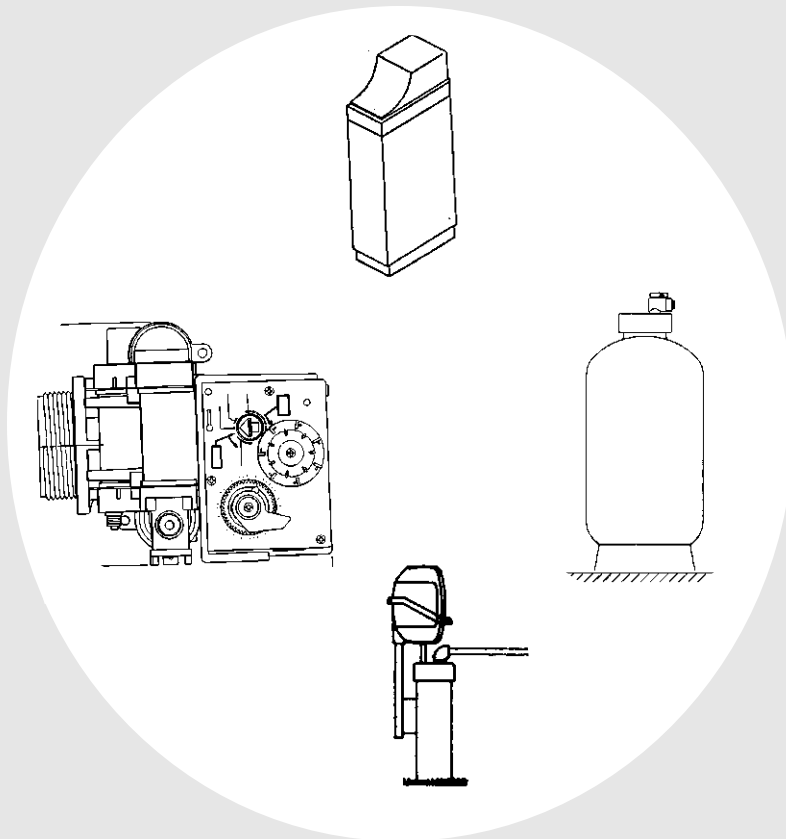
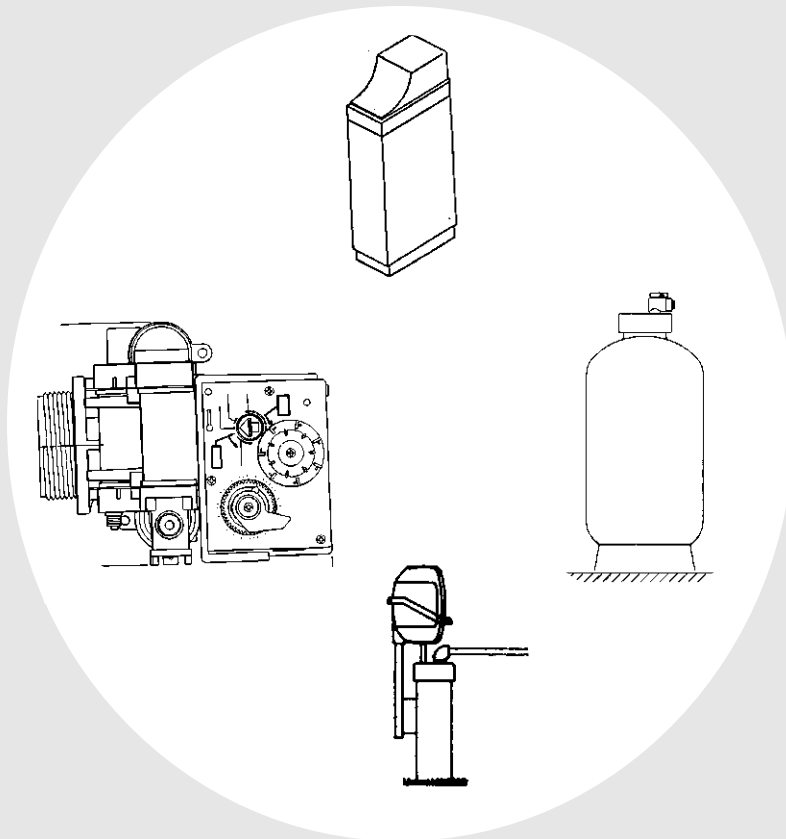


WATER TREATMENT



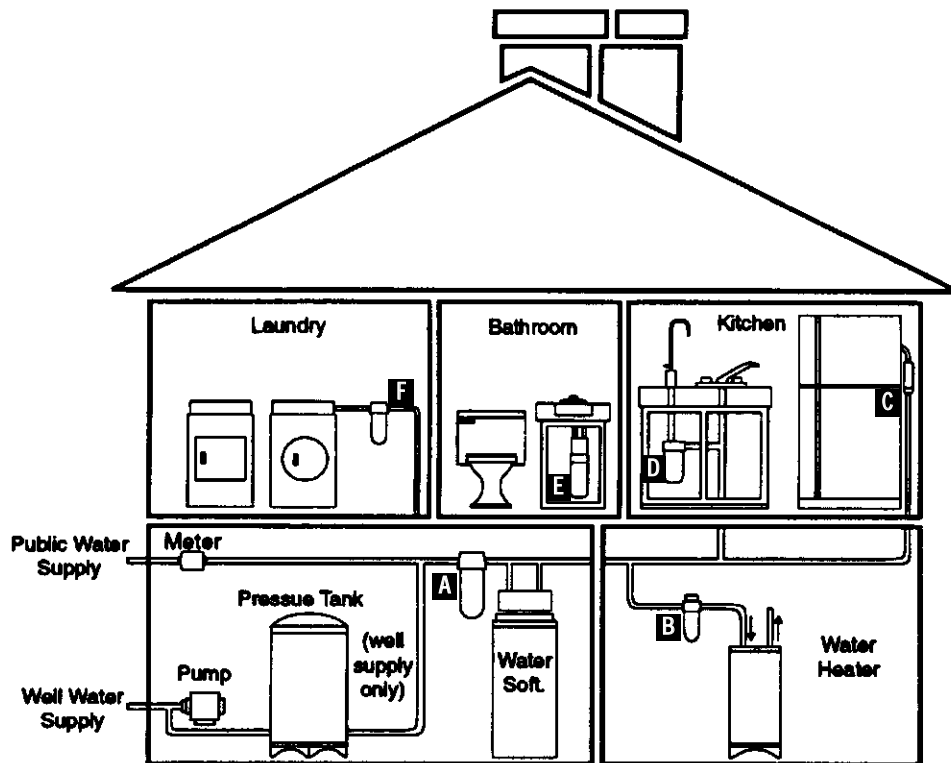
WATER TREATMENT





A DIVISION OF DUFF COMPANY
Products for Quality Water

Clearly Great Water Throughout Your Home



A WHOLE HOUSE SYSTEM

D DRINKING WATER SYSTEM

B HOT WATER SYSTEM

E UNDER-SINK FILTER

C ICE MAKER FILTER

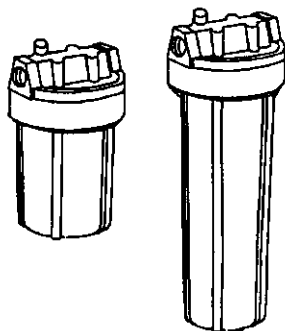
F POINT-OF-USE FILTER

DUFF CO.

WATER TREATMENT

DWC OFFERS A VARIETY OF

Standard Blue Housings



Blue Valve - In - Head Housings



APPLICATIONS

Photographic Equipment	Plating Recirculating Baths
Std. DI Pre/Post Filtration	Lab Equipment
Vending Machines	Food Service
Main Line Residential Water	Process Fluids
Safety Equipment	Reverse Osmosis
Pre/Post Water Softeners	Hospital Equipment
Chillers	Laser Cooling Equipment

Standard blue housings are manufactured of polypropylene. Thick walls and multiple ribs make these housings ideal for industrial applications. The clean look, (FDA grade plastic) and light weight also makes them preferred in residential and commercial uses. Their polypropylene construction has excellent chemical resistance for use with most acids, alcohol, ammonia, oils, plating solutions, beverages and water. Mounting bracket cap with four screw bosses for rigid mounting installations.

MAXIMUM PRESSURE: 125 psi

MAXIMUM TEMPERATURE: 125°F

VIH housings incorporate the same rugged design and application features as standard 3/4" NPT housings. The internal VIH allows both inlet and outlet ports to be shut off internally simultaneously with a half turn of the handle. This eliminates the need for external shut-off valves, easing installation and cartridge change out. Radial sealing O-rings and sealing surfaces are continuously cleaned each time the valve is used, ensuring leak proof operation.

MAXIMUM PRESSURE: 125 psi

MAXIMUM TEMPERATURE: 125°F

Clear Housings



APPLICATIONS

Food Processing
Vending Equipment
Food Service
Main Line Residential Water
Lab Equipment
Photographic
Slow Sight Indicators

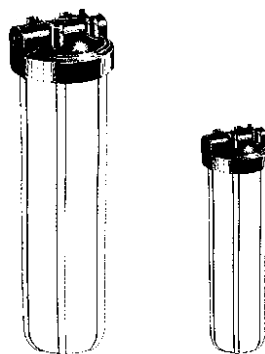
The housing bodies are manufactured of clear FDA Styrene-Acrylonitrile (SAN) which has been stress relieved for added clarity and strength. Clear bodies offer on site examination of flow, cartridge performance and life. The SAN/Polypropylene construction combination has excellent chemical compatibility.(see chart for specific applications.

MAXIMUM PRESSURE: 125 psi

MAXIMUM TEMPERATURE: 125°F

CAUTION: Clear housing may crack or craze with time causing failure and leakage, if exposed to organic solvents such as those found in aerosol sprays for cleaning products and insecticides.

Big Blue Housings



APPLICATIONS

Water Wells
Spas and Hot Tubs
EDM Machines
(Water Based)
Plating
Whole House
Agriculture
Drip Irrigation
Green Houses

Big Blue Housings are manufactured of reinforced FDA grade polypropylene in both 10" and 20" lengths. The specifically designed High Flow Polypropylene (HFPP) cap is available with either a 1" or 1 1/2" NPT port. Four bosses are provided in each cap for mounting to either aluminum or 304 stainless steel "L" brackets. Big Blue Housings are ideal substitutes for costly low pressure stainless steel vessels. The larger body size allows for extra large cartridges and high flow rates. Polypropylene construction offers excellent chemical compatibility with water, beverages and syrups.

MAXIMUM PRESSURE: 10"=100 psi 20"=90 psi

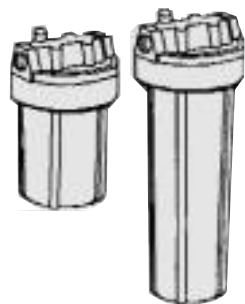
MAXIMUM TEMPERATURE: 100°F

**CARTRIDGES AND HOUSINGS BY MAJOR
MANUFACTURERS INCLUDING**

AMETEK

FILTER HOUSINGS TO CHOOSE FROM!

Hot/High Pressure



APPLICATIONS

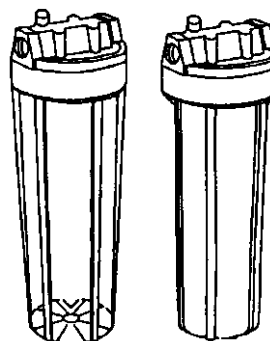
Hot Liquids
Salt Water Fisheries
Hot Water
Toluene/Xylene
Hydraulic Oils
Alcohols
Vegetable Oils
Gasoline
Photographic

The Hot/high Pressure filter housings are manufactured from glass reinforced nylon. Standard sealing and closure are achieved through the use of a 241 silicone O-ring. Housings are available in two lengths: 10" and 20". One cap style is available (standard cap, no pressure relief, no mounting bosses). Extra thick glass reinforced nylon construction allow these housings to be used on a wide range of temperatures and/or pressures. In addition, these housings are excellent for industrial applications involving organic solvent*, sea water, alcohol, petroleum and vegetable oils. High temperature/high pressure combination along with the excellent chemical compatibility makes these filter housings an economical alternative to stainless and carbon steel vessels. For detailed information call for our operating pressure vs. temperature chart.
*Avoid use with Ketones.

MAXIMUM PRESSURE: 200 psi

MAXIMUM TEMPERATURE: 200°F

Slim Line Housings



APPLICATIONS

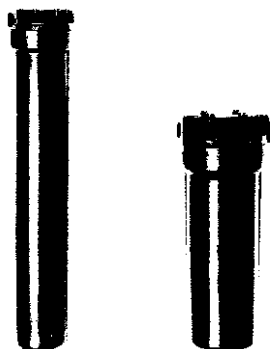
Low Flow OEM Equipment
Recreational Vehicles
Food Service Equipment
Residential RO Systems
Kidney Dialysis Equipment
Humidifying Systems
Temperature Control Valves

Slim Line Housings are manufactured of polypropylene. They are sealed with a top seated 237 Buna-N O-ring and Acme square thread closure. All caps come with four mounting bosses for rigid "L" bracket mounting. Slim Lines incorporate the same application and chemical resistance features as the standard 3/4" housings, but with a slimmer and shorter external design. Housings are designed to use the same cartridges as the 3/4" housings, but are designed for lower flow rates and conservation of space. Smaller overall diameter and port sizes make them ideal for multiple function applications when mounted in a series. Smaller vessels with the same capacity make them an economical choice.

MAXIMUM PRESSURE: 125 psi

MAXIMUM TEMPERATURE: 125°F

Slim Line Black Housings



APPLICATIONS

High Pressure RO
Toluene/Xylene
Hydraulic Oil
Food Processing
Gasoline
Photographic Needs
Paints/Inks
Boiler Feedwater
Alcohols

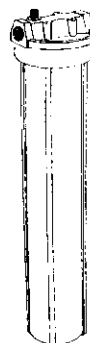
The Black Slim Line housings are manufactured from nylon which is reinforced with long glass fibers. Manufacturing the housings in this fashion increases strength and durability making them an ideal choice for various high pressure and corrosive applications*. Caps are molded with 1/2" inlet/outlet ports. Slim Line housings are available in two lengths: 10" and 20", with top-mount heads (no-pressure relief).

FDA Grade, Slim vessel design reduces space required for installation without sacrificing capacity, 200 psi rated, steam sterilizable. Designed for use with Resin-Bonded cartridges in dry cleaning, hydrocarbon, solvent and alkalis applications. Designed for use as 200 psi Reverse Osmosis Membrane Vessels (modification for brine port required).

*Avoid use with ketones. NOTE: Viton, silicone and Buna-N O-rings sold separately.

MAXIMUM PRESSURE: 200 psi **MAXIMUM TEMPERATURE:** 200°F

Pure Polypropylene Housings

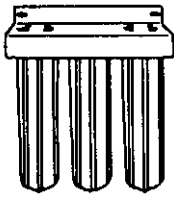
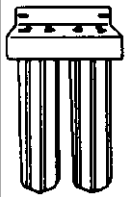


APPLICATIONS

Deionized and reagent grade water
Electronic grade chemicals
Reagent grade chemical
Pharmaceutical grade solvents
Reaction solvents for cosmetic, pharmaceutical for polyester production
Most gases; nitrogen, argon ammonia
Freons
Electronic etching solutions
Magnetic coatings (tape, disc or card)
Reverse osmosis or ultrafiltration final filters
Laboratory equipment

All natural, pure polypropylene filter housings can be used in an extremely wide variety of applications where purity, quality, minimal extractables and filtration economy are required. After your expensive cartridge, the last thing your liquid or gas is in contact with before going downstream is you filter housing. Use these all natural housings as added insurance against additional contamination.

PLASTIC FILTER HOUSINGS



MULTI-CARTRIDGE FILTER SYSTEMS

Multi-cartridge filtration systems contain multiple filter housings which are mounted in series. These systems offer a wide variety of filtration capabilities, depending upon your filter cartridge choice. They can use standard cartridges in 10" or 20" lengths, or large diameter cartridges.

The large body size allows for greater cartridge capacities and higher flow rates than are possible with standard size systems. Flow rates range up to 40 GPM, with pressure drops as low as 1 psi. The all-polypropylene construction offers excellent compatibility with water, beverages, syrups and a broad range of chemicals.

A P P L I C A T I O N S

HOME

Wholesale Filtration to reduce:
Rust, Iron, Sediment,
Taste/Odor, Chlorine

COMMERCIAL

Deionization, Coalescing
Combination, Sediment/Rust
Taste/Odor, Duplexing

INDUSTRIAL

Step-down filtration, Circulating Baths
Plating, Batch treatments, Color removal
Organic reduction, Cooling towers
Pre R.O. Filtration, Duplexing

HOUSING GUIDE

5" HOUSINGS - 4 7/8" CARTRIDGES

DESCRIPTION	INLET/OUTLET	FLOW RATE (GPM)	FIG. NO.	PRICE
Blue*	3/8"	1-5	.9312	
Clear*	3/8"	1-5	.9314	

10" HOUSINGS - 9 3/4" TO 9 7/8" CARTRIDGES

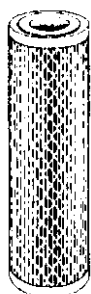
DESCRIPTION	INLET/OUTLET	FLOW RATE (GPM)	FIG. NO.	PRICE
Slim Line Blue*	3/8"	1-7.5	48826	
Slim Line Clear *	3/8"	1-7.5	44625	
Blue *	3/4"	1-10	9309	
Clear*	3/4"	1-10	38975	
Red Hot/High Pressure	3/4"	1-10	9330	
Black High Pressure	3/4"	1-10	150193	
Black Valve-In-Head	3/4"	1-10	-	
Clear Valve-In-Head*	3/4"	1-10	38977	
Big Blue	1	1-20	24484	
Big Blue*	1 1/2"	1-25	23534	
Natural Polypro	3/4"	1-10	150132	

20" HOUSINGS - 20 to 20 1/8" CARTRIDGES

DESCRIPTION	INLET/OUTLET	FLOW RATE (GPM)	FIG. NO.	PRICE
Blue*	3/4"	1-20	38976	
Red Hot/High Pressure	3/4"	1-20	47089	
Black High Pressure	3/4"	1-20	150194	
Big Blue*	1"	1-40	43439	
Big Blue*	1 1/2"	1-50	45378	
Natural Polypro	3/4"	1-20	150135	

*Indicates pressure relief/bleed button on inlet side of cap. These items can be special ordered without the button.

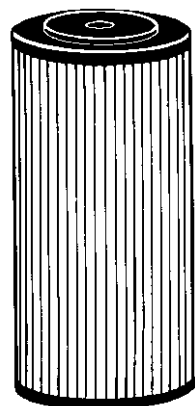
SEDIMENT CARTRIDGES



The S1 Series Paper Cartridges are designed for general water filtration purposes. Highly effective, yet economical, these cartridges remove sediment particles down to nominal 20 microns in size. The pleated construction of corrugated media, with over 4 sq. ft. per standard 9-3/4" cartridge, provides increased surface area and strength which results in extended life. An external netted sheath provides extra support to protect against system pulsation. End caps are fused to the cellulose media preventing bypass and forming a gasket sealing area.



