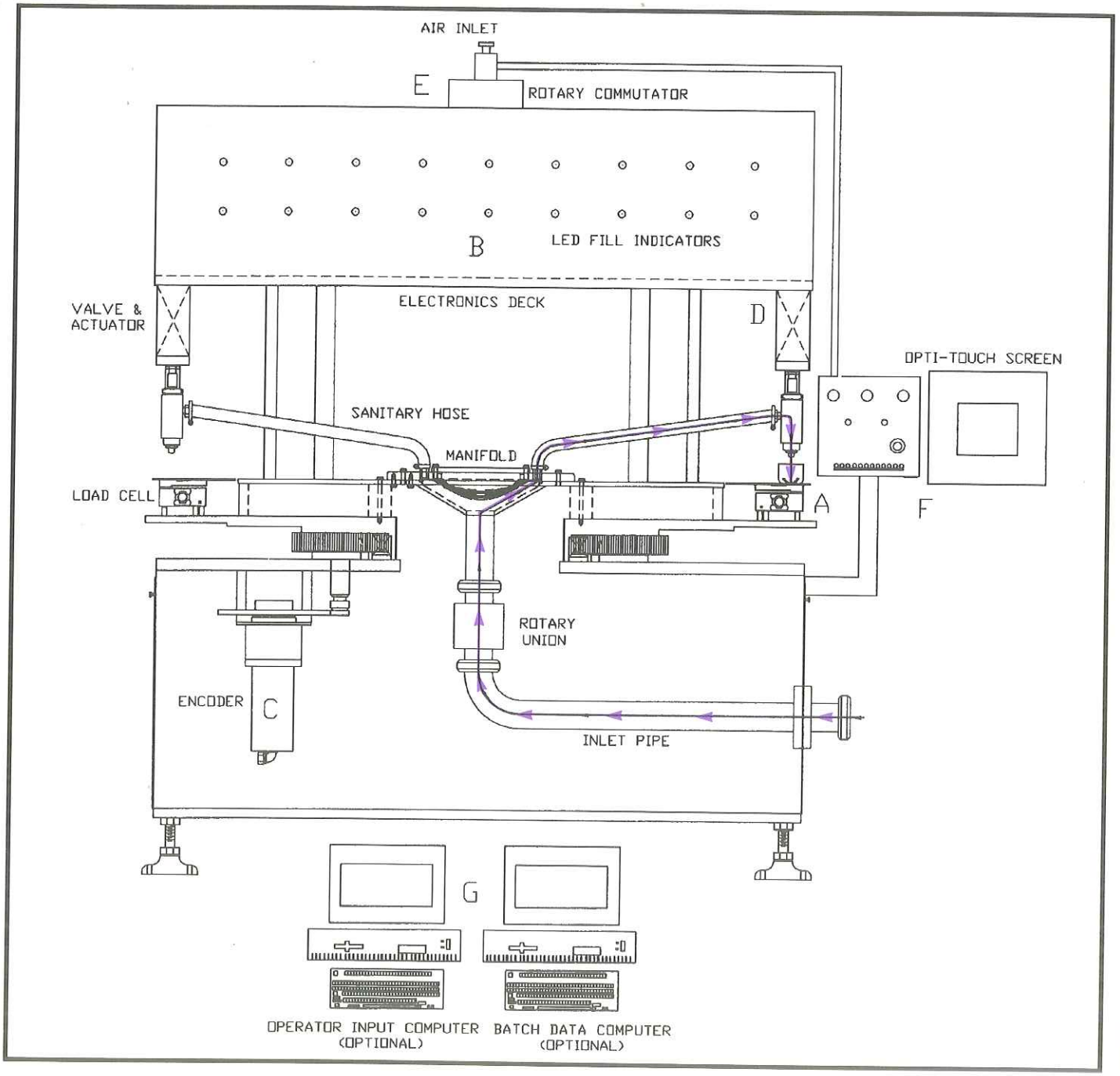
The commutator and the electronic circuit boards for each station are housed in the watertight electronic deck located well above the liquid level line. Individual LEDs on the electronic deck skin indicate the status of the valve via an electronic signal from the station boards. Station boards are connected to the Opti-Touch screen housed in its watertight enclosure at the operator level. All major components within this electronic system are designed, built, and supported by U. S. Bottlers and the software for the entire system has been custom designed by U. S. Bottlers. Special customer software requirements can be addressed by the U.S. Bottler's software engineers.

VALVE CONFIGURATIONS

The WEIGH SCALE FILLER liquid system uses a variety of valve designs to meet each customer's unique needs. Three basic valve designs have been developed.

—A standard down stroking valve assembly for free flowing liquids.
—An upstroking cam action valve that is typically used for heavy products that tend to drip when the filling cycle has ended. (The upstroke in essence produces a vacuum which holds the product from falling out of the end of the nozzle.)
—The CIP-style valve which incorporates valve filling above the container without the need for valve stem cam action. This valve has been designed with the appropriate "O" ring seals and high polish required in the dairy and pharmaceutical industries. The valve assembly does not need to be dismantled during clean-up and the entire liquid system is constructed to meet the stringent requirements of the dairy industry. Some customers have found that the clean-up savings on this machine have justified the purchase of several U. S. Bottlers' WEIGH FILLERS for their particular applications. In general, all the valves are designed around a two stage process for initial filling at a high flow rate to achieve cycle speed and then throttling to a slower flow rate to assist in maintaining accuracy. This throttling process allows the computer study at the end of the filling cycle to respond to shut off signals with less variation from cycle to cycle. Products that tend to foam are also handled better during slow flow rate shutdowns.