The CRE-1 Series Ceramic Reusable Microstraining Cartridge is specially designed and tested for the reduction of Giardia and Cryptosporidium cysts from otherwise potable drinking water. The fine ceramic media will effectively trap dirt, sediment, and cysts down to one micron in diameter. In addition, the cartridges knife-edge and standpipe seal ensure a proper fit preventing water bypass.



The R Series Reusable Paper Cartridges are made of a durable non-woven reusable polyester fabric which allows for several uses. The standard 9-3/4" length has more than four square feet, (sixteen square feet for the BBS models) of fabric media which has been pleated to maximize its dirt holding capacity and extend the time period between changes. The material is compatible with many chemicals, which makes them a good choice for light industrial water filtration. The synthetic construction makes them ideal for well water applications since they cannot be attacked by bacteria

NOTE: Reuse of cartridges is not recommended for drinking water applications.



The RBCM Series Resin Bonded Cartridge is produced from cellulose fibers, which have been intrinsically bonded together by a melamine resin, to create a solid, highly durable, yet porous structure. By treating the fibers in this fashion, we can assure a stronger cartridge that is less subject to collapse than any wound or pleated cartridge. Furthermore, the cartridge materials meet FDA specifications, making it completely safe for applications involving potable drinking water, beverages, cosmetics, syrups, etc.



The P Series Spun Polypropylene Cartridges are made of 100% pure polypropylene fibers. The fibers have been carefully spun together to form a true gradient density from outer to inner surfaces. The coreless strength of the cartridge is achieved by sintering the many fibers into a solid matrix. Designed for purity, corrosion and chemical resistance with sizes (4 7/8 through 30") to handle most all industrial and commercial process fluids, these cartridges are still economical enough for home water use.

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.



The WP Series String Wound Cartridge offers a wide chemical resistancy spectrum. They are compatible with most acids, alkalis, corrosive fluids, and gases. Polypropylene cord is wound around a polypropylene core in a precise pattern, ensuring a high efficiency rating as well as a high dirt loading capacity.

SEDIMENT CARTRIDGES



The HFCP Series Pleated Cellulose Polyester Cartridges are designed for high flow industrial applications. These cartridges have approximately 8 square feet filtration area, double the square footage of standard cartridges: this correlates to double the life span before change outs. Smaller, more economical filter housings can be used to obtain the same flow rate. This is most important for OEM's who do not have the space for larger vessels but still require high flows.



The WC25S Series High Temperature Cartridge is designed for high temperature applications. Cotton with a stainless steel core can withstand extremely high temperature without failure. The bleached cotton filtering media has been FDA approved, for safe filtering of hot water and beverages as well as distilled water, vegetable oils, petroleum, citric acid, fatty acid, and alcohols down to 1 micron.



The CP Series Pleated Cellulose Polyester Cartridges are the economical alternative to the industrial version. Approximately 4 square feet of pleated media and a polycore are immersed in a thermo-setting vinyl plastisol, embedding and sealing each end of the pleat block. Fusing of the three components in this fashion forms a unitized end cap and gasket.



**WATER TREATMENT PRODUCTS
ALWAYS AVAILABLE!**

TASTE AND ODOR/SEDIMENT CARTRIDGES



GAC Series Granular Carbon Cartridges are designed for effective reduction of unwanted tastes and odors such as chlorine. They are engineered to allow water to enter the bottom and filter through the entire bed of carbon before exiting through the top. This allows the water to be in contact with the carbon for a maximum length of time, ensuring maximum adsorption. An internal expansion pad maintains a tight compact column, minimizing channeling or bypass. A nominal 20 micron post filter is incorporated to reduce carbon fines and other suspended particles. *Cannot be coupled.*

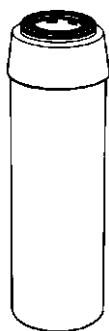


The RFC Series Radial Flow Carbon Cartridges are designed for both liquid and gas filtration. For liquids, they are designed primarily for reducing organics and particulate contaminants for plating, acid, alkaline, and hydrocarbon solutions. The RFC can also be used for chlorine removal at low flow rates. For gas filtration, they are designed to remove chlorine gases, organics such as oil mist, water vapor and fine dust and scale particles. The activated carbon is a highly effective adsorption bed, while the inner layers remove particles over nominal 7 microns in size.



Products for Quality Water

TASTE AND ODOR/SEDIMENT CARTRIDGES



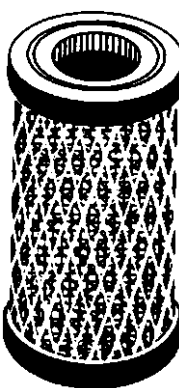
The CC Series Coconut Carbon Cartridges contain coconut shell-based activated carbon which is highly effective at reducing certain organic chemicals, such as, EDB, TCE, and THMs in addition to removing chlorine. A nominal 20 micron post filter is incorporated to reduce carbon fines and other suspended particles. Cartridges are engineered to allow water to enter the bottom and filter through the entire bed of carbon before exiting throughout the top, ensuring maximum adsorption. *Cannot be coupled.*



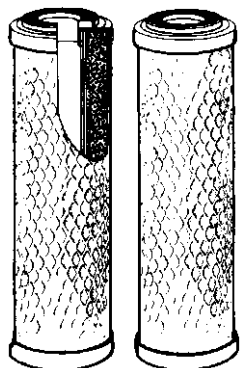
The SGAC Series Silver Impregnated Carbon Cartridge is designed to effectively reduce tastes and odors such as those of chlorine, from potable drinking water supplies. The addition of silver helps to inhibit the internal growth of bacteria. The cartridge directs the water flow through the entrance at the bottom, and forces it upward through the bed of carbon before exiting through the post filter at the top. This method ensures that the water has maximum contact time with the carbon for greater effectiveness. *Cannot be coupled.*



TSGAC Series Phosphate and Carbon Multi-purpose, Multi-media Cartridge combines: granular activated carbon - for taste, odor, and chlorine reduction; phosphate crystals - for controlling rust stains and scale deposits; and a nominal 20 micron polypropylene post filter - for dirt, rust, and other suspended particle reduction. Triple protection for your water lines, fixtures, major appliances, and commercial equipment. *Cannot be coupled.*



The C1 and C2 Series Carbon Impregnated Cellulose Cartridges are constructed from a carbon impregnated cellulose media. Combining the carbon and cellulose media in this fashion creates a dual purpose filter. In addition to filtering out fine sediment particles, it helps to reduce the unwanted tastes, odors, and chlorine often found in tap water and many industrial liquids. They are also excellent polishing filters when used in process or closed-loop streams.



The CBC Series Carbon Block Cartridges are designed to reduce VOC's, chlorine, color bodies, as well as remove fine sediment from residential, commercial, and industrial liquids. The powdered activated carbon briquette provides high chemical adsorption, while the sediment filter eliminates unwanted particles down to .5 nominal micron. The CBC's make excellent polishing filter or prefilters for many applications.

CARTRIDGES AND HOUSINGS BY MAJOR MANUFACTURERS INCLUDING

AMETEK

CARTRIDGE GUIDE

4 7/8" x 2 1/2" CARTRIDGES

SEDIMENT

DESCRIPTION	MICRON	FIG. NO.	PRICE
<i>P Series</i> Spun Polypropylene Cartridge	5	51659	
	30	51059	
<i>R Series</i> Reusable Paper Cartridge	30	9323	

TASTE & ODOR

<i>GAC Series</i> Granular Carbon Cartridge		43556	
<i>C2 Series</i> Carbon Impregnated Cellulose Cartridge	5	9326	
<i>CBC Series</i> Carbon Block Cartridge	.5	63080	

9 3/4" CARTRIDGES

SEDIMENT

<i>HFCP Series</i> Pleated Cellulose Polyester Cartridge	1		
	5		
	10		
<i>CP Series</i> Pleated Cellulose Polyester Cartridge	1	49700	
	5	48801	
	10	50225	
<i>WC25S Series</i> High Temperature Cartridge	1	44395	
	5	44396	
	30	44397	
<i>P Series</i> Spun Polypropylene Cartridge	1	59658	
	5	23535	
	25	43440	
<i>R Series</i> Reusable Paper Cartridge	30	48809	
	50	48810	
<i>ST Series</i> Paper Cartridge		9322	
<i>CRE-1 Series</i> Ceramic Reusable Microstraining Cartridge		46944	
<i>RBCM Series</i> Resin Bonded Cartridge	.8		
	1		
	5	45190	
	10		
	25		
<i>WP Series</i> String Wound Cartridge	1	23539	
	5	44393	
	10	63676	
	20	49317	
	30	44394	
	50	47091	

TASTE & ODOR

<i>GAC Series</i> Granular Carbon Cartridge		23532	
<i>CC Series</i> Coconut Carbon Cartridge		47024	
<i>TSGAC Series</i> Phosphate and Carbon Multipurpose Multi-Media Cartridge		76404	
<i>RFC Series</i> Radial Flow Carbon Cartridge		49381	
<i>SGAC Series</i> Silver Impregnated Carbon Cartridge		-	
<i>C1 Series</i> Carbon Impregnated Cellulose Cartridge		9325	
<i>CBC Series</i> Carbon Block Cartridge		36477	
<i>CBR2 Series</i> Carbon Briquet/Lead Reduction Cartridge		49382	

20" CARTRIDGES

SEDIMENT

DESCRIPTION	MICRON	FIG. NO.	PRICE
<i>ST Series</i> Paper Cartridge	20	60290	
<i>P Series</i> Spun Polypropylene Cartridge	1	76463	
	5	23536	
	25	49228	
<i>R Series</i> Reusable Paper Cartridge	30		
<i>RBCM Series</i> Resin Bonded Cartridge	.8		
	1		
	5		
	10		
<i>WP Series</i> String Wound Cartridge	25		
	1	43537	
	5	44399	
	20	49340	
	30	44400	

TASTE & ODOR

<i>GAC Series</i> Granular Carbon Cartridge		33533	
<i>CC Series</i> Coconut Carbon Cartridge		83214	
<i>RFC Series</i> Radial Flow Carbon Cartridge		52866	
<i>CBC Series</i> Carbon Block Cartridge			

9 3/4" x 4 1/2" FOR BIG BLUE HOUSINGS

SEDIMENT

<i>CP Series</i> Pleated Cellulose Polyester Cartridge	5	47023	
<i>R Series</i> Reusable Paper Cartridge	30	47095	
	50	47096	
<i>WP Series</i> String Wound Cartridge	.5	51058	
	1	62109	
	5	62106	
	10	62110	
	25	62111	
	30	58067	
	50	50531	

TASTE & ODOR

<i>GAC Series</i> Granular Carbon Cartridge		23533	
<i>CBC Series</i> Carbon Block Cartridge		49775	
<i>RFC Series</i> Radial Flow Carbon Cartridge		44865	

20" x 4 1/2" FOR BIG BLUE HOUSINGS

SEDIMENT

<i>ST Series</i> Paper Cartridge	20	51239	
<i>CP Series</i> Pleated Cellulose Polyester Cartridge	5		
<i>R Series</i> Reusable Cartridge	30		
<i>WP Series</i> String Wound Cartridge	5	58068	

TASTE & ODOR

<i>NCP Series</i> Non Cellulose Pleated Cartridge		51473	
<i>GAC Series</i> Granular Carbon Cartridge		44956	
<i>CBC Series</i> Carbon Block Cartridge		-	
<i>RFC Series</i> Radial Flow Carbon Cartridge		61207	

SPECIALTY FILTERS AND CARTRIDGES



The Nice-N-Icy Filter is designed to remove unpleasant tastes and odors as well as sediment to produce cleaner, clearer, better tasting ice cubes and ice water. This granular activated carbon filter is easily installed on the water line to an automatic icemaker or water dispensing system.

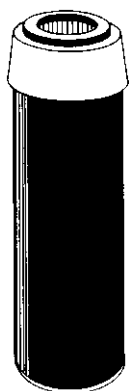
SIZE	DESCR	FIG. NO.	PRICE
2" X 6"	White granulated carbon	52359	
2" X 10"	White granulated carbon	55624	



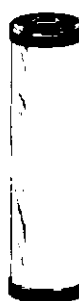
The PCC-1 Series Polyphosphate Cartridge contains a pure food grade phosphate that dissolves in water at a slow, controlled rate and imparts no taste or odor. The phosphate is highly effective at controlling rust and corrosion by forming a protective coating on the inside surface of piping and water heaters. Also, a small amount of soluble iron in a water supply may be treated, minimizing red water and iron staining. For use in standard 10" housing.

NOTE: This cartridge will not fit the SLIM LINE housings.

FIG. NO.	PRICE
28989	

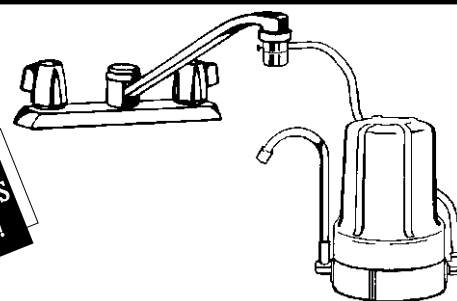


MIXED BED DEIONIZATION CARTRIDGES Due to the requirements of deionized water in many industries, we offer the PCF-Series mixed bed deionization cartridges. The FDA grade resin has been subjected to additional post-production steps to minimize the TOC (Total Organic Carbon) level. These high-capacity, semiconductor grade resin cartridges are ideal for use in pharmaceuticals, medical, laboratory, cosmetics, and circuit board printing applications. They may also be used in applications where water comes in contact with living organisms, such as fish breeding and potable water applications. and where low TOC and TDS (Total Dissolved solids) levels are required.



Hard Water/Iron Removal For those situations where you cannot install a large softener or filter, we offer cartridge filters to soften your water or to remove iron. These cartridges are filled with cation resin for softening or Manganese Greensand for iron removal.

SIZE	MEDIA	FIG. NO.	PRICE
SOFTENING			
9 3/4 x 2 1/2	Cation Resin	71472	
20 x 2 1/2	Cation Resin		
20 x 4 1/2	Cation Resin		
IRON REMOVAL			
9 3/4 x 2 1/2	Manganese Greensand	71594	
20 x 2 1/2	Manganese Greensand	47952	
20 x 4 1/2	Manganese Greensand	49811	



COUNTERTOP FILTER THE ECONOMICAL AND EASY-TO-INSTALL ALTERNATIVE FOR GREAT TASTING WATER! Portable, versatile and complete - each unit is individually boxed with diverter valve, supply line, dispenser faucet, base, sump and all fittings. All you add is the cartridge! (sink faucet not included).

*cartridge sold separately

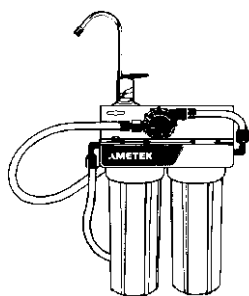
FIG. NO.	PRICE
48657*	

SIZE	FIG. NO.	PRICE
9 1/4 x 2 1/2	44957	
20 x 2 1/2	52300	
20 x 4 1/2	52301	

DUFF CO.

WATER TREATMENT

CHEMICAL CONTAMINANT FILTRATION SYSTEM



Effectively reduces DBCP, EDB, TCE, PCE, and THM;s. Also effectively reduces certain other chemicals from drinking water* -- plus sediment, taste and odor of chlorine, and other foul tastes and odors.

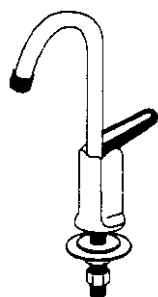
HERE'S HOW IT WORKS To achieve optimum chemical reduction, the flowing water must be in contact with the carbon for a prescribed length of time. A built-in flow controller allows for necessary contact time as water flows through our twin carbon cartridges. The carbon cartridges are effective through 1200 gallons of use, or about a full year for an average family. Our "Effective Life Indicator" monitors usage and automatically shuts off the water supply near 1200 gallons before the optimum effective life of the cartridges is exceeded, thus reminding the user to replace the cartridges.

*Must use 10" CC Series Cartridges

**System Comes with Cartridge

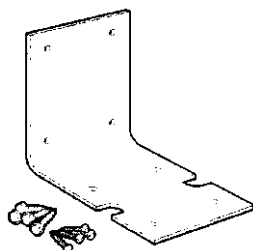
FIG. NO.	PRICE
25196	

ACCESSORIES



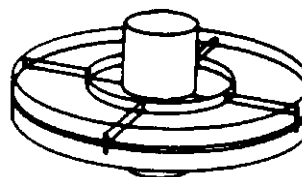
Touchflow Faucet

DESCR	FIG. NO.	PRICE
Std Reach	23543	
Long Reach	44091	



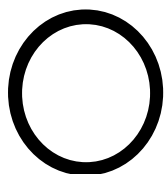
Bracket Kit

APPLICATION	FIG. NO.	PRICE
Standard Housing (3/4")	48418	
Big Blue	25968	
Slimline (3/8"-1/2")	44977	
2 Housing CCF & RO	44975	
3 Housing CCF & RO	44976	



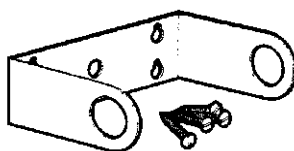
Cartridge Coupler

APPLICATION	FIG. NO.	PRICE
Std Cartridge	44866	
Big Blue Cartridge	47072	



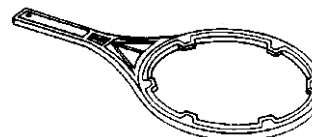
Buna O-Rings

APPLICATION	FIG. NO.	PRICE
10" or 20" Housing	9329	
Big Blue Housing	44970	
Slimline (3/8"-1/2")	44978	



3/4" U-Bracket Kit

FIG. NO.	PRICE
9328	



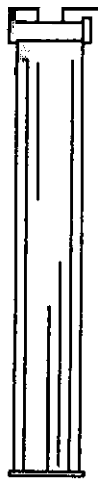
Wrench

APPLICATION	FIG. NO.	PRICE
Standard Housing (3/4")	23538	
Big Blue Housing	25807	
Slimline (3/8"-1/2")	47073	
Big Blue Sump Wrench	58904	

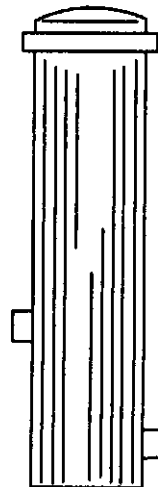
STAINLESS STEEL HOUSINGS AND MULTI-CARTRIDGE VESSELS

*Ideal for commercial and residential * Typical applications **
*Pharmaceutical * Food products * Photographic * Water * Compressed Air*
** Liquid Fuels * Paints * Petrochemicals * Schools * Restaurants **
*Farms * Institutions*

FIG. NO.	MODEL #	RATED CAP	MAX OPER PRESS	HGHT	DIA	# OF 10" CART	PIPE SIZE (npt)	SHIP WT
28986	ST-1	10 GPM	250	12-7/8"	4"	1	3/4"	7
43644	ST-2	15 GPM	250	22-3/4"	4"	2	3/4"	10 1/2
	ST-BC4	20 GPM	125 PSI	21"	10"	4	1 1/2"	20
	ST-BC8	56 GPM	125 PSI	31"	10"	8	2"	30
	ST-BC12	84 GPM	125 PSI	42"	10"	12	2"	40
	ST-BC16	110 GPM	125 PSI	52"	10"	16	2"	50
	ST-BC20	140 GPM	125 PSI	52"	10"	20	2"	50



ST SERIES



ST-BC SERIES

Above rated flow capacities based on sediment removal with a 25-micron rated filter cartridge for taste/odor removal. Standard housing gasket is Buna-N. Other materials on request. Prices do not include cartridges.