DESIGN DETAIL

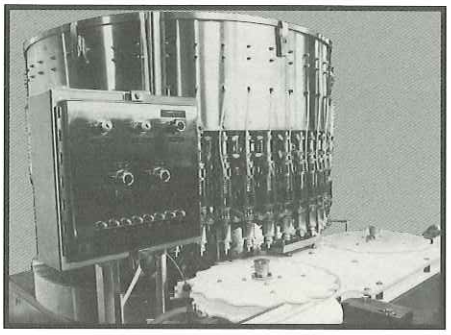


FILLING DESIGN

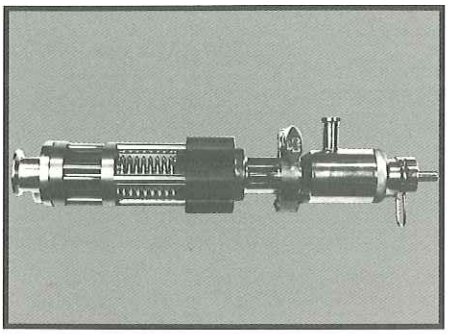
The sketch above shows the configuration of a typical WEIGH SCALE FILLER. The liquid system is designed for simplicity and ease of cleanup. Product is supplied at the tri-clamp connection on the inlet pipe at the filler cabinet base. Liquid flows from the inlet pipe to the rotary union and up to the distribution manifold. From here, the liquid flows into sanitary hosing into each filling valve assembly. When a bottle is detected at a load cell (A), a signal is sent to the electronic deck (B). When the proper angular position occurs as determined by the encoder (C), a signal is sent to a valve acuator (D). This allows the valve to open for full flow and, upon reaching a designated value as detected by the load cell, the valve will throttle to a second stage slow fill to reduce turbulence and incoming product pressure. The throttle value is defined by the operator as dictated by the product and filling pressure. If necessary, it may be eliminated altogether. Electrical data achieved during the filling process is sent and received through the rotary commutator (E) to the operator station (F). At the Opti/Touch user-friendly menu-driven screens, the operator can input and receive data for adjusting fill weights and detecting changes for overall accuracy. Operator input and batch computers are available as options (G) for use in string data collection, batch run reporting, input/output signal devices, and other useful concepts that are uniquely defined for the customer using the technology available within the WEIGH SCALE FILLER family.

CAPABILITIES AND OPTIONS

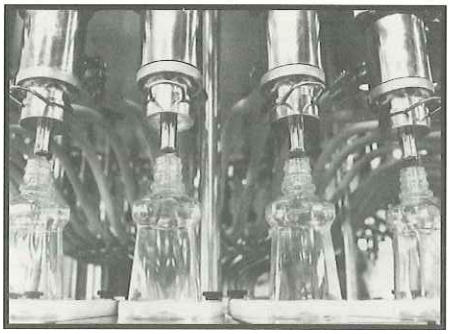
- SANITARY LIQUID SYSTEM
- ALL 316 S. S. LIQUID PARTS
- USER FRIENDLY
- HIGH SPEEDS
- ACCURACY
- EASY CLEANUP (CIP)
- HARD TO FILL PRODUCTS (FOAMY, PULPY, CHUNKY, VISCOUS, WATERLIKE)
- REAL GRAM REPORTING
- BATCH REPORTS
- AUTO-DELTA CORRECTION
- GLOBAL/INDIVIDUAL DELTAS
- % THROTTLE ADJUSTMENT
- STATION INHIBIT
- SECURITY CODE LOCKOUT
- VALVE CHANGE LOG
- REJECT SIGNALS
- RS 232 PORTS (2)
- MODULAR DESIGNS
- NO CONTAINER, NO FILL
- TECHNICAL BACKUP
- TRAINING COURSES/MATERIALS
- CUSTOM SOFTWARE
- FULL DIAGNOSTICS



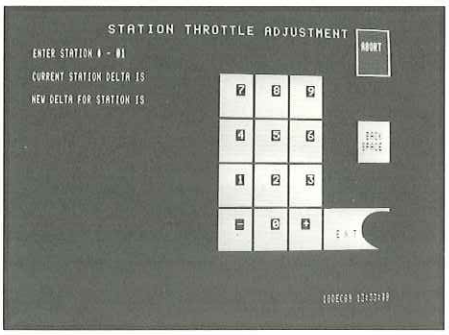
All Stainless Steel *construction is available.*



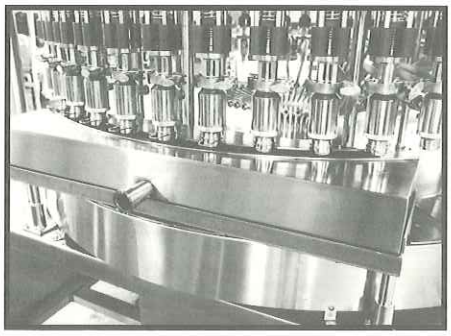
Solid valve *design makes for an accurate and long-lasting machine.*



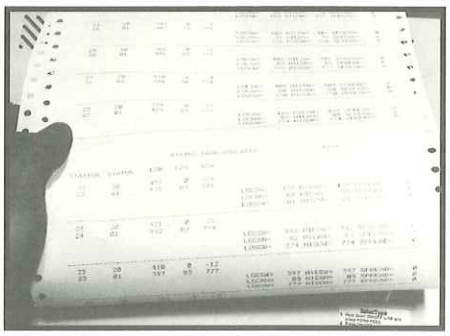
Container contact *with the valve is eliminated in weigh filling.*