Cartridge lengths on SS housing only: 10"=9 3/4"; 20: = 19 1/2" 30"=29 1/4" 40"=39"

**Pressure rated to 300° F



Products for Quality Water

HARMSCO UP-FLOW CARTRIDGE FILTRATION

A Design So Superior It's Patented!

Harmsco's up-flow design out performs conventional filters! Fluid enters the filter under pressure and flows through the filter media, holes in the center tubes and perforations in the rods that hold the cartridges in place. As the fluid continues its path, it flow upward past the top seal where it spills over into the standpipe as it hits the filter's domed lid. The top of the standpipe is at the high point of the filter. Also, note the the filter cartridges are sealed at the bottom and held in place with threaded pipe caps.

UP-FLOW Stainless Steel Industrial "filter Housings

Cartridge filters (304 stainless steel, CPVC standpipes, CPVC cartridge holders and threaded caps)

Cartridge cluster filters (to remove entire set of cartridges at one time for cleaning or replacement)

***No Air Entrapment**

***No Vents**

***No Fluid By-Pass**

During Servicing

***Electro-Polished**

***Fail-Safe Lids**



Cartridge cluster filter with easy cartridge removal for cleaning or replacement.



	HIF-7	HIF-14	HIF-16	HIF-21	HIF-24
Flow rate (GPM)	Up to 30	Up to 60	Up to 75	Up to 90	Up to 105
No. of Std. Cartridges	7	14	16	21	24
Alternative cartridge	Single Only	7 doubles	8 doubles	7 triples	8 triples
Pipe size (Male NPT)	1 1/2"	1 1/2"	2"	1 1/2"	2"
Filter Height	19.5"	28"	28"	37"	37"
Floor Space Req'd	13"x13"	13"x13"	13"x13"	13"x13"	13"x13"
Service hght clearance	35"	48"	48"	68"	68"
Shipping wght (appx)	29 lbs.	39 lbs.	39 lbs.	50 lbs.	50 lbs.
Pressure rating	150 psi	150psi	150 psi	150 psi	150 psi
FIG. NO.	5 1 2 4 0	5 8 4 9 5	5 8 4 9 6	-	5 5 9 3 6

Large capacity filters with cartridge filters for easy cartridge removal

***Compact Design**

***Pressure Rated to**

150 psi



Large capacity filter with lifting rods to remove a single stack of cartridges at a time.



***Cartridge Cluster**

Filters

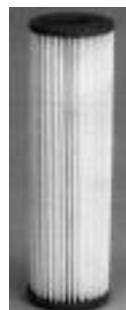
	HIF-42	HIF-75	HIF-100	HIF-150-FL	HIF-200-FL
Flow rate (GPM)	Up to 175	Up to 300	Up to 400	Up to 600	Up to 800
No. of Std. Cartridges	42	75	100	150	200
Alternative cartridge	14 triples	25 triples	50 doubles	50 triples	100 doubles
Pipe size (Male NPT)	2"	3"	3"	4" flanged	4" flanged
Filter Height	40"	42"	52"	48"	58"
Floor Space Req'd	18"x18"	20"x20"	20"x20"	28"x28"	28" x 28"
Service hght clearance	68"	70"	87"	76"	93"
Shipping wght (appx)	100 lbs.	129 lbs.	188 lbs.	274 lbs.	321 lbs.
Pressure rating	150 psi	150 psi	150 psi	150 psi	150 psi
FIG. NO.	6 9 9 3 5	6 6 8 6 7	-	-	-

NOTE: Wing-nuts standard for lid closure with no tools required. Filters rated for temperatures to 140°F (60°C) with standard Harmsco cartridges and 200°F (93°C) with high-temp cartridges. Limits vary and depend on pressure and time under load.

HARMSCO REPLACEMENT FILTER CARTRIDGES



NOMICAL MICRON	P R O D U C T C O D E					END CAP COLOR
	SINGLE/ REGULAR	FIG. NO.	SINGLE/ HIGH TEMP	DOUBLE	TRIPLE	
.035	801-0.35	66528	----	----	----	Brown
1	801-1	61568	801-1-HT	921-1	931-1	Tan
5	801-5	66529	801-5-HT	921-5	931-5	White
10	801-10	64139	----	921-10	931-10	Red
20	801-20	60464	801-20-HT	921-20	931-20	Blue
50	801-50	66530	801-50-HT	921-50	931-50	Yellow
100	801-100	51397	----	----	----	Green



WaterBetter™ FILTER CARTRIDGES WITH APPROXIMATELY FOUR SQ. FT. OF MEDIA PER 9 3/4" LENGTH - ECONOMICAL CARTRIDGES FOR ALL APPLICATIONS.

NOMICAL MICRON	P R O D U C T C O D E				END CAP COLOR
	SINGLE LENGTH	FIG. NO.	DOUBLE LENGTH	TRIPLE LENGTH	
1	WB-1	66533	WB-921-1	WB-931-1	Tan
5	WB-5	66534	WB-921-5	WB-931-5	White
20	WB-20	66535	WB-921-20	WB-931-20	Blue
50	WB-50	66536	WB-921-50	WB-931-50	Yellow

HARMSCO FILTER OPTIONS

Standard cartridge filters are available with the following options to meet your specific filtration applications.



HIGH TEMPERATURES: Filters with standpipes made of CPVC and special cartridges are available for high temperature applications to 200oF. Available for all standard models and 1,5,20 and 50 micron filter cartridges. (not available on Hurricane filters.)

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.



CHEMICAL RESISTANCE: Filters with high performance coatings are available for increased resistance to chemicals, abrasion and the environment. Fluoropolymer coating applied to all 304 stainless steel surfaces (inside and out.)



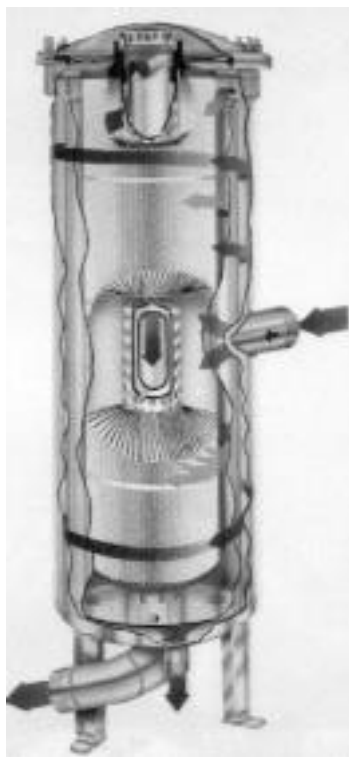
SWING-BOLT MODELS: heavy duty filters with swing-bolt closure and six eye-nuts for quick access to cartridge cluster for easy cartridge replacement or cleaning are available for sixteen and twenty-four cartridges. Rated for pressures to 150 psi.

THE REVOLUTIONARY HARMSCO HURRICANE

COMBINES THREE FILTRATION TECHNOLOGIES IN A SINGLE COMPACT DESIGN

CENTRIFUGAL SEPARATION TO REMOVE DENSE PARTICLES FROM LIQUIDS

Liquid enters the Hurricane filter's outer chamber tangentially, producing a rotational flow. This flow pattern creates a centrifugal force which is used to separate dense particles such as sand, rust, grit and metal filings from liquids. Heavy particles drop to the bottom of the filter's outer chamber where they are discharged manually, automatically or continuously. With the dense particles removed, liquid and light solids rise up, over and into an inner chamber where the rotational flow is continued.



UP FLOW CARTRIDGE FILTRATION AND ANGLES PLEATS FOR LIGHT-WEIGHT PARTICLE REMOVAL

Lighter solids are removed in the filter's inner chamber by a proprietary filter cartridge made with deep, angled pleats which are directed toward the liquid's rotational flow. As forces of the liquid collide with the cartridge, the pleats 'flutter' which distributes particulate evenly within the pleated area. Filter efficiencies are dramatically improved to provide longer filter runs and reduced filtration costs. Hurricane filter elements are available in a wide range of micron ratings and may be cleaned and reused in most applications and most micron rating.

THREE MODELS AVAILABLE

Three Harmsco Hurricane Filter models are available for a wide range of applications. Hurricane filters are rated for pressures to 150 psi, temperatures to 140°F and can separate solids in liquids with a pH of 3 to 11.

FEATURES AND SPECIFICATIONS

- *304 stainless steel filter housings
- *Electro polished for superior finish
- *Resistant coating available
- *Fail-safe lids with individual studs for security
- *Bronze wing-nuts for convenience
- *90° elbow and 45° sweep on outlet for in-line vertical installation
- *CPVC standpipe for up-flow design
- *Choice of cartridges not included



**FILTER AND
CARTRIDGE
SOLD
SEPARATELY**

	HUR-40-HP	HUR-90-HP	HUR-170-HP
Flow rate (GPM)	Up to 50	Up to 100	Up to 200
No. of Std. Cartridges	40	90	170
Alternative cartridge	2"	2"	2"
Pipe size (Male NPT)	1"	1"	1"
Filter Height	21"	31"	41"
Floor Space Req'd	13"	13"	13"
Service hght clearance	15"x15"	15"x15"	15"x15"
Shipping wght (appx)	31"	51"	72"
Pressure rating	40 lbs	51 lbs	64 lbs
FIG. NO.	6 0 7 1 5	6 7 4 4 8	-



HARMSCO HURRICANE REPLACEMENT CARTRIDGES

Made of pleated polyester for long life and high dirt capacity.

Cleanable and reusable in most applications; rated for 140°F.

FILTER NUMBER	CARTRIDGE NUMBER	MICRONS	FIG. NO.	PRICE
HUR-40-HP	HC-40-0.35	.35	60716	
HUR-40-HP	HC-40-1	1		
HUR-40-HP	HC-40-5	5		
HUR-40-HP	HC-40-20	20		
HUR-40-HP	HC-40-50	50		
HUR-40-HP	HC-40-100	100		
HUR-90-HP	HC-90-0.35	.35		
HUR-90-HP	HC-90-1	1		
HUR-90-HP	HC-90-5	5	74027	
HUR-90-HP	HC-90-20	20	67451	
HUR-90-HP	HC-90-50	50		
HUR-90-HP	HC-90-100	100		
HUR-170-HP	HC-170-0.35	.35		
HUR-170-HP	HC-170-1	1		
HUR-170-HP	HC-170-5	5	67748	
HUR-170-HP	HC-170-20	20		
HUR-170-HP	HC-170-50	50		
HUR-170-HP	HC-170-100	100		

BAG FILTERS

HARMSCO STAINLESS BAG FILTERS



Select Harmsco's high capacity BetterBag filters when more precise cartridge filtration is not required. Special features include electro-polished stainless steel, 18 gauge stainless steel basket to accommodate large #2 filter bag, easy wing nut lid closure and compact design. Models include:

PRODUCT CODE	DESCRIPTION	PIPE SIZE	MAX. FLOW RATE	SHIPPING WT.
BBHP	Stainless with CPVC standpipe	1 1/2"	100 GPM	50 lbs.
BBHP-SS	All stainless steel	1 1/2"	100 GPM	52 lbs.
BBHP-2	All stainless steel	2"	150 GPM	54 lbs.

FILTER BAG	MATERIAL	NOM.MICRON	FILTER BAG	MATERIAL	NOM.MICRON
HIF-PF-5	Polyester Felt	5	HIF-PP-50	Polypropylene	50
HIF-PF-25	Polyester Felt	25	HIF-PP-100	Polypropylene	100
HIF-PF-50	Polyester Felt	50	NMO-100	Nylon Mesh	100
HIF-PF-100	Polyester Felt	100	NMO-200	Nylon Mesh	200

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

BAG FILTERS

AMETEK PLASTIC BAG FILTERS



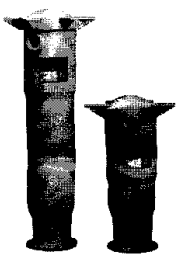
BAG FILTER HOUSINGS

DESCR	SIZE	FIG. NO.
10" Bag Vessel	1"	
10" Bag Vessel	1 1/2"	
20" Bag Vessel	1 1/2"	
20" Bag Vessel	1"	

FILTER BAGS

SIZE	MICRON	FIG. NO.	SIZE	MICRON	FIG. NO.
10"	1		20"	25	
20"	1		10"	50	
10"	5		20"	50	
20"	5		10"	100	
10"	10		20"	100	
20"	10		10"	200	
10"	25		20"	200	

HAYWARD ALL PLASTIC BAG FILTERS



BAG FILTERS. All bags filters feature a one piece, seamless, molded plastic body and have Viton seals.

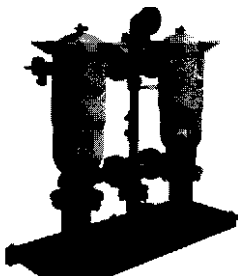
POLYPROPYLENE—Simplex bag filters use single length 7"x16" No. 1 bags or double length 7"x 32" No. 2 bags

SIZE	END CONNECTION	PART NO.	PRICE
Single Length	2" Threaded	FLT4201	
Single Length	2" Flanged	FLT4201F	
Double Length	2" Threaded	FLT4202	
Double Length	2" Flanged	FLT4202F	

**FILTERS
AND
BAGS SOLD
SEPARATELY**

PVDF WITH VITON SEALS

SIZE	END CONNECTION	PART NO.	PRICE
Double Length	2" threaded	FLT5202	



DUPLEX BAG FILTERS. Duplex bag filters do not have to be shut off for bag change out.

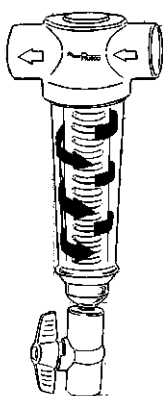
POLYPROPYLENE HOUSING WITH CPVC DIVERter VALVES

SIZE	END CONNEC- TION	PART NO.
Single Length	2" Flanged	FLT1DUP
Double Length	2" Flanged	FLT2DUP

REPLACEMENT FILTER BAGS. Hayward filter bags are manufactured from non-woven polypropylene felt. The bags are individually plastic wrapped and sealed to prevent contamination in shipping and handling. Sold in master cartons of 24 bags.

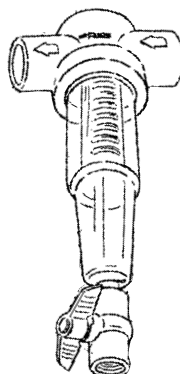
SINGLE LENGTH (7" x16") Filter Bags			DOUBLE LENGTH (7" x32") Filter Bags		
SIZE	PART NO.	PRICE	SIZE	PART NO.	PRICE
1 MICRON	FB331001		1 MICRON	FB332001	
5 MICRON	FB331005		5 MICRON	FB33205	
10 MICRON	FB331010		10 MICRON	FB332010	
25 MICRON	FB331025		25 MICRON	FB332025	
50 MICRON	FB331050		50 MICRON	FB332050	
100 MICRON	FB331100		100 MICRON	FB332100	
200 MICRON	FBM31200		200 MICRON	FBM332200	

RUSCO SPINDOWN SEDIMENT FILTERS



Clear cover is easily removed for total cleaning (no tools required) *
 Flow capacity for entire system
 Sediment is visible through clear cover indicating when the filter needs cleaning
 Sediment is quickly and easily removed by opening the optional ball valve at the bottom of the filter cover
 Reusable polyester and stainless steel filter screen in many mesh sizes
 No down time
 Made in USA
 *Using tools void warranty

RUSCO SPINDOWN SEDIMENT TRAPPER FILTERS



Unique element design traps sediment in lower reservoir of clear cover
 Clear bowl easily removed for total cleaning (no tools required) *
 Flow capacity for entire system
 Sediment is visible through the clear cover indicating when the filter needs cleaning
 No down time
 Optional ball valve allows for quick sediment removal from bottom of cover
 Centrifuge spin-down type sediment separation
 Reusable polyester and stainless steel filter screen available in many mesh sizes from very fine to very coarse
 *Using tools void warranty

SPINDOWN FILTER			SEDIMENT TRAP FILTER	
SIZE	FIG. NO.	PRICE	FIG. NO.	PRICE
3/4"	48478		83589	
1"	44243		44609	
1 1/2"	31887		83590	
2"	43711		83591	

SPINDOWN FILTER SCREENS			
SIZE	MESH	FIG. NO.	PRICE
1"	24	48477	
1"	40	50966	
1"	100	48458	
1"	140	50512	
1"	250	49384	
1"	500	44610	
1"	1000	44611	
1 1/2"	24	54011	
1 1/2"	100	49383	
1 1/2"	250	38062	
2	24	53252	
2	60	48827	
2	100	48480	
2	250	69438	
2	500	48479	

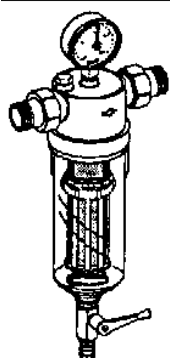
MATERIAL IN WATER	APPLICATIONS	USE MESH NUMBER
1. Shale, shell	General use	24
2. Debris	General use	24,30,40
3. Pipe scale, coarse sand	Sprinkler systems, faucet aerators, sand sensitive valve	40 to 60
4. Fine sand, grit from new wells	Drip irrigation systems, faucet aerators, sand sensitive valves	100 to 140
	Poultry growers watering devices (.010")	100(.006" opening)
5. Very fine sand and grit	Fogger nozzles	140 (.004" opening)
	Pre-treatment	250 to 500
	Pre-treatment ultra water systems RO, etc.	1000
6. Algae	Grows in presence of light under clear filter cover.	Use solid white filter cover



DUFF CO.

WATER TREATMENT

Honeywell Braukmann THE WORLD'S FINEST PREFILTER



- *Quick in-line cleaning without disassembly
- *No shut off required during backwash cycle
- *Built-in secondary filter provides an uninterrupted supply of filtered water during backwashing
- *Internal bypass construction eliminates stagnant water in seldom used bypass lines
- *Patented impeller cleaning system backwashes the filter with a 'pulsating' high pressure stream directed through the filter screen.
- *Flow and filtering capacity to service an entire plumbing system - not just a single fixture

TYPICAL APPLICATIONS

Private wells, municipal water, recreational home water, lake water, irrigation system, industrial process water, protection of sensors for pressure, flow, chemicals or temperature.

*Protection of solenoid valves, protection of water source heat pumps, precipitate removal from chemical water treatment systems, drinking fountains, soda vending machines, etc.

Each filter has double union threaded connections, with transparent sump, 100 micron screen, and pressure gauge. 104 deg. F, 230 psi maximum

SIZE	FIG. NO.	PRICE
1/2"	83579	
3/4"	83580	
1"	83581	
1 1/4"	83484	
1 1/2"	83585	
2"	80833	

LAKOS

SandMaster

HOW TO SELECT YOUR SANDMASTER MODEL

Each Sandmaster model operates best within a specific flow range. To determine your pump's actual flow rate:

If you have a valve between the pump and the pressure tank, open it fully and record the volume of water in one minute to determine gallons or liters per minute.