User friendly *controls make fill adjustments easy.*



Clean-up is simple *with a removable tray in the rear of the machine.*



Statistical printouts *are generated with operator and batch software.*

TECHNICAL TRAINING

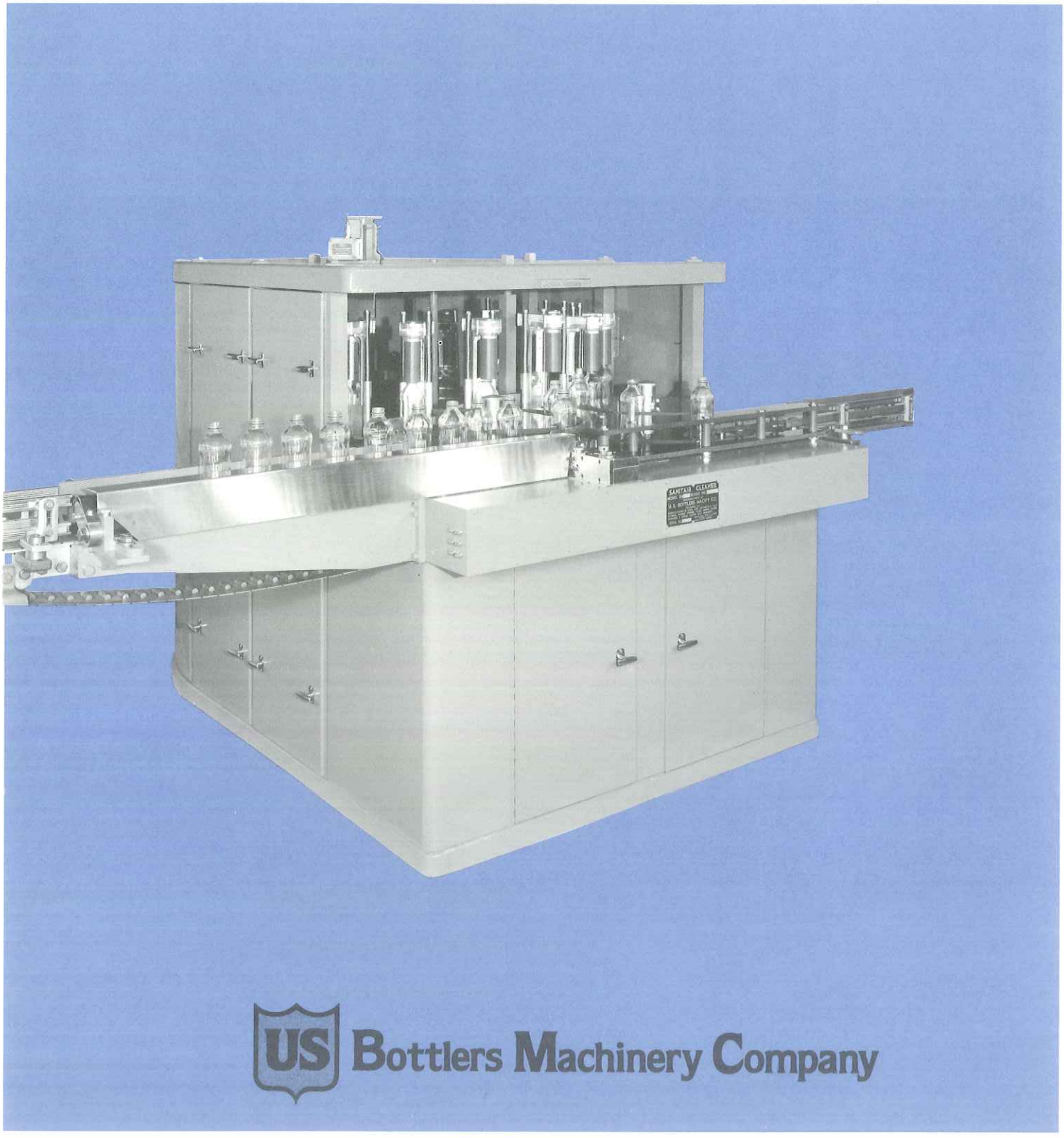
In order to facilitate the installation of the USB **WEIGH FILLER** at your plant, we request that your technical staff take our classes at the manufacturing plant to familiarize themselves with the operation and capabilities of this machine.

INFORMATION

Should you desire additional information concerning this machine or any U.S. Bottler's equipment, your interest will be best served by sending us a complete set of containers with the products to be filled. We can then determine your exact requirements, make the proper recommendations, and quote accordingly. Our sales and engineering departments offer this service without any obligation on your part. Samples should be sent to the main office in Charlotte, N.C.

US Bottlers Machinery Company
11911 Steele Creek Road • Charlotte, North Carolina 28217 • 704/588-4750 • FAX (704) 588-3808

SANITAIR Automatic air cleaners



US Bottlers Machinery Company

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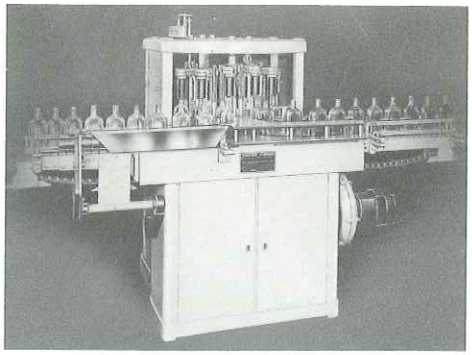
For over seventy-five years, U.S. Bottlers Machinery Company has been designing and manufacturing equipment for packaging lines in the drug, pharmaceutical, food, beverage, household and industrial chemical industries. In a continuing effort to serve its customers better, U. S. Bottlers Machinery Company has pioneered in the cleaning field through the use of compressed air and vacuum.



THE SANITAIR ®© AUTOMATIC AIR CLEANERS

Positive cleaning assured by U.S. Engineering...

After the containers have been separated by the feed worm and positioned under the clamping bell by the infeed star, they are inverted and an air tube is inserted to a predetermined depth by cam action. A blast of compressed air and a vacuum are simultaneously applied inside the container for complete and positive cleaning. All foreign matter is sucked out by the vacuum manifold and collected in a dust retaining bag mounted on the outside of the machine.

Engineered for production line requirements...

Every Sanitair is custom engineered to meet specific container handling configurations and requirements. The Sanitair can be independently driven or may be incorporated into a synchronized production line. Standard machines are supplied with variable speed drives having a 2.0 to 1 ratio. However, this can be custom engineered to the individual's requirements. The structural soundness of the Sanitair and the ruggedness of every machine part is assured. The clock-like precision of every moving part provides for smooth, vibrationless running and keeps production lines operating without mechanical interruption.

SANITAIR CLEANING BY COMPRESSED AIR AND VACUUM... most positive cleaning action of new containers for removal of dust and contaminating matter.

- The positive removal of all loose foreign matter from containers is essential. Unclean containers can cost far more in potential sales than the most sophisticated cleaning operation.
- Air cleaning is the answer whenever the washing and drying of containers is not mandatory and where products must be packaged in a moisture-free container.
- It is a misconception that narrow-neck bottles and other containers with small openings are inaccessible to contamination. One look at the "catch" from all-glass sprinkler top bottles, perfume bottles, and other small-mouthed containers proves startling.
- The air cleaning of containers having valves is increasingly important. The most minute bit of foreign matter can render a valve inoperative.
- Products packaged in dark glass or opaque containers are subject to quality control. While the danger of chemical contamination is a serious factor to some products, the crystalline clarity of many liquid products is critical to future sales.
- The effectiveness of some industrial and household chemicals packaged in plastic or glass containers is easily destroyed by contamination. The usefulness of other products may be endangered by the slightest foreign particle of any kind.
- The necessity of contamination-free packaging is a must in the drug and pharmaceutical fields for consumer confidence and repeat sales.
- The wide scope of container configurations such as those used by the beverage industry must be free of carton lint, dust and particles for clarity of product.

SANITAIR DESIGN FEATURES

FOR AUTOMATIC OPERATION

The Sanitair embodies unique features for efficiency of cleaning ---

1. Compressed air inlet is easily accessible and designed to accommodate the air filter and static eliminators of the customer's choice.

2. The central distributing valve working in conjuction with the air valves releases compressed air when the air tube is at its highest position, insuring the most positive air cleaning yet conserving air.

3. Tests have revealed that air cleaning is most effective when the air tube assembly is in its uppermost position in the container.

4. An inverting table cam controls the smooth inversion of the Duplex Station. Ths exclusive method of controlling the traveling container adds to better handling and more positive removal of foreign matter.

5. Easily removed clamping bells center the container for proper registration with air tubes and clamps containers to the table for inverting.

6. The clamping and centering bell bracket is designed to initially collect the foreign particles leaving the container and is used as a holding device until the vacuum takes over.

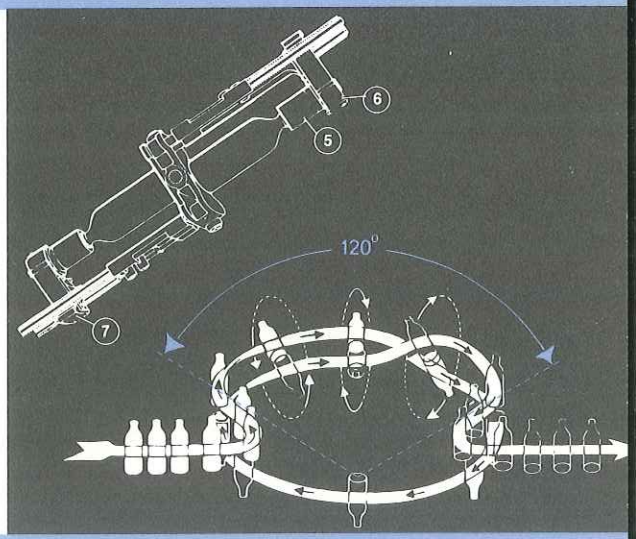
7. The suction port is the slotted opening in the clamping and centering bell head through which foreign matter is drawn first by the vacuum manifold and then into the dust retaining bag.

8. The vacuum shoe seals off the suction inlet of the vacuum manifold when it is not in contact with the suction port.

THE EXCLUSIVE DUPLEX-STATION

Every Duplex-Station handles two containers in opposed position so that as they revolve, one container is inverted while the other is being righted for discharge. Thus, the space ordinarily required to handle one container actually handles two containers, balancing mechanical loading. The Duplex-Stations carry the containers throughout the entire cleaning operation.

The entire operating mechanism revolves with the main ring gear in a clockwise direction. On contacting the stationary Table Cam, the Duplex-Stations are turned through an arc of 180°, thus inverting the containers. As each inverted container registers with its corresponding air tube, the air tube is raised into the container to its maximum height. A blast of compressed air which thoroughly cleans the container is released. Recent improvements to this mechanism allow U. S. Bottlers to state that when the Air Tube is in the uppermost position, cleaning time is increased 30% more than with the previous Sanitair models. The Air Tube is then withdrawn and the container continues through the remaining 180° arc to its discharge position. Foreign matter is automatically drawn through the vacuum manifold and is collected in a removable dust retaining bag mounted on the outside of the machine.



FORMULA FOR CLEANING

Each container is in the machine for 1¾ revolutions before it is discharged. During this time the container moves through a total of 2/3 of a revolution fully inverted and is cleaned by high pressure and a positive vacuum suction.

Consider the following formula for your particular cleaning application:

40 x Machine Model Number ÷ Required B.P.M. = Total Inversion Time with Air and Vacuum.

AUTOMATIC SAFETY CONTROLS

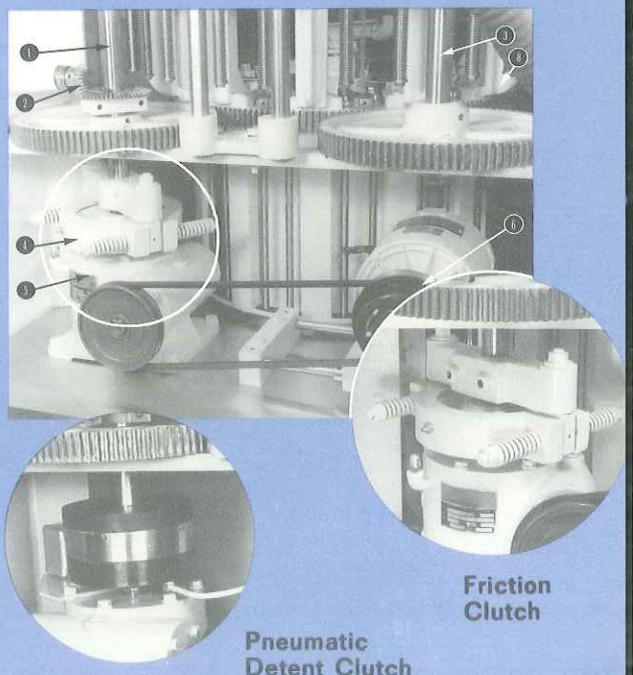
Feed Worm Limit Switch - If by chance a larger diameter container attempts to enter the machine via the feed worm, the limit switch is activated and the machine will automatically stop.