If you have no valve, follow these simple steps.

1. Immediately after your pump shuts off, open faucet between pressure tank and house (make sure no the water is running), run water into a container and record the **volume** (gallon or liters) of water it takes for pump to start up again. (you may have to refill container several times).
2. Record length of **time** (in minutes) pump runs before shutting off again.
3. Divide **volume** by **time** to determine actual flow rate (gpm or liters/minute).
4. Select your Sandmaster model accordingly.

US GGPM	SANDMASTER MODEL	FIG. NO.	INLET/OUTLET PIPE SIZE MALE, NPT	DIMENSIONS HEIGHT	DIAMETER
5-10	H20-5	64298	1/2 inch	19 3/8"	4 1/2"
10-20	H20-10	51394	3/4 inch	19 3/8"	4 1/2"
20-32	H20-20	60507	1 inch	24 3/4"	6"
30-48	H20-30	60508	1 1/4 inch	24 3/4"	6"
45-70	H20-45	52404	1 1/2 inch	24 3/4"	6"



ALL OTHER
LAKOS
PRODUCTS
READILY
AVAILABLE!





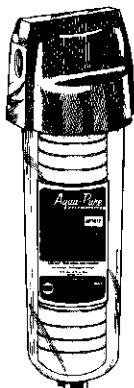
A DIVISION OF DUFF COMPANY
Products for Quality Water

WATER FILTRATION PRODUCTS

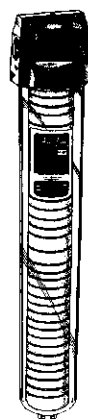
Aqua-Pure®
WATER FILTERS



AP101S
Dirt/Rust Water Filter.
With shut off valve in head.
Installs on incoming water line.



AP101T
Dirt/Rust Water Filter.
With shut off valve in head.
Installs on incoming water line.



AP102T
Dirt/Rust Water Filter.
For cold water use only.



AP11T
Dirt/Rust Water Filter.
For cold water use only.



AP11S
Dirt/Rust Water Filter.
For cold water use only.



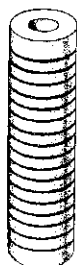
AP12T
Dirt/Rust Water Filter.
For cold water use only.



AP1610
Heavy Duty Water Filter.
Install on incoming water
line or under the sink.



AP2610
Dirt/Rust Water Filter.
Heavy Duty Water Filter.
Install on incoming water line
or under the sink.



AP110 H/C
AP111 H/C
AP124 H/C
Dirt/Rust Water Filter Cartridge



AP420
Blue Green Stain, Scale corrosion.
Water Filter Cartridge



AP430
Hot Water System Protector.



AP431
Hot Water System Protector.
Water Filter Cartridge



A DIVISION OF DUFF COMPANY
Products for Quality Water

WATER FILTRATION PRODUCTS

Aqua-Pure[®]
WATER FILTERS



AP51T
Dirt/Rust/Taste/Odor
Water Filter.
Installs under sink.



AP117
Taste/Odor
Water Filter.



AP217
Dirt/Rust, Taste/Odor
Water Filter. Cartridge.
For AP200.



AP200
Dirt/Rust, Taste/Odor
Water Filter.
Installs under sink.



AP500
Dirt/Rust, Taste/Odor,
Scale Inhibitor Water
Filter.



AP517
Dirt/Rust, Taste/Odor,
Scale Inhibitor Water
Filter Cartridge.



AP717
Ice Maker in Water Filter.



AP305
Dirt/Rust, Taste/Odor, Scale Water
Filter. Installs on vending machines,
coffee makers and fountains. Home
ice makers.



AP300
Dirt/Rust, Taste/Odor,
Scale Water Filter.



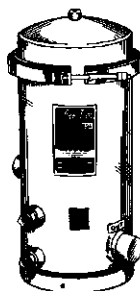
AP317
Scale Water Filter
Cartridge



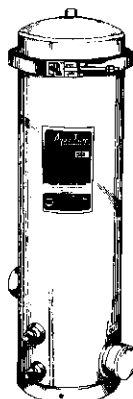
AP450
Scale Stopper Water Filter
Cartridge. Installs on water
using appliances.



AP617
Dirt/Rust, Taste/Odor,
Scale Inhibitor Water
Filter Cartridge.



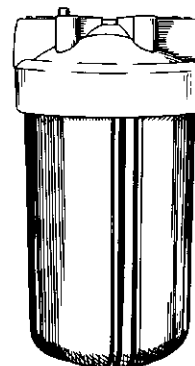
SS4
Commercial Duty
Filter System.



SS8
Commercial Duty
Filter System.



SS12
Commercial Duty
Filter System.



Wholehouse Filter
1" Connection



Dirt/Rust Water
Filter Cartridge



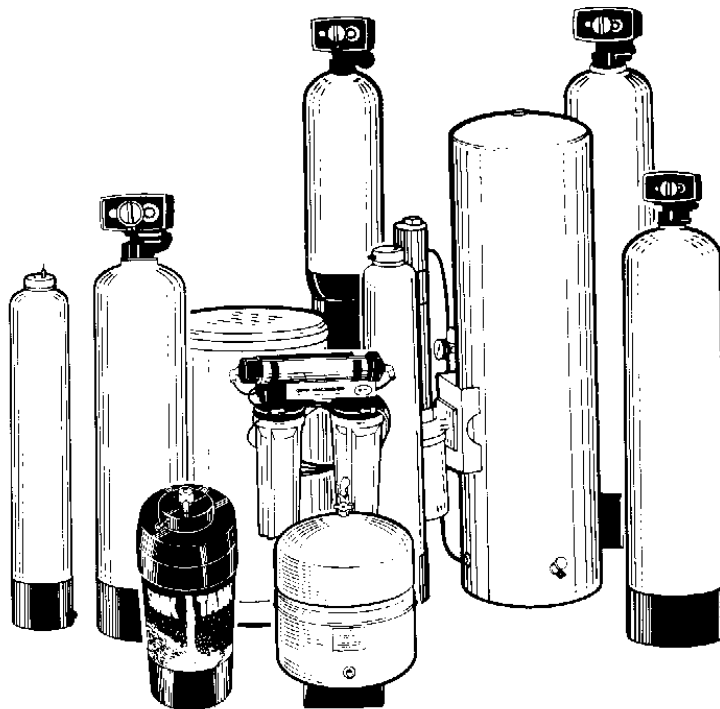
PRODUCTS FOR QUALITY WATER

**DROP BY DROP, IT ALL ADDS UP**

Since 1947, the family-owned and family operated Duff Company and its water conditioning division, DWC, have provided homeowners and business with more than just the cleanest, safest water possible; DWC has provided piece of mind.

Supplying quality products, service and technical support has earned DWC the trust of many corporations, industries and homeowners who use DWC water treatment systems. Offering a broad menu of services and systems in response to a variety of water needs, DWC delivers high-quality water with the product that fits your applications. DWC Products are distributed by professional dealers and contractors.

Enjoy cleaner, safer, fresher water right now, for less than you ever thought possible. Let DWC show you how, drop by drop, it all adds up.



SIZING WATER SOFTENERS/FILTERS

NOTE: To be used as a guide only, as conditions vary greatly.

COMPENSATED HARDNESS

When sizing water conditioning equipment, the hardness should be based on compensated hardness. Compensated hardness takes into consideration minerals and other factors that will reduce the softening capacity of a softener. These items cannot be picked up in a standard hardness test. To arrive at compensated hardness, multiply the figure on the right by the hardness in grains per gallon by your test that fit into the hardness category on the left.

YOUR TEST HARDNESS

MULTIPLY BY

1-20	1.1
21-40	1.2
41-70	1.3
71-100	1.4
100-Plus	1.5

Always determine BOTH (1) Flow Rate and (2) Capacity in Total Grains.

SPACE AVAILABLE FOR EQUIPMENT

Length _____ Width _____ Height _____ Entrance door size _____
 Stairs _____ Hall _____ Any obstructions in path of entry of equipment _____
 Floor strength to hold weight of equipment _____. Floor drain size (ability to handle backwash water) _____. Water available for backwash or equipment installed _____.

SCHOOLS

(Estimated @ 25 gallons per day per student)

NUMBER OF STUDENTS	100	200	300	400	500	800	1,000
Total water usage	2,500	5,000	7,500	10,000	12,500	20,000	25,000
Peak flow with flush valves	60	90	120	150	180	250	300
Peak flow with flush tanks	30	50	80	90	100	130	160
Hot water only gallons per day	600	1,200	1,800	2,400	3,000	4,800	6,000
Hot water only gallons per minute	15	23	30	40	50	60	70

APARTMENTS/TRAILER PARKS

(Central laundry included. Based on 3 people @ 60 gallons per day)

NUMBER OF UNITS	4	5	6	8	10	15	20	30	40	50	100
Total water usage gallons per day	720	900	1,000	1,440	1,800	2,700	3,600	5,400	7,200	9,000	18,000
Gallons per minute peak flow with flush tanks (no lawn sprinkling)	22	25	30	40	50	75	90	110	125	140	220
Hot water only gallons per day	240	300	360	480	600	900	1,200	1,800	2,400	3,000	6,000
Hot water peak flow gallons per minute	12	15	20	26	30	45	55	65	75	85	110

MOTELS(Not Hotels)

Figures are based on 40 gallons per person per day. 2 1/2 people per unit, each unit containing a bathroom group. Estimate water usage for restaurant or cocktail bar facilities separately.

NUMBER OF UNITS	10	20	30	40	50	75	100	125	150
Total water usage gallons per day	1,000	2,000	3,000	4,000	5,000	7,500	10,000	12,500	15,000
Peak gallons per minute with flush valve	65	90	109	128	145	180	210	240	270
Peak gallons per minute with flush tanks	26	43	55	65	75	105	130	152	172
Hot water only gallons per day (estimate 16 gallons per person)	400	800	1,200	1,600	2,000	3,000	4,000	5,400	6,000
Hot water only flow gallons per minute	17	25	36	43	48	62	73	85	96

WATER REQUIREMENTS OF OTHER ESTABLISHMENTS

**TO BE USED AS GUIDELINES ONLY

ANIMALS - GPD	EACH HORSE - 10 (add 5 in stables): EACH MILKING COW - 15 (add 15 with drinking cup): EACH DRY COW - 10 (with drinking cup add 10: EACH HOG - 3: EACH SHEEP - 2: EACH 100 CHICKENS in lighted henhouse - 5.
BEAUTY/BARBER SHOPS	200 gallons per day per operator.
BOILERS	To determine daily make-up in gallons: 1) multiply boiler horsepower by 4.25. 2) then multiply (1) by hours per day of operation; 3) then multiply by the percentage operating rating; 4) then subtract the percentage of condensate return.
CLUBS	Showers X 600 GPD. Lavatories X 150 GPD. Meals X 4 gallons.
COOLING TOWERS	To determine daily make up in gallons; 1) Multiply the tonnage by 4 (this includes 2 gallons per ton hour evaporation and 2 gallons per ton hour bleed off). 2) Then multiply (1) by the hours per day of operation.
DORMITORIES	Estimate 40 gallons per person per day total water usage. Estimate 16 gallons per person per day hot water only.
GOLF CLUB/ GYM/FACTORY	Showers X 1300 GPD. Lavatories X 150 GPD. Meals X 4 gallons. Factory-16 GPD per employee not including process.
HOTELS	350 GPD per guest room (hot and cold). Hot only 225 GPD per guest room
HOSPITALS	250 GPD per bed for total water usage. 170 GPD per bed for hot water only.
LAUNDRY (WASHATERIA)	Flow rate - divide capacity of machine by 2 gallons per cycle - multiply pounds of laundry by 2 1./2l Total daily usage - gallons per cycle X 2 loads per hour X hours of operation X number of machines
NURSING HOMES	75 GPD per bed for total water usage. 50 GPD per bed for hot water only.
OFFICE BUILDING	15 GPD per person for total water usage. 2 GPD per person for hot water only. NOTE: NON-MEDICAL.
OIL REFINERY	80,000 gallons per day per 100 barrels of crude processed.
PACKING HOUSE	6 GPD per hot to 12 GPD per steer slaughtered.
POULTRY PACKING	1 gallon per day per bird.
RESIDENCE	60 GPD inside usage per person. 100 GPD per person inside & outside.
RESTAURANTS	Estimate 10 GPD per person (total water usage) or estimate 4 GPD per person (hot only). Add 30% water usage for 24 hour restaurants, add 2 GPD per person for cocktail/bar facilities.
RO SOFTENING	GPD product + GPD reject X grains compensated hardness (see previous page) X 1.5 (to use minimum salt capacity) X 2 days per regeneration or twins).
SCHOOLS	With cafeteria and showers estimate 25 GPD per student (total water usage) or estimate 10 GPD per student (hot water only). With cafeteria, no showers, estimate 15 GPD per student (total water usage) or estimate 4 GPD per student (hot water only).
STOCKYARDS	160-200 gallons per acre total per day.
SUGAR REFINERY	1 gallon per pound of sugar.

FLOW RATES IN PIPES - NOMINAL TO PEAK		QUICK CHECK - FLOW RATE
1" = 16-30 gpm	3" = 120-270 gpm	Nominal flow rate of a pipe = D ² x 20 Diameter squared x 20 Twice the diameter x 4 times the flow
1-1/4" = 30-35 gpm	4" = 250-500 gpm	
1-1/2" = 40-70 gpm	6" = 500-1100 gpm	
2" = 65-120 gpm	8" = 1000-2000 gpm	
2-1/2" = 80-170 gpm	10" = 500-3000 gpm	

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

FLOW RATES USING FIXTURE COUNTS

Before recommending a softener it is important to determine soft water service flow requirements and volume in a given time period. Water meters are the best source for such data. Where meters are not used, flow rates and total requirements may be estimated using the basic information. After determining this information, a properly sized softening unit may be recommended.

Use FIXTURE UNIT TABLE and INTERMITTENT FLOW RATE TABLE for average and maximum flow rates in private and public buildings in gallons per minute. The unit flow rates are to be used when actual continuous and peak flow rates are not known.

The average rates may be used when line pressure less the conditioner pressure drop is at least 30 psi at the highest point of use in the building. [approximately 4 psi loss per story.]

The maximum rates are equal to the fixture count figures commonly used to size drains and are applicable especially in low water pressure areas where pressure drop is critical.

D E T E R M I N E F L O W R A T E

TYPE OF FIXTURE	UNIT FACTOR	
	PRIVATE	PUBLIC
Bar sink	1	2
Bathtub/shower	2	4
Bedpan Washer	-	10
Bidet	2	4
Combination sink and tray	3	-
Dental unit or cuspidor	-	1
Dental lavatory	1	2
Drinking fountain	1	2
House bibb or sill cock (std. type)	3	5
House trailer (each)	6	6
Laundry tub or washer	2	4
Lavatory	1	2
Lawn sprinkler (each head)	1	1
Kitchen sink	2	4
Sink, service (janitor's)	2	4
Sink or domestic type dishwasher	2	4
Sink (flushing rim, clinic)	-	10
Sink (washup, each set of fixtures)	-	2
Sink (circular spray)	-	4
Urinal (wall or stand)	-	5
Urinal (flush tank)	-	3
Water closet (toilet):		
Flush valve	6	10*
Tank Type	3	5*

NOTES:

- 1) For equipment not listed and likely to impose continuous demands (air conditioners, boilers, commercial dishwashers, etc.), estimate continuous supply and add to total flow rate for fixtures.
- 2) For fixtures not listed, unit factors may be estimated by comparing the fixture to listed one using water at a similar rate.
- 3) The given unit factors are for total demand for fixtures with both hot and cold water supplies. The unit factors for maximum hot water demand may be taken as 60% of the total unit factors.

DIRECTIONS:

- 1) Multiply the quantity of each type of fixture by its unit factor given in the UNIT TABLE.

PRIVATE-Apartments, trailers, homes, dorms, etc.

PUBLIC - Hospitals, motels nursing homes, schools, etc.

FIXTURE COUNT FACTOR	AVERAGE GPM	MAXIMUM GPM
5	4	5
10	6	8
15	8	12
20	10	15
25	12	18
30	14	21
40	17	25
50	20	29
75	24	37
100	31	44
150	40	56
200	50	65
250	58	75
300	65	84
350	72	93
400	79	110
450	85	120
500	91	130
600	103	150
700	114	165
900	124	180
900	134	200
1000	143	210
1200	162	240
1400	181	260
1600	198	285
1800	216	310
2000	240	330
2200	260	3545
2400	290	375
2600	300	395
2800	340	420
3000	380	440

- 2) Add the values found in step 1 to determine the total fixture units.

- 3) Determine flow rates required from INTERMITTENT FLOW RATE TABLE Example-School (public)

TYPE OF FIXTURE	QTY	UNIT FACTOR	TOTAL
Water closet (toilet)			
flush vlv	15	10	300
Lavatory	15	2	30
Shower	5	4	20

TOTAL UNITS = 350

Flow rate (from table) average - 72 gpm; max - 93 gpm

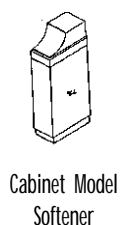
SOFTENERS - AUTOTROL CONTROLS (255 OR 168)

Standard Softener

MODEL #	SOFTENER	TIME CLOCK MODEL		METERED MODEL	
		FIG. NO.	PRICE	FIG. NO.	PRICE
DWC16	16,000 grain	40913		39948	
DWC24	24,000 grain	40740		39949	
DWC32	32,000 grain	40741		40864	
DWC48	48,000 grain	40742		39950	
DWC64	64,000 grain	40743		39951	
DWC96	96,000 grain	34086		-	
DWCC16*	16,000 grain	39947		69721	
DWCC24*	24,000 grain	40737		53080	
DWCC32*	32,000 grain	40738		50459	

FLECK CONTROLS (5600)

MODEL #	SOFTENER	TIME CLOCK MODEL		METERED MODEL	
		FIG. NO.	PRICE	FIG. NO.	PRICE
DWC16F	16,000 grain	42856		42857	
DWC24F	24,000 grain	42859		42861	
DWC32F	32,000 grain	42862		42864	
DWC48F	48,000 grain	42865		42867	
DWC64F	64,000 grain	42868		42869	
DWC96F	96,000 grain	42872			
DWCC16F*	16,000 grain	42874			
DWCC24F*	24,000 grain	42875			
DWCC32F*	32,000 grain	42876			

SOFTENER SPECIFICATIONS**RESIDENTIAL DWC SOFTENER -AUTOTROL (255 OR 168) OR FLECK (5600) CONTROLS**

Cabinet Model Softener

MODEL #	DWC 16	DWC 24	DWC 32	DWC 48	DWC 64	DWC 96
Max. Cap. (grains per day)	16	24	32	48	64	96
Min. Cap (grains per day)	10	16	22	32	43	64
Salt (Max)	8	12	16	24	32	48
Salt (Min)	3	5	6.5	10	13	19
Mineral Tank Size	7x44	7x44	8x44	10x54	12x52	14x65
Brine tank Size	18x33	18x33	8x33	18x33	18x40	24x41
Salt Storage (lbs.)	300	300	300	300	400	500
Service Flow Rate C/P (GPM)	7/9	10/13	9/11	10/13	10/13	10/13
Backwash Flow Rate (GPM)	2	2.5	2.5	3	5	5
IPS Pipe Size	3/4"	3/4"	3/4" or 1"	3/4" or 1"	3/4" or 1"	3/4" or 1"
Max. Height	54"	54"	54"	64"	62"	75"
Floor Space Required	28x33	28x33	29x33	31x33	33x40	41x41
Approx. Ship Weight	75	100	110	130	190	220

C=Continuous Peak P=Peak

* Cabinet Models

For additional information call: 610-275-4453 or Fax: 610-279-6299

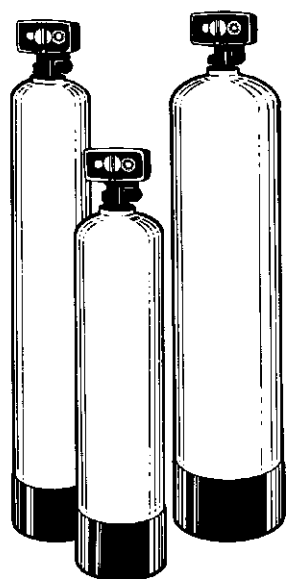
Please call for current prices.



PRODUCTS FOR QUALITY WATER

AUTOMATIC BACKWASHING FILTERS

DWC FILTERS ELIMINATE SPECIFIC PROBLEMS IN YOUR WATER SUPPLY.



DWC filters are used to treat a wide variety of water problems, though no single filter can cure all of them. The filter media is selected to address the specific problems found in your water. Various media can eliminate staining, objectionable tastes and odors. Some water borne contaminants are invisible, odorless, and tasteless but can be removed by an activated carbon filter.

DWC automatic filters are like having a silent sentry on duty 24 hours a day. These units stop sediment, rust, acid, odors and unpleasant tastes, and backwash automatically to get rid of undesirable contaminants. In most cases, the homeowner does not have to change filter cartridges or remember to initiate any activity.

SYMPTOM	POSSIBLE CAUSE	FILTER MEDIA
Rust Stains	Iron	KDF-85, Greensand, Birm, Pyrolox
Black Stains	Manganese	Manganese Greensand
Green Stains	Acidic Water	Neutralizing crushed marble
Taste & Odor	Chlorine	Activated Carbon (coarse)
Rotten Egg Odor	Hydrogen Sulfide	KIDF-85 or Greensand
None	VOCs	Activated Carbon (Fine)
None	Benzene	Activated Carbon (Fine)
None	Aldicarb	Activated Carbon (Coarse)
Clogged Aerators	Sediment	Multi Media Bed
Taste & Odor	Organics	Activated Carbon
Taste	Lead	Activated Carbon
Taste	Mercury	Activated Carbon
Taste	Acrylamide	Activated Carbon
Color	Turbidity	Carbon & Multi Media Bed
Smell	Carbon Tetra Chloride	Activated Carbon
None	Trihalomethanes	Activated Carbon
None	Dichloromethane	Activated Carbon



DWC BACKWASHING FILTERS ACID NEUTRALIZERS AUTOTROL 163 HEADS



(NEUTRALIZERS HAVE DOME HOLES/MEDIA NOT INCLUDED)

DESCRIPTION	DAN34	DAN1	DAN112	DAN2	DAN3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.9	3.2	3.2	4.7	5.5
Backwash Flow Rate	5.4	5.4	5.4	7.8	9.2
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	133	157	207	251	400
FIGURE NUMBER	40896	40865	40867	40868	40869
Price					

ACID NEUTRALIZERS WITH FLECK 5600 FILTER VALVE

DESCRIPTION	DAN34F	DAN1F	DAN112F	DAN2F	DAN3F
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.9	3.2	3.2	4.7	5.5
Backwash Flow Rate	5.4	5.4	5.4	7.8	9.2
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	133	157	207	251	400
FIGURE NUMBER	42849	42844	42845	42847	42848
Price					

BIRM (IRON) UNITS WITH AUTOTROL 163 VALVE

DESCRIPTION	DAB34	DAB1	DAB112	DAB2	DAB3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.1	2.1	2.5	3.1	3.7
Backwash Flow Rate	6.5	6.5	6.5	7.8	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	95	107	132	151	250
FIGURE NUMBER	39975	39976	39978	39979	39980
Price					

BIRM (IRON) UNITS WITH FLECK 5600 VALVES

DESCRIPTION	DAB34F	DAB1F	DAB112F	DAB2F	DAB3F
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.1	2.1	2.5	3.1	3.7
Backwash Flow Rate	6.5	6.5	6.5	7.8	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	95	107	132	151	250
FIGURE NUMBER	42825	42820	42821	42823	42824
Price					

For additional information call: 610-275-4453 or Fax: 610-279-6299

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Please call for current prices.

DWC BACKWASHING FILTERS GREENSAND UNITS WITH AUTROL 168FA

DESCRIPTION	DAG34	DAG1	DAG112	DAG2	DAG3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.2	2.2	2.7	3.8	4.6
Backwash Flow Rate	5	5	5.5	7.9	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	128	152	202	246	395
FIGURE NUMBER	39987	40887	40888	40021	39991
Price					

GREENSAND UNITS WITH FLECK 5600 VALVES

DESCRIPTION	DAG34F	DAG1F	DAG112F	DAG2F	DAGF3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.2	2.2	2.7	3.8	4.6
Backwash Flow Rate	5	5	5.5	7.9	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	128	152	202	246	395
FIGURE NUMBER	43419	43420	43422	43423	43424
Price					

POTASSIUM PERMANGANATE FEEDER

Potassium Permanganate Feeder

For drawing chemicals into a Manganese Greensand bed for cleaning. Can also be used for Chlorine draw into a Pyrodox bed.

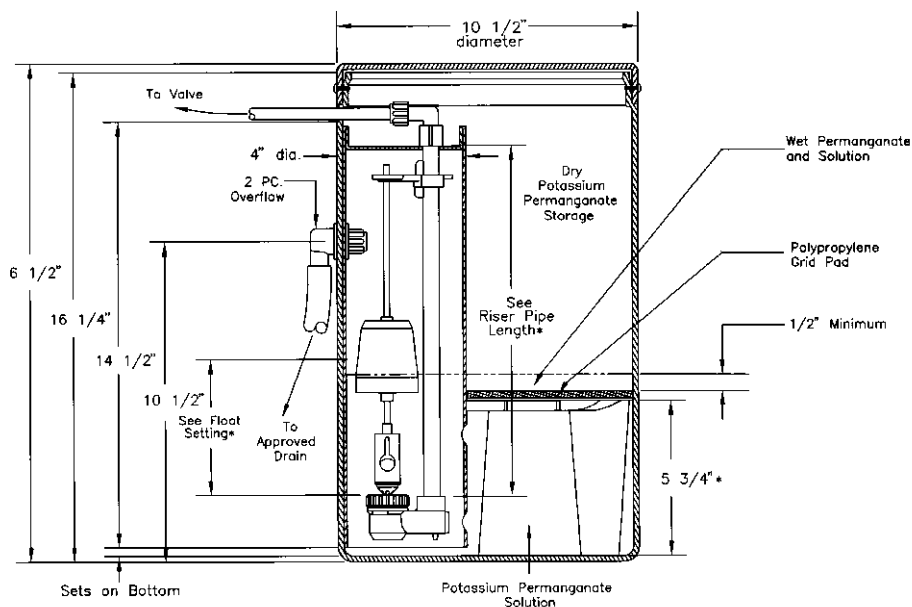


FIG. NO.	OZ. OF POTASSIUM PERMANGANATE	POLYTUBE ELBOW SIZE	GALLONS OF SOLUTION	FLOAT SETTING	RISER PIPE LENGTH	PRICE
40886	4 Oz.	3/8"	1	4"	12 1/2	

DWC BACKWASHING FILTERS
FILTER AG UNITS WITH AUTOTROL HEADS
 (SEDIMENT UNIT)

DESCRIPTION	DAF34	DAF1	DAF112	DAF2	DAF3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	21	2.1	2.5	3.1	3.7
Backwash Flow Rate	6.5	6.5	6.5	7.8	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	95	107	132	151	250
FIGURE NUMBER	39969	40882	39972	40883	40884
Price					

FILTER AG UNITS WITH FLECK 5600 VALVES

DESCRIPTION	DAF34F	DAF1F	DAF112F	DAF2F	DAF3F
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.1	2.1	2.5	3.1	3.7
Backwash Flow Rate	6.5	6.5	6.5	7.8	9.3
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	95	107	132	151	250
FIGURE NUMBER	42837	42832	42833	42835	42836
Price					

ACTIVATED CARBON UNITS AUTOTROL 163

DESCRIPTION	DAC34	DAC1	DAC112	DAC2	DAC3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.2	2.2	2.7	3.9	4.6
Backwash Flow Rate	5	5	5	7	9
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	79	90	105	117	194
FIGURE NUMBER	39953	40895	40874	25227	40875
Price					

ACTIVATED CARBON UNITS FLECK 5600 VALVES

DESCRIPTION	DAC34F	DAC1F	DAC112F	DAC2F	DAC3F
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.2	2.2	2.7	3.9	4.6
Backwash Flow Rate	5	5	5	7	9
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	79	90	105	117	194
FIGURE NUMBER	42831	42826	42827	42829	42830
Price					

DWC UPFLOW FILTERS



- *USE NO ELECTRICITY
- *SAVES WATER - NO BACKWASHING
- *NO DRAIN REQUIRED
- *SIMPLE TO INSTALL
- *ADJUSTS PH OF ACID WATER WITHOUT EXTRA PUMPS
- *EASY MEDIA REPLENISHMENT
- *MUST BE USED ON CLEAN WATER - DIRT WILL FOUL THE BED



Products for Quality Water

DWC UPFLOW FILTERS ACID NEUTRALIZERS

DESCRIPTION	DUN34	DUN1	DUN112	DUN2	DUN3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.9	3.2	3.2	4.7	5.5
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	130	154	201	247	396
FIGURE NUMBER	39963	40880	40881	39967	39968
Price					

DUN Series Upflow Neutralizers virtually eliminate the possibility of media bed "cementing" because the water to be treated actually "upflows" through the neutralizer media bed! This procedure requires NO electricity or backwashing. All fill cap in the media tank top permits easy replenishment of the "sacrificial" neutralizing media.

UPFLOW CARBON UNITS

DESCRIPTION	DUC34	DUC1	DUC112	DUC2	DUC3
Mineral Tank Size	10x35	10x40	10x54	12x52	13x54
Service Flow Rate	2.2	2.2	2.7	3.9	4.6
IPS Pipe Size	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1	3/4 or 1
Maximum Height	47	52	66	64	66
Approximate Ship Weight	76	87	102	114	190
FIGURE NUMBER	39957	39958	40879	39961	38066
Price					

FILTER APPLICATIONS

	Backwash** Flow Rate gpm/ft. ² (ml/min/cm ²)	Service Flow Rate gpm/ft. ² (ml/min/cm ²)	Recommended Bed Depth inches (cm)	Bed Expansion/ Freeboard as % Bed Depth	Weight lbs./cu. ft. (grams/liter)	Regenerant Required per cu. ft. (m ³)	ph Range
Manganese Greensand for Iron Removal	8 - 12 (33 - 49)	5 (20)	30 (76)	35 - 50%	85 (1,362)	2 - 4 oz. KMnO ₄ (1.6 - 3.2 grams)	7.0 or higher
Regular Birm* for Iron Removal	10 - 12 (41 - 49)	5 (20)	30 - 36 (76 - 91)	35 - 50%	48 (769)	None	7.0 or higher
Activated Carbon for Taste & Odor Removal	8 - 10 (33 - 41)	5 (20)	30 (76)	35-50%	33 (529)	None	Wide Range
Filter - Ag. for Sediment (Turbidity) Removal	8 - 10 (33 - 41)	5 (20)	24-36 (61 - 91)	50%	25 (401)	None	Wide Range
Filter Sand for Sediment (Turbidity) Removal	12 - 15 (49 - 61)	3 - 5 (12 - 20)	24 - 30 (61 - 76)	35 - 50%	100 (1,602)	None	Wide Range
	Sand is also used for High Rate Sand Filters with Service Rates of 15-20 gpm/sq. ft. and backwash at the same rate.						
Calcite for Ph correction	8-12 (33-49)	3-6 (12-25)	24-30 (61-76)	35%	100 (1,602)	None	5-6.5
MTM for down manganese and Hydrogen Sulphur removal	8-10 (33-41)	3-5 (12-20)	24-36 (61-91)	50%	27 (432)	1.5-2 oz. (1.25-1.6 grams)	6.5-9.0
Corosex for Ph correction	8-12 (33-49)	5-6 (20-24)	24-30 (61-76)	35%	100 (1,602)	None	4-6Ph

BRASS BY-PASS VALVES

HOUSE PORTS ON 1.875" CENTERS

EQUIPMENT PORTS ON 3" CENTERS

FIG. NO.	DESCRIPTION	PRICE
43535	3/4 CopxCop Bypass	
57772	3/4 SlipxThrd Bypass	
57773	1 SlipxThrd Bypass	
51699	1 CopxCop Bypass	
47622	3/4 ThrdxThrd Bypass	
64348	3/4 CopxAutotrol Bypass	
64349	1 CopxAutotrol Bypass	
34090	Thrd Manual Filter Valve	
47784	Thrd Bypass Vlv 7700112	
53555	Thrd Bypass Stem 0790061	

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

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FILTRATION MEDIA

ACTIVATED CARBON A **coarse grade** of carbon used in chlorine and taste & odor removal by adsorption. The 8 x 30 mesh size allows treatment with the least amount of flow loss, and filters particles 40 micron and higher.

ACTIVATED CARBON A **fine grade** of high quality carbon used for taste, odor, chlorine and organics removal, including VOCs. The 12 x 40 mesh size traps particles 30 micron and higher.

KDF-55 A bi-metal, copper-zinc, material used in chlorine, and heavy metal removal as well as the removal of corrosion and microorganisms. Chlorine is changed by the exchange of electrons and heavy metals bond to the media. Use in pH range of 6.5-8.5 and TDS greater than 150 ppm. KDF can control bacteria, algae, mold and fungi growth. When used with activated carbon, KDF 55 extends the life of the carbon media.

KDF-85 A bi-metal, copper-zinc, material used in iron and hydrogen sulfide removal. Iron is reduced and hydrogen sulfide is oxidized in this oxidation/reduction process. KDF can control bacteria, algae and fungi growth.

CENTAUR CARBON Centaur 12x40 is a liquid phase virgin activated carbon that has been manufactured from bituminous coal to promote catalytic reactions. Centaur can be used for the promotion of oxidation, reduction, decomposition, substitution and emanation reactions.

CALCITE Acidic waters on contact with calcite slowly dissolve the calcium carbonate media to raise the pH which reduces the potential leaching of copper, lead and other metals found in typical plumbing systems. Periodic backwashing will prevent packing and maintain high service rates. As the Calcite's calcium carbonate neutralizes the water, it will increase hardness and a softener may become necessary after the neutralizing filter.

COROSEX By neutralizing the free carbon dioxide in water, Corosex can correct red water conditions and render it to a non-corrosive condition. Corosex, being a reactive magnesium oxide, is used most effectively where pH correction is substantial or high flow conditions are in use. Corosex, being soluble to acidity, will have to be replenished periodically. Corosex can be effectively combined with Calcite to combine the high flow neutralization properties of Corosex, along with the slower reacting low flow properties of Calcite reducing potentially high basic properties due to overcorrection.

MANGANESE GREENSAND A gluttonite greensand that is a catalytic material, capable of removing iron, manganese, and hydrogen sulfide. This media must be regenerated intermittently with potassium permanganate or continuously with chlorine or a chlorine potassium permanganate mixture.

BIRM Birm is a light weight catalyst filter material used in iron and manganese removal. When sufficient dissolved oxygen is present, naturally or by air induction, an oxidizing reaction will take place. The oxidized iron or manganese is then filterable by the filter material. Birm is a plastic bead coated with naturally occurring manganese oxide.

PYROLOX Works on the principal of catalyst reaction for the removal of iron, hydrogen sulfide and manganese. Sufficient oxygen must exist in the water, naturally or by air induction. This media does not require regeneration but is a heavy material that requires vigorous backwashing on a daily basis.

MULTI-MEDIA Multi-media is reverse graded layers of filter media including anthracite, sand, garnet, and gravel. The largest and lightest material is on the top, trapping the largest particles. In descending order the next heaviest and smaller media traps the next largest particles, and so on until the smaller particle is trapped in the bottom layer. This process allows for higher flow rates and filtration down to 10 micron sized particles. Good for sediment, turbidity, and red water iron.

FILTER-Ag Filter-Ag granuals have irregular surface characteristics affording maximum removal of suspended matter through-out the filter bed. Filter-Ag can be applied to systems designed for either pressure or gravity flow. Filter-Ag has many outstanding advantages over the more common granular filter medias used for suspended solids removal. A substantial saving can be realized, when designing a system using Filter-Ag, because equipment can be smaller, requiring less square foot area. Filter-Ag is lightweight a substance with means additional saving in backwash rates. Filter-Ag typically removes the normal suspended solids, down to the the 20-40 micron range.

GRAVEL Gravel is used as a support to keep smaller medias out of the distribution system and to stop channeling of water. Minimum layers of 3" per size is suggested. A high proportion are rounded and tend toward a spherical shape.

SAND 99% of the water purified in the world today is accomplished by passing the water through "rapid sand filters". Theoretically the upper layer of the bed performs the filtration, while the lower layers provide the necessary support and assist in the hydraulics involved during the backwash cycle. The chemical and physical properties are important. The media must be hard, not smooth, and free of soluble particles.

GARNET Garnet is a naturally hard, durable, high specific gravity mineral. Resistance to attrition means less loss of media and shutdown time. High specific gravity means more control during backwash and lower losses to drain. The angular shape provides more ability to filter and longer production runs.

ANTHRACITE The use of anthracite coal as a filter media predates the 1930's. This is a particular hard coal product which is produced from selected Pennsylvania coals. These coals are not readily found and have low ash and friability while being high in anthraxylor. After selection, the coal is cleaned (reduction in ash content), screened and classified to the proper sized for water filtration purposes. The advantages in use versus silica and quartz sands and gravels are: longer runs between backwashes, higher flow rates without headloss, lower backwash water pressures and/or quantities, a greater utilization of the bed mass for filtration, and a volumetric higher surface area.