Dome Switch Assembly - Occasionally, an irregular-formed, taller container will enter the machine unobserved. When this happens, the Dome Switch will automatically stop the machine.

In both of the above cases, the machine must be started manually.

All of the Sanitair models can be equipped with either a friction-type clutch or a ball-detent type clutch, both of which are proven outstanding drive control devices when utilized on the Sanitair Automatic Air Cleaners.

1. Feed Star Drive Shaft coupled to clutch and infeed star.
2. Worm Drive Bevel Gear Set (not utilized on the DS-16 and DS-24).
3. Discharge Star Drive
4. Friction or Detent Type Clutch.
5. Main Drive
6. Variable Speed Pulley Drive

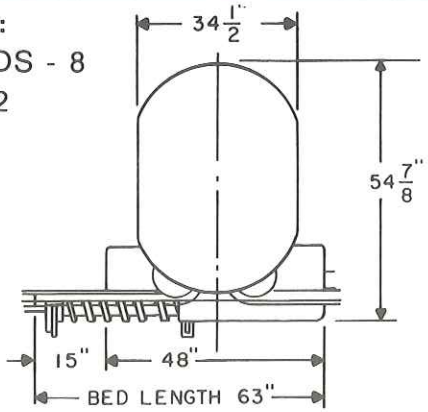


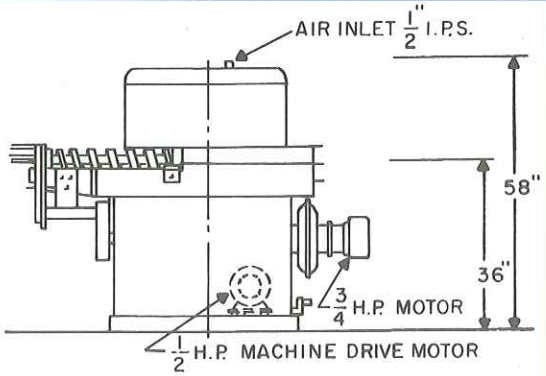
SANITAIR SPECIFICATIONS

	MODEL DS-6	MODEL DS-8	MODEL DS-12	MODEL DS-16	MODEL DS-24
Min. Container Dia.	1″	1″	1″	1″	1″
Max. Container Dia.	6½″	4½″	4″	5″	4½″
Max. Container Ht.	14″	14″	14″	14″	14″
Compressed Air Requirement PSI	40 60 80	40 60 80	40 60 80	40 60 80	40 60 80
Cu. Ft. Compressed Air	3.5 4.5 5.5	4.5 6 7.5	7 9.2 11.5	9 12 15	14 18.5 23
Cu. Ft. Free Air	13 24 35	16.5 30 47.5	26 48 75	33 60 95	49.5 90 142.5
Max. Speed	100 CPM	150 CPM	275 CPM	300 CPM	500 CPM

Standard mechanical variable speed controls have ratios of 2.0 to 1.

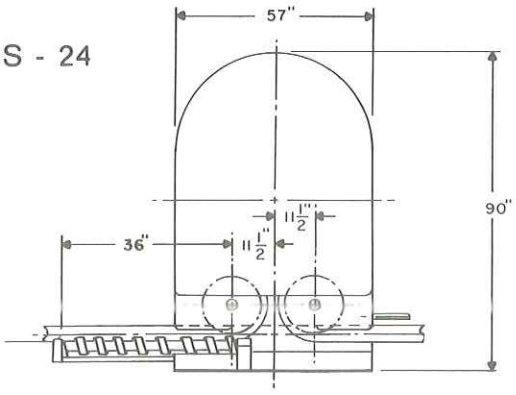
models:
DS - 6 DS - 8
DS - 12

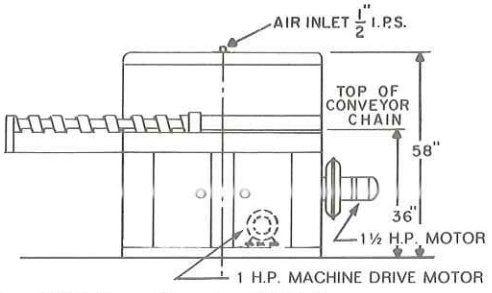




Est. Shipping Wts: Domestic - 4000 lbs. Export - 4500 lbs.

models:
DS - 16 DS - 24





Est. Shipping Wts: Domestic - 6500 lbs. Export - 7000 lbs.

When writing to us for information or quotations, your interests will be served best by sending a complete set of containers to be cleaned. We can then determine your exact requirements, make the proper recommendations, and quote accordingly. Our engineering department offers this service without any obligation on your part. Container samples should be sent to the main office in Charlotte, North Carolina.