F I L T R A T I O N M E D I A S E L E C T I O N C H A R T							
FIG. NO.	DESCRIPTION	SIZE	PRICE	FIG. NO.	DESCRIPTION	SIZE	PRICE
51447	Activated Carbon (course grade)	1 cu. ft.		66341	Multi Media Pack for 18" tank	18" tank	
65382	Acid Wash Carbon	2 cu. ft.		51467	Multi Media Pack for 21" tank	21" tank	
50533	CPG Acid Washed Carbon	2 cu. ft.		48981	Multi Media Pack for 24" tank	24" tank	
47828	Filtersorb 300 8-30 mesh	2 cu. ft.		53052	Multi Media Pack for 30" tank	30" tank	
51593	Filtersorb 400 12040 mesh	2 cu. ft.		51973	Multi Media Pack for 36" tank	36" tank	
59967	Activated Carbon (fine grade)	1 cu. ft.		52221	Multi Media Pack for 48" tank	48" tank	
61672	KDF 55	1 cu. ft.		51448	Filter Ag	1 cu. ft.	
63853	KDF 85	1 cu. ft.		58206	Gravel 3/16 x #10	50 lb.	
51396	Centaur Carbon	1 cu. ft.		58205	Gravel 1/4 x 1/8	50 lb.	
47946	Calcite	50 lb.		58208	Gravel 1/2 x 1/4	50 lb.	
67851	Thomasville Lime	50 lb.		58209	Gravel 3/4 x 1/2	50 lb.	
52544	Limestone Chips	50 lb.		51777	Gravel 1-1/2 x 3/4	100 lb.	
47949	Georgia Marble XO White	50 lb.		40885	Sand #2	100 lb.	
51465	Georgia Marble 2 Grade	100 lb.		45173	Sand #3	100 lb.	
47947	Corosex I	50 lb.		45174	Sand #4	100 lb.	
51196	Corosex II	100 lb.		58204	Sand #5	50 lb.	
51449	Manganese Greensand	1 cu. ft.		60649	Garnet #8	100 lb.	
39849	Birm	1 cu. ft.		51458	Garnet #80-12	100 lb.	
44616	Fine Mesh Birm	1 cu. ft.		51445	Garnet #20	100 lb.	
45189	Pyrolox	50 lb.		51459	Garnet #30-40	100 lb.	
50321	Multi Media Pack for 10" tank	10" tank		51947	Anthracite #1	1 cu. ft.	
50317	Multi Media Pack for 13" tank	13" tank		51460	Anthracite #2	1 cu. ft.	
51626	Multi Media Pack for 14" tank	14" tank					
50631	Multi Media Pack for 16" tank	16" tank					

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

COMMERCIAL WATER SOFTENERS**1. DAY CLOCK REGENERATION**

- a. 7 and 12 day regeneration cycles available.
- b. Standard regeneration time 2:00 am - this can be altered with new 24 hour label.
- c. Twin systems with clock regeneration usually will have staggered regeneration times (Min. 3 hour difference).
- d. Twin clock systems come standard with hard water by-pass during regeneration. systems can be designed with no hard water by-pass.
- e. Single or twin systems must be designed for minimum 1 day capacity. (Note - special systems with multiple regenerations per day are available - consult Duff Co.)
- f. Clock type systems are best suited where water consumption is constant on a day-to-day or peak demand days are predictable on the same day(s) each week.
- g. Twin systems usually are used when high peak flows are needed.

2. WATER METER INITIATED

- a. 5 Basic Metered Systems:
 - 1) 1 tank-1 meter - immediate regeneration - hard water by-pass during regeneration has no bearing on system. No reserve capacity required.
 - 2) 1 tank-1 meter - delayed regeneration - hard water by-pass during regeneration must be at low usage time. 1 day capacity reserve required.
 - 3) System #5-2 tanks-2 meters - Both units in service at the same time; only 1 unit can regenerate at a time (lock out). Can be designed with immediate or delayed regeneration, hard water by-pass or no hard water by-pass. Delayed regeneration should have a 1 day reserve.
 - 4) System #6 - 2 tanks-1 meter - both units in service at the same time. Once meter zeroes out, #1 unit regenerates, then #2 regenerates. (Series regeneration). Can be designed with immediate or delayed regeneration should have a 1 day reserve.
 - 5) System #7-2 tanks - 1 meter - One unit in service, one unit fresh and ready on standby, (also referred to as Alternators). Systems are usually designed with no hard water by-pass and with immediate regeneration. 3 hour meter reset reserve capacity needed.

System #7 may be ordered as a tri-plex or quadplex. This will allow 2 or 3 units to be in service at all times, with 1 unit on standby. The systems are of particular value when access to the location of installation is limited. Also, these will afford much greater flow rates, without the expense and handling of very large tanks.

- b. Metered systems are best suited for erratic, unpredictable water usages. Twin systems both in service at the same times are usually used when high peak flows are needed. Alternator systems are used where soft water must be available at all times.

DWC TRAINING INFORMATION

AN INFORMATION LIST FOR COMMERCIAL SIZING

1. Always measure the installation area and pathway to the area.
2. What is water temperature? _____
3. Where is drain and is it sufficient to handle the drain flow?
4. Is there a uninterrupted source of electric? Confirm voltage.
5. What is the pipe size of the system? _____
6. What is the water going to be used for? _____
7. What is the desired quality of the product water? _____
8. Where is the water being supplied from? _____
9. What is the operating pressure of the system? _____
10. What hours will the system be needed? _____
11. What will be the estimated water usage in the timed listed above?

12. Do they look to expand this system in the future? _____
13. What will be the required continuous flow rate required? _____
14. What will be the required peak flow rate? _____
15. From the water analysis determine the compensated hardness.
_____ GPG
16. From the water analysis what is the Total Dissolved Solids?
TDS _____ PPM

First determine how much resin will be needed. If possible a system should last 24 to 72 hours between regeneration. From above take the estimated water usage from line 10 _____ x the compensated hardness on line 13 _____ = total grains required per day _____. Then multiply by days between regeneration x _____ = total grains required each regeneration _____.

Example: usage _____ x hardness _____ = total grains per day _____
x days between _____ = grains per regeneration.

Next determine desired salting level keeping in mind there will be some hardness leakage at lower salting levels. (Always consult resin specifications and be sure the water quality will meet the customer's requirements inline 6.)

Select a salting level @ _____ pounds per cubic ft. Next locate on the capacity charge the total grains per regeneration required from above in the desired salting level column to find the resin volume needed in cu.ft. _____.

Example: at _____ lb. per cu ft it will require _____ cubic feet of resin to meet the demand. Now we can select our system.

What type of system will be needed to supply the needs of your customer.?

DWC COMMERCIAL SOFTENERS

FEATURING THE AUTOTROL MAGNUM VALVE

DESCRIPTION	DWC150 942	DWC180 942	DWC210 942	DWC240 942	DWC300 942	DWC360 942	DWC450 942	DWC600 942
Pipe Size	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Tank Size	18x65	20x62	20x62	24x60	24x72	30x72	30x72	36x72
Resin Cu. Ft.	5	6	7	8	10	12	15	20
Gravel	50	75	75	100	100	150	200	300
Brine Tank Size	24x41	24x41	24x41	24x41	24x50	24x50	30x48	39x48
Salt Fill	500	500	500	500	600	600	900	900
Max Capacity	150,000	180,000	510,000	240,000	300,000	360,000	450,000	600,000
Min Capacity	100,000	120,000	140,000	160,000	200,000	240,000	300,000	400,000
Lbs. Per Reg - Max	75	90	105	120	150	170	225	300
Lbs. Per Reg - Min	30	36	42	48	60	75	90	120
Flowrate Service	43	52	52	62	62	65	70	82
Flowrate Backwash	11	13	13	15	15	18	25	35
Fig. No.	75754	75756	75758	75760	75762	75765	75767	75769
Price								

THE MAGNUM CV

Mechanical or electronic timer options make Magnum one of the most versatile commercial and industrial valves available today. Standard 12-volt operation makes installation easy.

Camshaft driven pilot flapper valves control the diaphragm cartridges.

A pilot filter screen keeps the pilot ports and lines clean and free of debris

An optional pressure regulator maintains regeneration pressure for countercurrent or co-current systems subject to major pressure fluctuations.

Matched set flow controls for 16 to 36 inch tanks makes for easy selection of flow components.

Hard water bypass is available factory installed or as an easy field upgrade.

A variety of pipe adapters make it easy to connect to the system.

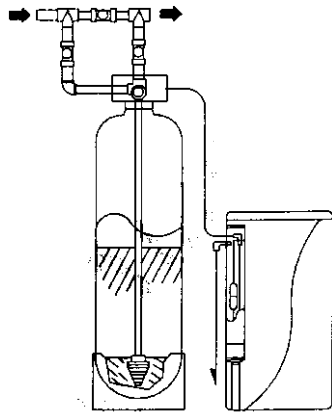
The high flow injection molded Noryl body is tough but light, for easy handling and installation. The valve is available in a co-current or countercurrent configuration.

Cartridge style brine refill flow control and eductor assemblies make servicing, changing out or cleaning a breeze.

Superior flow rate and pressure drop performance are provided.



FLECK WATER SOFTENERS


**COMMERCIAL FLECK 2700 WATER SOFTENER
FIBERGLASS**

TDS, application and flow rates will influence the performance of the system.

FIG. NO.	MODEL #	PIPE SIZE	MINERAL TANK			BRINE TANK		SOFTENING CAPACITY		LBS SALT PER GENER		FLOW RATE GPM			PRICE
			TANK SIZE	RESIN CU.FT.	Gravel 1/4x1/8	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SRVC	BRW	WGHT	
47892	DWC 902700	1"	14X65	3	60	24X41	500	90,000	60,000	45	18	18/23	5	240	
43582	DWC1202700	1"	16X65	4	80	24X41	500	120,000	80,000	60	24	18/23	7	320	

**COMMERCIAL FLECK 2750 WATER SOFTENERS
FIBERGLASS**

FIG. NO.	MODEL #	PIPE SIZE	MINERAL TANK			BRINE TANK		SOFTENING CAPACITY		LBS SALT PER GENER		FLOW RATE GPM			PRICE
			TANK SIZE	RESIN CU.FT.	Gravel 1/4x1/8	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SRVC	BRW	WGHT	
47894	DWC 902750	1"	14X65	3	60	24X41	500	90,000	60,000	46	20	20/24	6	240	
43583	DWC1202750	1"	16X65	4	80	24X41	500	120,000	80,000	65	25	20/24	8	320	

**COMMERCIAL FLECK 2750 METERED SOFTENERS
FIBERGLASS**

FIG. NO.	MODEL #	PIPE SIZE	MINERAL TANK			BRINE TANK		SOFTENING CAPACITY		LBS SALT PER GENER		FLOW RATE GPM			PRICE
			TANK SIZE	RESIN CU.FT.	Gravel 1/4x1/8	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SRVC	BRW	WGHT	
47895	DWC902750M	1"	14X65	3	60	24X41	500	90,000	60,000	46	20	20/24	6	245	
43585	DWC1202750M	1"	16X65	4	80	24X41	500	120,000	80,000	65	25	20/24	8	325	

**COMMERCIAL FLECK 2850 WATER SOFTENERS
FIBERGLASS**

FIG. NO.	MODEL #	PIPE SIZE	MINERAL TANK			BRINE TANK		SOFTENING CAPACITY		LBS SALT PER GENER		FLOW RATE GPM			PRICE
			TANK SIZE	RESIN CU.FT.	Gravel 1/4x1/8	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SRVC	BRW	WGHT	
43397	DWC902850	1 1/2"	14X65	3	50	24X41	500	90,000	60,000	45	18	21	5	240	
43398	DWC1202850	1 1/2"	16X65	4	50	24X41	500	120,000	80,000	60	24	28	7	320	
62523	DWC1502850	1 1/2"	18X65	5	50	24X41	500	150,000	100,000	75	30	43	11	380	
43399	DWC1802850	1 1/2"	20X62	6	75	24X41	500	180,000	120,000	90	48	44	13	479	
43400	DWC2102850	1 1/2"	20X62	7	75	24X41	500	210,000	140,000	105	56	44	13	585	
43401	DWC2402850	1 1/2"	24X60	8	100	24X41	500	240,000	160,000	120	64	44	15	648	
43402	DWC3002850	1 1/2"	24X72	10	100	24X50	600	300,000	200,000	150	80	44	15	710	
43403	DWC3602850	1 1/2"	30X72	12	100	24X50	600	360,000	200,000	180	96	44	15	815	

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

DUFF CO.

WATER TREATMENT

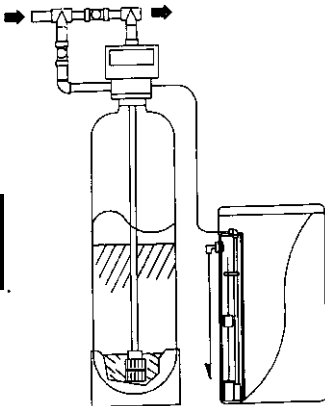
COMMERCIAL FLECK 2850 METERED

WATER SOFTENERS

FIG. NO.	MODEL #	PIPE SIZE	TANK SIZE	RESIN CU FT	GRAVEL 1/4X1/8 LB	BRINE TANK MAX MIN	SOFTENER CAP MAX MIN	LBS SALT PER REGEN MAX MIN	FLOW RATE SRVC BKW	WGHT	PRICE
43404	DWC902850M	1 1/2"	14X65	3	60	24X41 500 90K	60K	45 18	21 5	245	
43405	DWC1202850M	1 1/2"	16X65	4	80	24X41 500 120K	80K	60 24	28 7	325	
65662	DWC1502850M	1 1/2"	18X65	5	100	24X41 500 150K	100K	75 30	43 11	385	
43406	DWC1802850M	1 1/2"	20X62	6	100	24X41 500 180K	120K	90 48	44 13	484	
43407	DWC2102850M	1 1/2"	20X62	7	100	24X41 500 210K	140K	105 56	44 13	590	
43408	DWC2402850M	1 1/2"	24X60	8	160	24X41 500 240K	160K	120 64	44 15	653	
43409	DWC3002850M	1 1/2"	24X72	10	200	24X50 600 300K	200K	150 80	44 15	715	
43410	DWC3602850M	1 1/2"	30X72	12	240	24X50 600 360K	240K	180 96	44 15	820	



Products for Quality Water



COMMERCIAL FLECK 2900 WATER SOFTENER FIBERGLASS

TDS, application and flow rates will influence the performance of the system.

FIG. NO.	MODEL #	MINERAL TANK				BRINE TANK		SOFTENING CAPACITY		LBS SALT PER GENER		FLOW RATE GPM		WGHT	PRICE
		PIPE SIZE	TANK SIZE	RESIN CU FT	Gravel 1/4 x 1/8	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SRV	BRV		
40889	DWC 90	2	14X65	3	50	24X41	500	90,000	60,000	45	18	34	9	240	
40890	DWC 120	2	16X65	4	50	24X41	500	120,000	90,000	60	24	39	10	320	
48800	DWC 150	2	18X65	5	50	24X41	500	150,000	100,000	75	30	43	11	380	
39994	DWC 180	2	21X62	6	75	24X41	500	180,000	120,000	90	36	52	13	480	
39995	DWC 210	2	21X62	7	75	24X41	500	210,000	140,000	105	42	52	13	585	
39996	DWC 240	2	24X60	8	100	24X41	500	240,000	160,000	120	48	62	15	625	
40891	DWC 300	2	24X72	10	100	24X50	600	300,000	200,000	150	60	62	15	710	
40892	DWC 360	2	30X72	12	150	24X50	600	360,000	240,000	170	75	65	18	1010	
78329	DWC 450	2	30X72	15	200	30X48	900	450,000	300,000	225	90	70	25	1160	
-	DWC 600	2	36X72	20	300	30X48	900	600,000	400,000	300	120	82	35	1510	

COMMERCIAL FLECK 3150 WATER SOFTENERS FIBERGLASS

FIG. NO.	MODEL #	PIPE SIZE	TANK SIZE	RESIN CU FT	GRAVEL 1/4X1/8 LB		BRINE TANK		SOFTENER CAP		LBS SALT PER REGEN		FLOW RATE	WGHT	PRICE
					MAX	MIN	MAX	MIN	MAX	MIN	SRVC	BKW			
58541	DWC3003150	2"	24X72	10	100		24X50	600	300K	200K	150	80	62	15	730
60419	DWC4503150	2"	30X72	15	200		30X48	900	450K	300K	225	90	98	25	1105
63692	DWC6003150	2"	36X72	20	300		39X48	1500	600K	400K	300	120	120	35	1500
63720	DWC7203150	2"	36X72	24	300		42X60	2500	720K	480K	360	144	120	40	1750
63605	DWC9003150	2"	42X72	30	400		42X60	2500	900K	600K	450	180	120	45	2150
54171	DWC3003150MP*	2"	24X72	10	100		24X50	600	300K	200K	150	80	62	15	745
67366	DWC4503150MP*	2"	30X72	200	200		30X48	900	450K	300K	225	90	98	25	1120
81516	DWC6003150MP*	2"	36X72	300	300		39X48	1500	600K	400K	300	120	120	35	1515
81518	DWC7203150MP*	2"	36X72	300	300		42X60	2500	720K	480K	360	144	120	40	1765

* metered

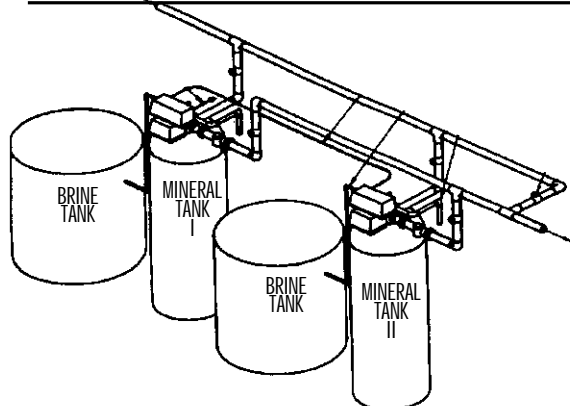
COMMERCIAL FLECK 3900 WATER SOFTENERS FIBERGLASS

FIG. NO.	MODEL #	PIPE SIZE	TANK SIZE	RESIN CU FT	GRAVEL 1/4X1/8 LB		BRINE TANK		SOFTENER CAP		LBS SALT PER REGEN		FLOW RATE	WGHT	PRICE
					MAX	MIN	MAX	MIN	MAX	MIN	SRVC	BKW			
40819	DWC3002900	3"	24X72	10	100		30X48	900	300K	200K	150	80	63	15	1070
81519	DWC3003900	3"	30X72	15	200		30X48	900	450K	300K	225	90	98	25	1597
68794	DWC6003900	3"	36X72	20	250		50X60	4000	600K	400K	300	120	140	35	2015
81521	DWC7503900	3"	42X72	25	300		39X48	1500	750K	500K	360	144	165	40	3245
81522	DWC9003900	3"	48X72	30	400		42X60	2500	900K	600K	450	180	190	45	4295

COMMERCIAL FLECK 3900 METERED WATER SOFTENERS

FIG. NO.	MODEL #	PIPE SIZE	TANK SIZE	RESIN CU FT	GRAVEL 1/4X1/8 LB		BRINE TANK		SOFTENER CAP		LBS SALT PER REGEN		FLOW RATE	WGHT	PRICE
					MAX	MIN	MAX	MIN	MAX	MIN	SRVC	BKW			
81523	DWC3003900M	3"	24X72	10	100		30X48	900	300K	200K	150	80	63	15	1077
68037	DWC4503900M	3"	30X72	15	200		30X48	900	450K	300K	225	90	98	25	1604
67215	DWC6003900M	3"	36X72	20	250		50X60	4000	600K	400K	300	120	140	35	2022
67216	DWC7503900M	3"	42X72	25	300		39X48	1500	750K	500K	360	144	165	40	3252
81524	DWC9003900M	3"	48X72	30	400		42X60	2500	900K	600K	450	180	190	45	4302

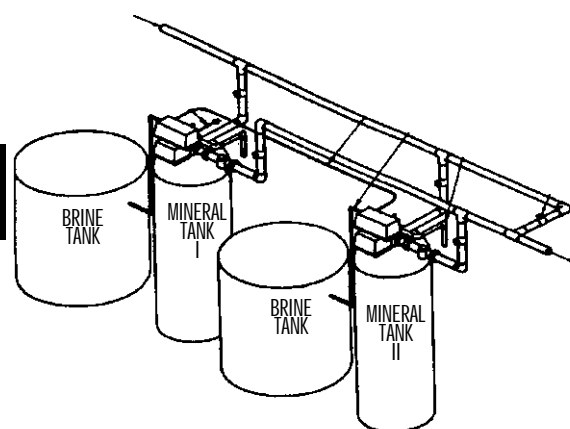
METERED INITIATED TWIN TANK CONDITIONERS



FLECK 2900 2" TOP MOUNT VALVE: SYSTEM 5

SYSTEM #5 interlock - typical twin tank installation with optional meter interlock and no hard water bypass.

FIG. NO.	GRAIN CAPACITY	TANK SIZE	RESIN CF*	BRINE TANK	F L O W R A T E			BW*	PRICE
					SALT FILL	SVC	PK		
44164	120,000	(2) 15X65	4.0	(2) 24X41	700	40	125	7	
44167	180,000	(2) 21X62	6.0	(2) 24X50	800	60	154	10	
44169	210,000	(2) 21X62	7.0	(2) 24X50	800	70	146	10	
44171	240,000	(2) 24X71	8.0	(2) 24X50	800	80	172	15	
44173	300,000	(2) 24X71	10.0	(2) 24X50	800	100	186	15	
44175	360,000	(2) 24X71	11.0	(2) 24X50	800	110	164	15	



FLECK 2900 2" TOP MOUNT VALVE: SYSTEM 7

Standard Features: 2 tanks, 1 meter, alternator system. One unit in service, the other is on stand-by. When the meter goes into a regeneration cycle, the standby unit goes into service.

FIG. NO.	GRAIN CAPACITY	TANK SIZE	RESIN CF*	BRINE TANK	F L O W R A T E			BW*	PRICE
					SALT FILL	SVC	PK		
44165	120,000	(2) 16X65	4.0	24X41	700	20	64	7	
44166	180,000	(2) 21X62	6.0	24X50	800	30	77	10	
44168	210,000	(2) 21X62	7.0	24X50	800	35	73	10	
44170	240,000	(2) 24X71	8.0	24X50	800	40	86	15	
44172	300,000	(2) 24X71	10.0	24X50	800	50	93	15	
44174	360,000	(2) 24X71	11.0	24X50	800	55	82	15	

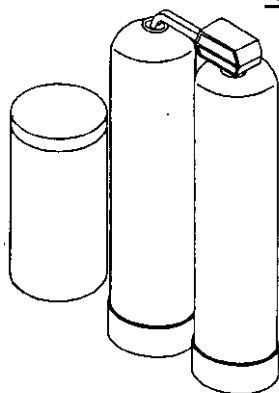
9000 SERIES WATER SOFTENERS

FIG. NO.	DESCR	SPACE REQ'D LXW	PIPE SIZE	WEIGHT	PRICE
40893	DT91	38X20	3/4" MTR	175#	
43425	DT91F	38X20	1" MTR	175#	
40000	DT92	40X20	3/4" MTR	230#	
43426	DT92F	40X20	1" MTR	230#	
40894	DT93	40X20	3/4" MTR	290#	
43427	DT93F	40X20	1" MTR	290#	
40002	DT94	46X20	3/4" MTR	400#	
43428	DT94F	46X20	1" MTR	400#	
40003	DT95	48X20	3/4" MTR	460#	
43429	DT95F	48X20	1" MTR	460#	
43430	DT96F	58X26	1" MTR	500#	
40004	DT96	58X26	3/4" MTR	500#	

NOTE: DT95 and smaller units are also available with the 1" extended range meter, less bypass. DT96 and larger units are also available with 3/4" standard range meters and 1" bypass. Allow 4 hours run time between regenerations for good brining.

MODEL	Resin Tanks (2 per system)			SALT TANK		SOFTENING CAPACITY		SALT/ REGEN		FLOW RATE			MTR	BYPASS	PIPE SIZE
	DXH	CF	#20	DXH	SALT FILL	MAX	MIN	MAX	MIN	C/P	BW	PRESS DROP			
DT91	8X35	.5	10	18X40	400	15K	10K	8	4	7/8.7	1.75	12	3/4"	YES	3/4"
DT92	9X48	1	15	18X40	400	30K	20K	15	6	8.8/11	2.2	12	3/4"	YES	3/4"
DT93	10X54	1.5	20	18X40	400	45K	30K	22.5	9	10/13	2.7	15	1"	NO	1"
DT94	12X52	2	30	18X40	400	60K	40K	30	12	15/19	4	12	3/4"	YES	3/4"
DT95	13X54	2.5	45	18X40	400	75K	50K	38	15	17/21	4.5	15	3/4"	YES	3/4"
DT96	14X65	3	60	24X41	600	90K	60K	45	18	17/21	5.0	15	1"	NO	1"

PRESSURE DROPS ARE AT SERVICE FLOW RATES INDICATED WITH AN 80 PSI RAW WATER SUPPLY

3/4" METER	STD. RANGE	125-2100 Gal	1" METER	STD. RANGE	360-5100 Gal
	EXT. RANGE	625-10500 Gal		EXT. RANGE	1800-25500 Gal

NOTE: Units with 3/4" meter have 1" - 5600 bypass
Units with 1" meter have no bypass

REMEMBER: 9000 VALVE USES SOFT WATER TO REGENERATE. SUBTRACT REGENERANT WATER FROM TOTAL

NOTE: TDS, application and flow rates will influence the performance of the system.

9500 SERIES WATER SOFTENERS

TWIN TANK ALTERNATING SOFTENER

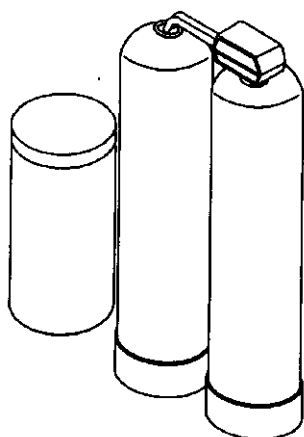


FIG. NO.	DESCR	PIPE SIZE	WEIGHT	PRICE
47882	DT95-4	1 1/2	370	
47883	DT95-6	1 1/2	550	
47884	DT95-8	1 1/2	720	
47885	DT95-10	1 1/2	900	
47886	DT95-12	1 1/2	1115	

COMMERCIAL TWIN TANK ALTERNATING SOFTENER

				MINERAL TANK			BRINE TANK		SOFTENING CAPACITY		LBS SALT PER REG		FLOW RATE GPM	
FIG NO	MOD #	PIPE SIZE	TANK SIZE	RESIN CU FT	1/4 X 1/8	#20	SIZE	SALT FILL	MAX	MIN	MAX	MIN	SERV	BKW
47882	DT95-4	1 1/2	12X52	2		30	24X41	500	60K	40K	30	12	15	4
47883	DT95-6	1 1/2	14X52	3		60	24X41	500	90K	60K	45	18	21	5
47884	DT95-8	1 1/2	16X65	4		80	24X41	500	120K	80K	60	24	27	7
47885	DT95-10	1 1/2	20X62	5		100	24X50	600	150K	100K	75	30	43	11
47886	DT95-12	1 1/2	22X54	6		100	24X50	600	180K	120K	90	36	37	12

For 2350 safety brine valve on DT95-10 and larger, add P/N 05100

NOTE: TDS, application, and flow rates will influence the performance of the system.



Products for Quality Water

SPECIFICATIONS ON RESIDENTIAL AUTOTROL CONTROLS

FIG. NO.	MODEL #	INLET/ OUTLET	FLOW RATES	MAX BACK- WASH	OPTIONS KEYS	PRICE
67734	A253F	3/4	10	7	b,z	
66483	A255C	3/4	10	7	b,z	
66495	A255MP	3/4	10	7	e,m,b,z	
73123	A255940	3/4	10	7	e,m,b,z	
67825	A255960	3/4	10	7	e,m,b,z	
66492	A163C	1	10	6	b,y,f,m	
57369	A163C24volt	1	10	6	b,y,f,m	
66494	A168FA	1	10	6	b,y	
66493	A168C	1	10	6	b,y	
67835	A168LR	1	10	6	b,y	
67829	A168MP	1	10	6	e,m,b,y	
66498	A168LRMP	1	10	6	e,m,b,y	

All valves are top mount (TM) except the 172 and 182. The 180 is side mount (SM) also.

Time clock controls are available in either 6 day or 7 day version.

Alternating and interlock systems are available with commercial control valves with the 480 DDS controller.

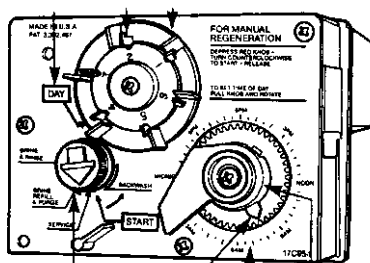
Continuous flow rate based on 15 psi pressure drop (50 psi inlet w/ largest recommended softener tank. Peak may require service valves.)

Back wash rate based on 25 psi pressure drop on largest recommended softener tank.

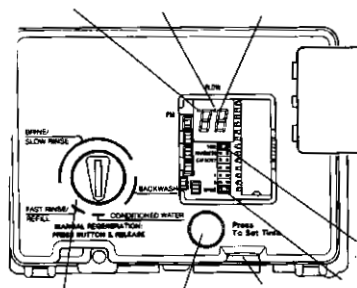
- 1) 6 or 7 day control timer.
- 2) 120 minutes timer standard, 60 minutes available, WS (water saving) option available.
- 3) 5 GPM through valve, 10 gpm with auxiliary backwash.
- 4) Back wash 4-15 minutes. All other cycles adjusted automatically by micro-processor.
- 5) 6,7, or 24 day clock options.
- 6) Twin alternating system.
- 7) Exclusive variable reserve demand system.
- 8) Calendar override feature.
- 9) Time of regeneration and brine fill only.

OPTIONS KEYS

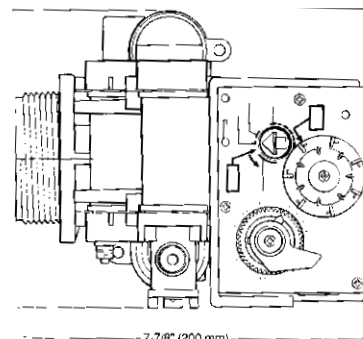
- b = Bypass valve
e = Electronic timer
f = Backwash filter
m = Meter initiated regeneration
s = Service valve operator
u = Upflow regeneration
y = 3/4" Inlet/Outlet
z = 1" Inlet/Outlet



**SERIES 255 VALVE
440 CONTROL**

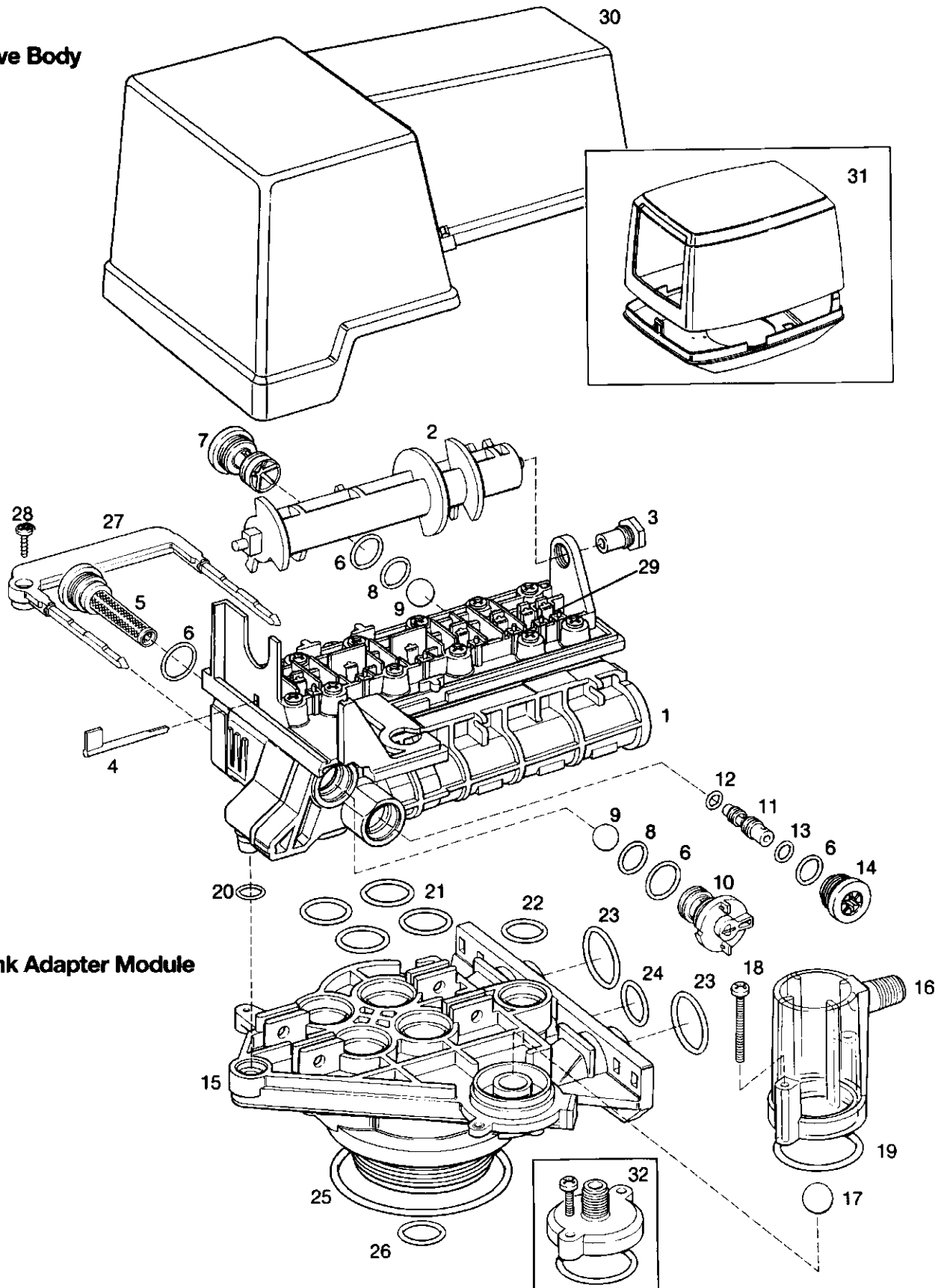


**SERIES 255 VALVE
460i CONTROL**



**168 VALVE WITH 440
TIMER**

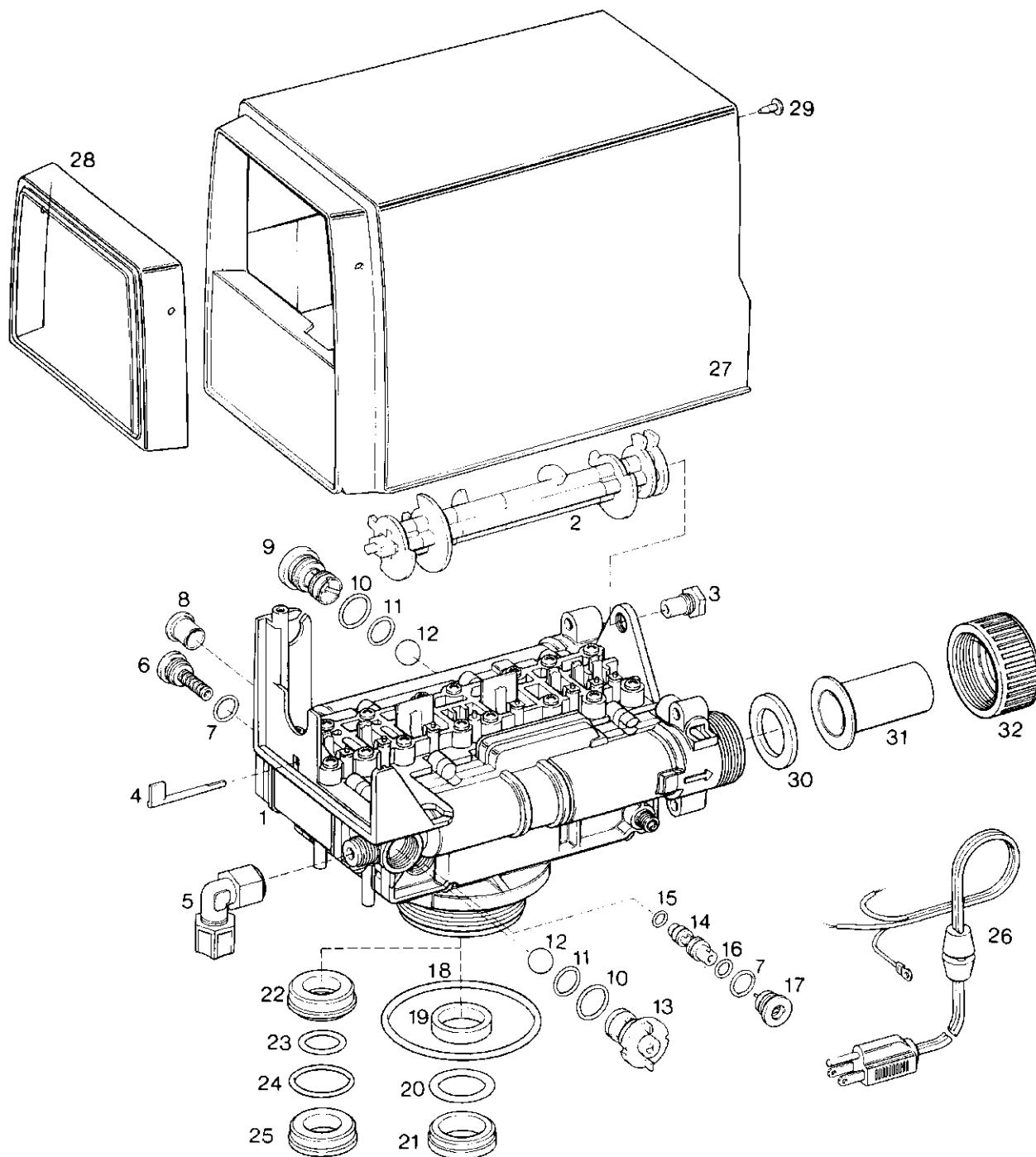
Valve Body



AUTOTROL REPAIR PARTS - SERIES 255

ITEM #	FIG. NO.	PART #	DESCRIPTION	PRICE
2	33981	21F	Standard, one piece	
2	33982	21F-1	Extra salt, segmented	
2	33983	21F-2	Long rinse, segmented	
3	33985	22F	Camshaft bearing	
4	33967	5F	Timer locking pin	
5	33431	7F	Screen/cap assembly with O-ring	
6	33964	2F	O-ring EP	
7	33990	25F-6	Drain control assembly with O-rings No. 6 (0.9 gpm; 3.4 lpm)	
7	33991	25F-7	Drain control assembly with O-rings No. 7 (1.2 gpm; 4.5 lpm)	
7	33992	25F-8	Drain control assembly with O-rings No. 8 (.6 gpm; 6.1 lpm)	
7	33993	25F-9	Drain control assembly with O-rings No. 9 (2.09 gpm; 7.6 lpm)	
7	33994	25F-10	Drain control assembly with O-rings No. 10 (2.5 gpm; 9.5 lpm)	
7	33995	25F-12	Drain control assembly with O-rings No. 12 (3.5 gpm; 13.2 lpm)	
7	68117	25F-13	Drain control assembly with O-rings No. 13 (4.1 gpm; 15.5 lpm)	
7	67678	25F-14	Drain control assembly with O-rings No. 14 (4.8 gpm; 18.2 lpm)	
8	33965	3F	O-ring EP	
9	33966	4F	Ball, flow control	
10	63531	1F-10	Brine refill control 1 to 10 lbs salt	
10	48428	1F-19	Brine refill control 3 to 19 lbs salt	
11	33432	28F-AA	Injector assembly with O-rings: "A" injector - white	
11	33433	28F-BB	Injector assembly with O-rings: "B" injector - blue	
11	33434	28F-CC	Injector assembly with O-rings: "C" injector - red	
12	33996	26F	O-ring EP	
13	33997	27F	O-Ring EP	
14	33969	8FAA	Injector cap with O-ring "A" cap	
14	33970	8FBB	Injector cap with O-ring "B" cap	
14	33971	8FCC	Injector cap with O-ring "C" cap	
17	50229	36F	Air check housing	
19	34000	32F	O-ring EP	
21	34003	35F	O-ring BN	
22	34004	37F	O-ring BN	
23	34005	38F	O-ring BN	
24	34006	39F	O-ring BN	
25	34009	43F	O-ring BN	
26	34010	44F	O-ring EP	
27	34002	34F	Locking Bar: English Language	
28	34001	33F	Screw, No. 8x9/16 in	
29	75362	23F	Spring valve flapper kit	
30	33979	20F-1	Valve, cover, standard, black	