US Bottlers Machinery Company
11911 Steele Creek Road • Charlotte, North Carolina 28273
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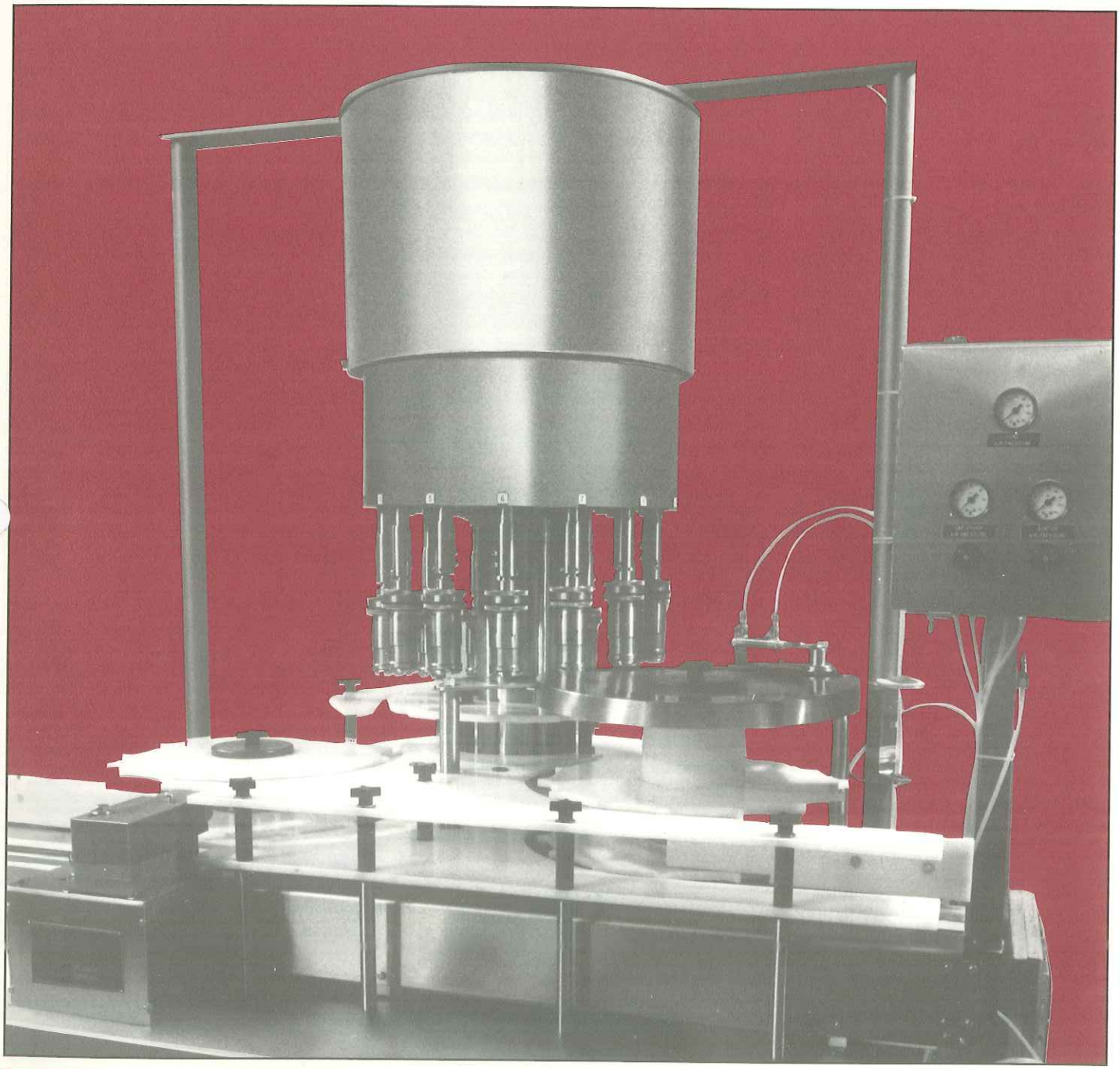
Rotary Screw-Type Capper



Capper Overview

U.S. Bottlers, Rotary Chuck Style Capper has been designed using the same high quality rugged construction found on other U.S. Bottlers rotary machines. Since its introduction in 1983, the capper has become a solid performer in the USBM arsenal. The popularity of this capper is best understood by reviewing some of the components of the machine design.

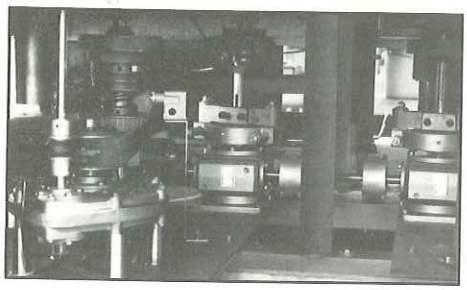
The photograph above *shows a typical pneumatic rotary chuck style capper for a food packaging application. This is a 14-head capper with all stainless steel construction.*

US Bottlers Machinery Company

ROTARY CAPPER COMPONENTS

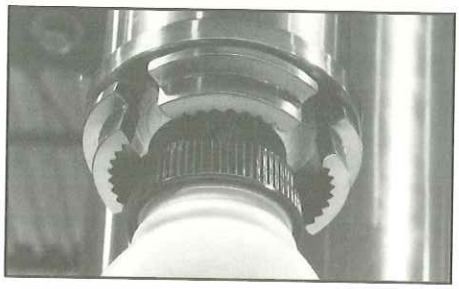
Main Drive

Whether designed around a synchronous drive or a stand-alone machine, the main drive of the equipment incorporates a double gearbox, double clutch philosophy with a heavyduty worm drive. This distributes the load between the infeed and discharge star and eliminates the old roller chain worm drive hardware of the early cappers. The stand-alone machine comes standard with an AC motor and frequency controller for ease of speed variability and digital tachometer feedback in the operator control panel.



Capping Chucks

The capping chucks are standard with an exterior stainless steel construction and can be designed for a caustic environment. Torquing adjustments are easily made by the two torque locking rings and customized chuck jaws are manufactured for either serrated caps or smooth finish caps. Caps have been run from as small as tiny hot sauce caps to large metal peanut butter caps. Whether the caps have flip-tops, pour spouts, smooth tapers, serrated edges, or tamper-evident seals, they have all been run on U.S. Bottlers cappers.



Controls

Unlike most U.S. Bottlers standard equipment, the capper comes complete with controls incorporating an operator panel on the left side of the machine and a pneumatics panel interface to the right. Both of these panels are tied to the separate controls and PLC panel external from the equipment. All hardware represents top of the line vendors for a complete package, allowing the operators to quickly understand fault conditions, bottle-per-minute readouts, and variable speed adjustments.

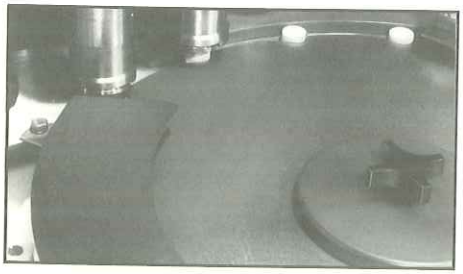
U.S. Bottlers' electrical engineers can customize all of the controls, components, and design if the customer so requires. Each panel and schematic is laid out on CAD, pretested, and only requires simple point-to-point wiring for field installation by the customer.

When a synchronous line or multiple machines are provided, the additional controls for these devices can be combined with the capper controls for a complete package at a reduced cost increase to the customer.

PickUp Star

A prime advantage of the pickup star design of the cap transfer plate in the U.S. Bottlers capper ensures that no chuck components touch the underside of the cap. This maintains the integrity of the sanitary feature of the cap prior to being sealed on the container, which is violated by some of the competition in their cap pick and placement applications.

Note that the pickup star is pretimed as part of the discharge star assembly.

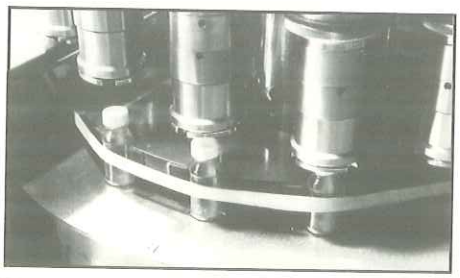


The metal pickup star *is made out of stainless steel to insure that the star will last the lifetime of the attachments.*

Clamping Belt

One of the unique features of the U.S. Bottlers capper is the traveling clamping belt in the rear of the machine that holds the container in place during torquing. This is far superior to the non-rotational rail as found on much of the competition. The belt take-up automatically adjusts for bottle diameter variations and provides better gripping on round shapes.

However, if desired, a non-rotational rail is available as an option.

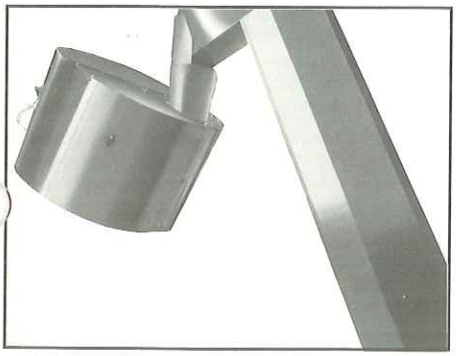


Belt widths *are available from 1/2-inch to 1-1/2 inches, depending on the bottle height and diameter.*

A Nema 4X *stainless steel operator panel is shown here, mounted and prewired to the cabinet.*

Sorters

Depending on the cap application, a variety of sorter combinations are available for ensuring that the cap is in the proper orientation for the discharge star on the capper. In the past, a 36-inch or 48-inch inclined sorter has been provided for pneumatically orienting the cap, but if the cap requires, a centrifugal, pinwheel, or vibratory sorter is available. Furthermore, the new hopper/elevator vertical sorter has become quite popular for some of the more common cap configurations.

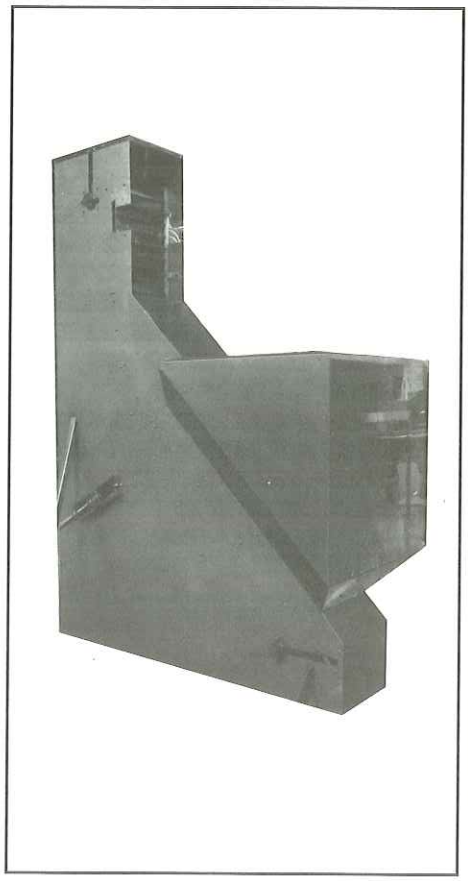


Hopper/Elevator

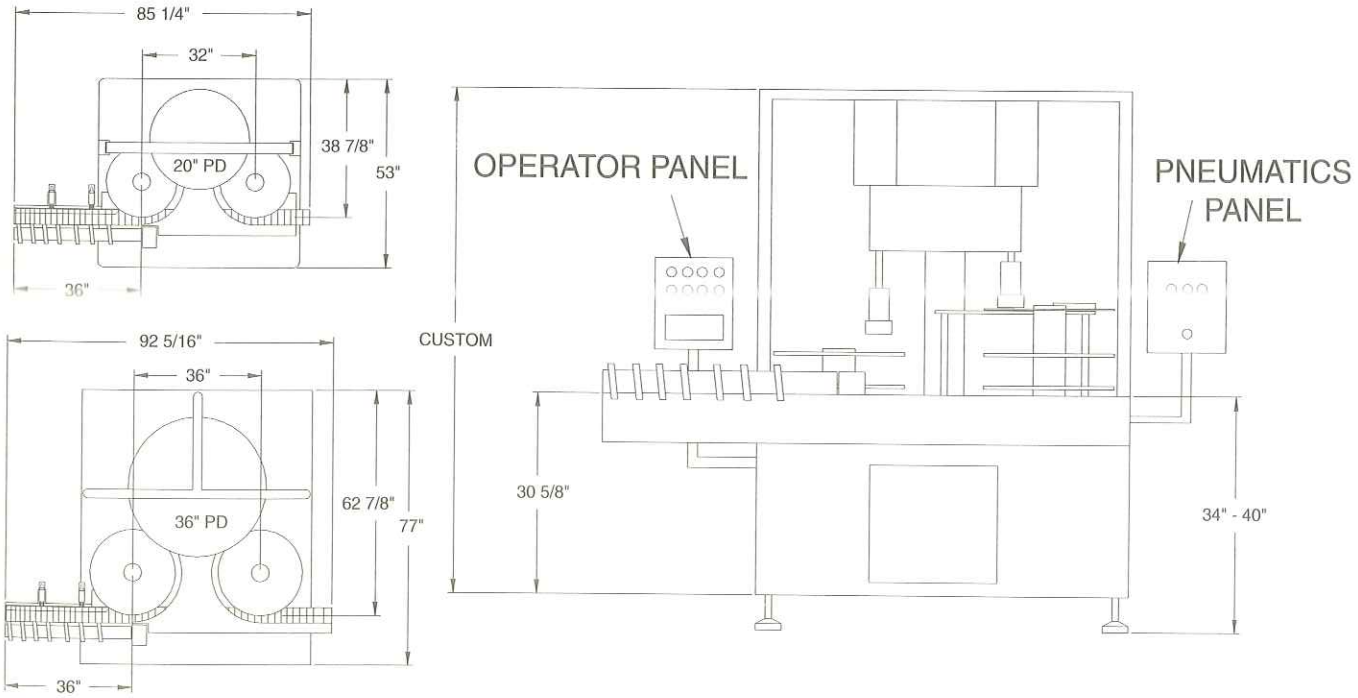
The hopper/elevator sorter, shown to the right, represents the latest in sorter capabilities for customer's caps. It is a simple concept of sorting the cap during a vertical elevation process, thus removing much of the "difficult-to-set" pneumatical sorting applications of the past. This also allows less space to be required for the same process of bulk feeding, elevating, and sorting than was handled in the previous separate hopper/elevator sorter combinations. To determine what sorter works best for your cap, please send samples to the Charlotte facility for review.

The photo on the left *shows the horizontally inclined sorter which requires a prefeeder for maintaining the correct level of caps in the tumbling application.*

To the right, *the vertical style hopper/elevator is often used when space limitations require a more compact design, while at the same time incorporating the sorting during the elevating process. This reduces tumbling and turbulence on the cap when feeding the capper at high rates of speed.*



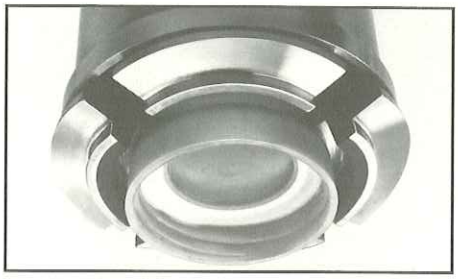
GENERAL FLOOR PLAN



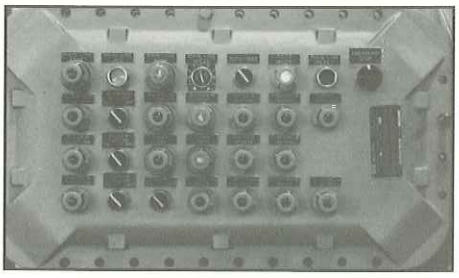
Specific machine dimensions may vary

CAPABILITIES AND OPTIONS

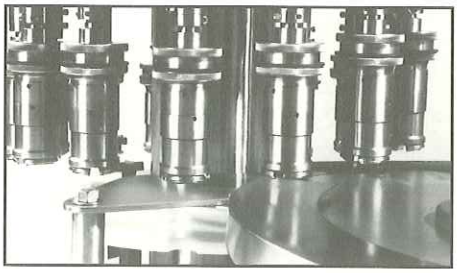
- COMPLETE CONTROLS
- HEAVY- DUTY CONSTRUCTION
- ALL SS OPTIONS
- NO BOTTLE, NO CAP
- ALL PLC LOGIC
- GUARDING AVAILABLE
- VARIABLE DRIVE
- SYNCHRONOUS CAPABILITY
- OVERCAPPER APPLICATIONS
- SPECIAL SENSORS
- REVERSE DIRECTION
- EXPLOSION PROOF
- GLASS/PLASTIC/METAL
- PLUGGING APPLICATIONS
- CUSTOM SORTERS
- SIMPLE TORQUE ADJUSTMENTS
- QUICK RELEASE OF CAP
- ERROR INDICATORS
- PRODUCT FLEXIBILITY
- MONOBLOCK CAPABILITY
- FULL WARRANTY



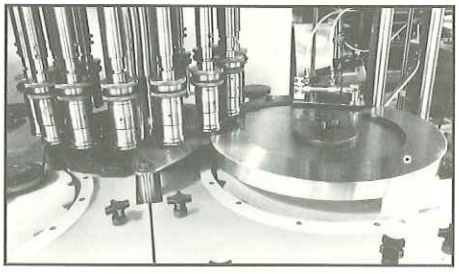
Chuck jaws *can be manufactured for serrated or smooth rimmed caps.*



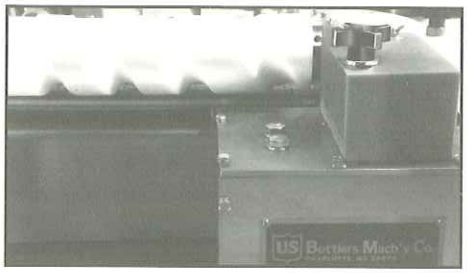
Panels *for explosion-proof environments are available as applications require.*



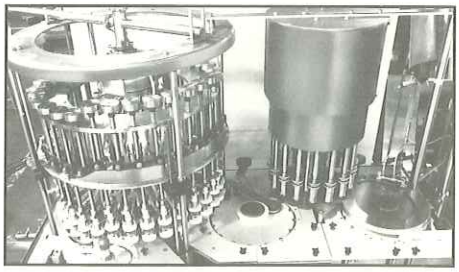
Torque adjustments *are simply handled by adjustments on the knurled torquing rings.*



Changeover times *are improved by removing the use of hand tools as practical.*



Heavy-duty worm *and star drives are standard on stand-alone and synchronous cappers.*



Monoblock *capability is available with the U.S. Bottlers' arsenal of fillers.*

If your product and containers can be capped on a rotary capping machine, the sales and engineering staffs at U.S.B. will be able to suggest many variations that will provide you with one of the simplest and most efficient cappers available.

Should you desire additional information concerning this machine or any U.S. Bottlers equipment, your interest will be best served by sending us a complete set of containers with caps and required speeds. We can then determine your exact requirements, make the proper recommendations, and quote accordingly. Our sales and engineering departments offer this service without any obligation on your part. Samples should be sent to the main office in Charlotte, N.C.

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