AUTOTROL REPAIR PARTS - A163/168 VALVE

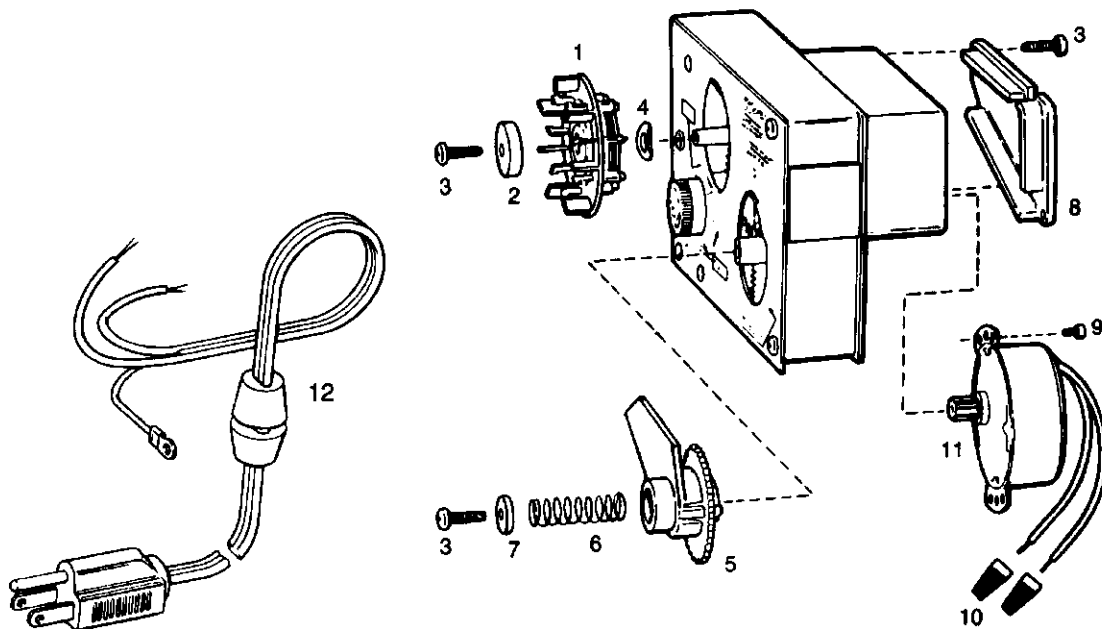


AUTOTROL REPAIR PARTS - A163/168 VALVE

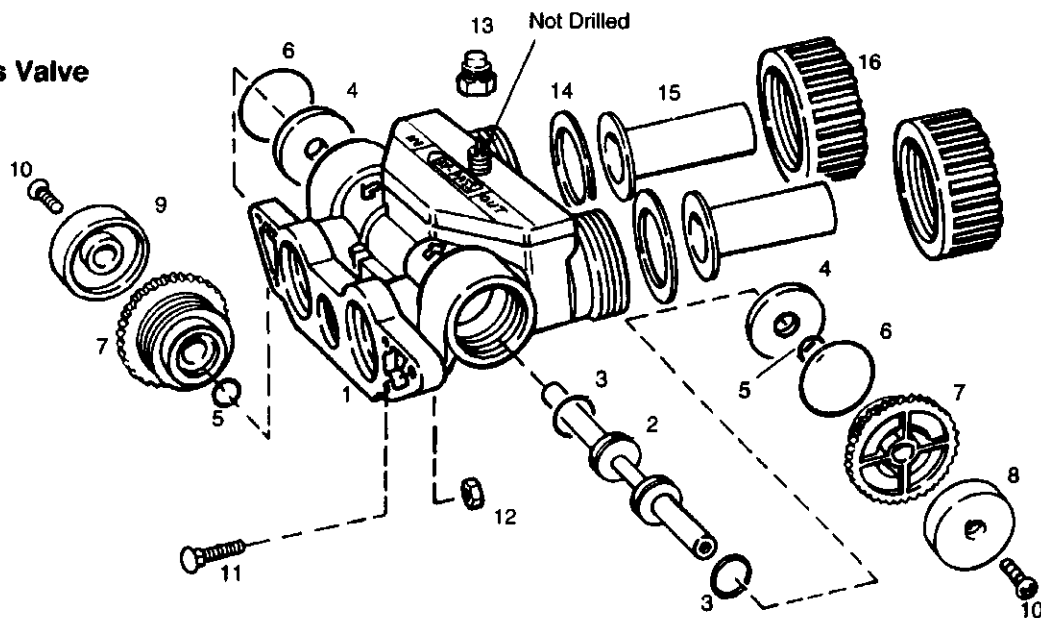
CODE	FIG. NO.	DESCRIPTION	QTY	PRICE
1		Valve body assembly	1	
	34059	w/ 1 in riser adapter		
	34050	w/ 1 3/16 in riser adapter		
2		Camshaft assembly	1	
	44113	standard camshaft		
	48909	extra salt camshaft		
	44114	long rise camshaft		
3	33985	Camshaft bearing	1	
4	33967	Timer locking pin	1	
5		Elbow connector	1	
6	34054	Screen cap w/ O-ring	1	
7	33968	O-ring	2	
8		Plug	1	
9		Backwash control w/ O-ring	1	
	33990	No. 6 for 6 in diameter tank		
	33991	No. 7 for 7 in diameter tank		
	33992	No. 8 for 8 in diameter tank		
	33993	No. 9 for 9 in diameter tank		
	33994	No. 10 for 10 in diameter tank		
	33995	No. 12 for 12 in diameter tank		
10	33964	O-ring	2	
11	33965	O-ring	2	
12	33966	Ball	2	
13		Brine refill control	1	
	36231	1 to 10 lbs. salt		
	48428	3 to 19 lbs. salt		
14		Injector w/ O-rings	1	
	33432	"A" injector, white		
	33433	"B" injector, blue		
	33434	"C" injector, red		
15	33996	O-ring	1	
16	33997	O-ring	1	
17		Injector cap w/ O-ring	1	
	33969	"A" cap		
	33970	"B" cap		
	33971	"C" cap		
18	34009	O-ring	1	
26	34072	Cord set, flat (SPT-2)	1	
30	33249	Gasket for 3/4 in or 1 in pipe or tube	1	
	33031	For 1 in pipe or tube		
31		Plumbing adapter	1	
	34031	3/4 in copper tube		
	34032	1 in. copper tube		
	34033	1 in. NPT, brass		
	34034	3/4 in. BSPT, Brass		
	34035	1 in. BSPT pipe		
	44116	3/4 in. PVC pipe		
	44117	1 in. PVC pipe		
		Adapter nut:		
32	33250	For 3/4 in. copper tube	1	
	34036	For 1 in. copper tube		
	34037	For 3/4 in. pipe		
	34038	For 1 in. pipe		

AUTOTROL REPAIR PARTS - 440 TIMER

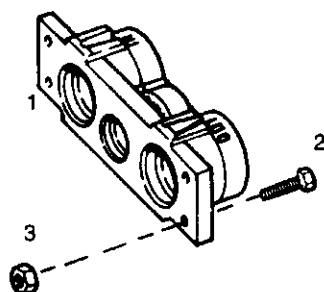
440 Timer



Bypass Valve



Piping Boss



Note: Do not use pipe joint compound when threading pipe into the Noryl piping boss. Use only Teflon® pipe tape. Do not overtighten pipe into Noryl piping boss.

* Teflon is a registered Trademark of E. I. Dupont and Co.

AUTOTROL REPAIR PARTS - 440 TIMER

FIG. NO.	PART #	DESCRIPTION	QTY	PRICE
1		Skipper wheel assembly	1	
	33974	6-day	1	
	33975	7-day	1	
2	34071	Washer	1	
3	34068	Screw, no. 6 x 1/2 in	1	
4	33977	Bowed washer	1	
5	34075	Tripper arm assembly	1	
6	34069	Spring	1	
7	34070	Retainer	1	
8		Motor cover A1031751	1	
9		Screw, no. 4-40 x 1/4 in A1005615	1	
10		Wire nut A1007483	1	
11		Motor:	1	
	42939	115V, 60Hz	1	
	51098	24V, 60Hz	1	
12		Cord Set, Flat (SPT-2)	1	
PIPING BOSS				
1	27373	3/4 in NPT, brass	1	
	44118	1 in NPT, brass	1	
	27374	3/4 in NPT, Noryl	1	
	44115	1 in NPT, Noryl	1	
BYPASS VALVE				
1		Bypass body assembly A1033638	1	
2	49649	Valve stem with O-rings	1	
3	48834	O-ring	2	
4	34025	Washer	2	
5	34023	O-ring	2	
6	34024	O-ring	2	
7	34017	End cap	2	
8	34012	Knob, black	21	
9	34011	Knob, white	1	
10		Screw, No. 8 x 9/16 in A33F -or- A1006093	2	
11	34028	Screw, No. 10 -24x1 in	4	
12	34029	Nut, No. 10 -24	4	
14	33249	Gasket for 1 in pipe or tube	2	
15	34031	Plumbing adapter 3/4 in copper tube	2	
	34032	Plumbing adapter 1 in copper tube	2	
	34033	Plumbing adapter 1 in NPT brass	2	
	34034	3/4 in BSPT, brass	2	
	34035	1 in BSPT, brass	2	
16	33250	Adapter nut for 3/4 in copper tube	2	
	34036	Adapter nut for 1 in copper tube	2	
	34037	Adapter nut for 3/4 in pipe or PVC	2	
	34038	Adapter nut for 1 in pipe or PVC	2	

DUFF CO.

WATER TREATMENT

AUTOTROL COMMERCIAL SERIES SOFTENER/FILTER CONTROL VALVES

MAGNUM Cv

High performance Cv series control valves

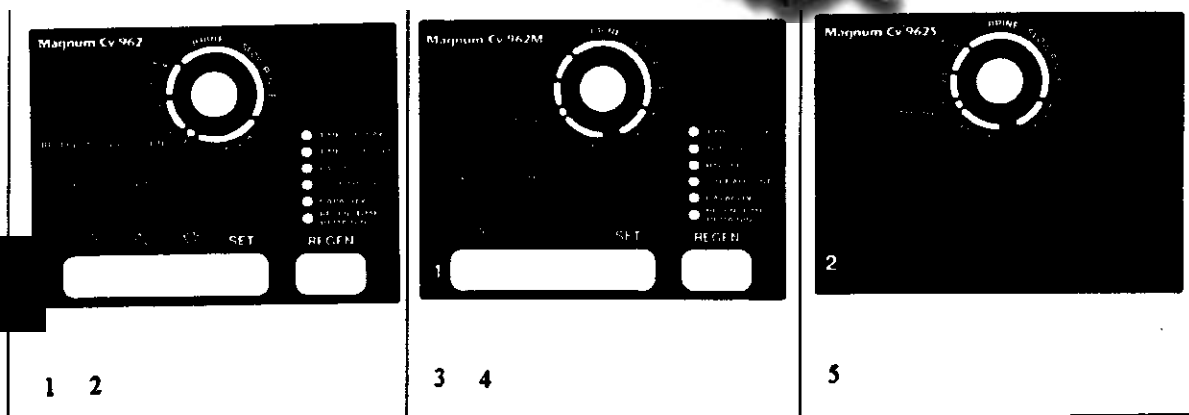
FIG. NO.	MODEL #	INLET/ OUTLET	FLOW RATE	BACK WASH	OPTION KEYS	PRICE
46856	A172C	2	100/170	30	e,f,m,s,q	
47562	A180C	1.5	61/81	15	e,f,m,s,q	
44526	A180CT	1.5	61/81	15	e,f,m,s,q	
44527	A180CS	1.5	61/81	15	e,f,m,s,q	
50516	A180ST2	1.5	61/81	15	e,f,m,s,q	
47563	A182C	2	115/147	50	e,f,m,s,q	
50628	A182SM480	2	115/147	50	e,f,m,s,q	
62445	MagnumCv942	1.5	75	45	e,f,m,s,u,q	
62446	MagnumCv962	1.5	75	45	e,f,m,s,u,q	
74598	Magnum962MTA2	1.5	75	45	e,f,m,s,u,q	

OPTIONS KEYS;

e = Electronic Timer
m = Meter Initiated Regeneration
u = Uphill Regeneration

f = Backwash Filter
s = Service Valve Operator

MAGNUM Cv CONTROLS



Magnum Cv 962

Magnum Cv 962M

Magnum Cv 962S

#	DESCRIPTION	FIG. NO.	PRICE
1	Electronic Control/962 Softener/12 VAC/60 Hz	75885	
2	Electronic Control/962 Softener/Battery Backup/12 VAC/60 Hz		
3	Electronic Control/962M Master/12 VAC/60 Hz	75886	
4	Electronic Control/962M Master/Battery Backup/12 VAC/60 Hz		
5	Electronic Control/962S Slave/60 Hz	75889	
6	Battery		
7	Battery Cap		
8	Battery Bracket		
9	12 VAC/60 Hz/150 mA Wall Mount Transformer NW1	65079	
10	10 Ft. Hall effect Cable with connector		

FLECK CONTROL VALVES

FIG. NO.	DESCRIPTION	UNIT CTN/LBS	PRICE
70087	5600/1600 softener valve	6/42	
77381	5600/1600u upflow	6/42	
70005	5600/1600 3/4" metered valve	6/42	
77373	5600/1600 SE meter control valve	6/42	
70091	5600 filter valve	6/42	
80972	5600 Std. softener valve	6/42	
80969	5600 Std. softener valve	6/42	
80971	5600 Std. softener valve	6/42	
70092	6600/1600 3/4" meter valve	6/42	
70093	6700/1600 3/4" meter valve	6/42	
71878	8500 control valve	1/10	
70094	9000/1600 3/4" meter valve	1/20	
70095	9000/1600 1" std. meter valve	1/20	
70096	9500/1600 extended meter valve	1/40	
70097	9500/1700 extended meter valve	1/40	

FLECK VALVE PART ASSEMBLIES & SERVICE EQUIPMENT

METER RANGES & LABELS

FIG. NO.	PART #	DESCRIPTION	PRICE
71329	15959	1" Meter 40x100 5,130 g	
51380	15970	1" Ext. 25x100 26,550 g	
48613	15971	1-1/2 Ext. 50x1000 53,125 g	
69071	15972	2" Meter 21x1000 21,250 g	
48613	15973	2" Ext. 100x1000 10,625 g	



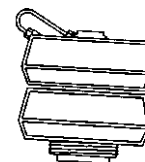
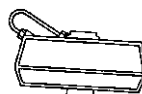
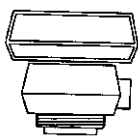
Products for Quality Water

FLECK CONTROL VALVES

FIG. NO.	DESCRIPTION	UNIT CTN/LBS	PRICE
70023	1500 side mount 3/4" 12 day	1/13	
80548	1500 side mount 3/4" filter	1/12	
70066	2500/1600 manual valve	1/12	
70025	2500/1600 hot water 3/4: 12 day	1/12	
74618	2500 manual filter valve	1/12	
78015	2510/1600 softener valve	4/30	
79780	2510/1600 meter valve	4/30	
77787	2510 filter valve	4/30	
70047	2700/1600 softener valve	1/12	
70052	2700/1600 3/4" ext. meter valve	1/12	
46966	2700/1600 1" ext meter valve	1/12	
70056	2750/1600 softener valve	6/90	
70059	2750/1600 hot water valve	1/16	
70060	2750/1600 3/4" ext. meter valve	1/19	
76970	2750/1700 1" ext. meter valve	1/20	
70061	2750 filter valve	1/15	
70062	2850/1600 softener valve	1/25	
72353	2850/1600 hot water valve	1/25	
70065	2850/1700 softener valve	1/25	
70063	2850/1600 1" ext. meter valve	1/28	
70064	2850/1600 1 1/2" ext. meter valve	1/28	
70075	2850/1700 1" std. meter valve	1/28	
70076	2850/1700 1 1/2" ext. meter valve	1/28	
70077	2850 filter valve	1/24	
70079	2900/1600 softener valve	1/30	
70067	2900/1700 softener valve	1/30	
70080	2900/1600 2" ext. meter valve	1/37	
70069	2900/1700 2" ext. meter valve	1/37	
72357	2900/1600 system 5 2" meter valve	1/67	
70081	2900/1600 system 7 2" meter valve	1/67	
72359	2900/1700 system 5 2" meter valve	1/67	
70070	2900/1700 system 7 2" meter valve	1/67	
70071	3150/1800 side mount softener valve	1/56	
72390	3150/1800 side mount 2" meter valve	1/68	
70072	3150/1800 top mount softener valve	1/56	
70073	3150/1800 top mount 2" meter valve	1/68	
72392	3150 top mount filter valve	1/56	
70074	3600/1600 softener valve	9/80	
72394	3600/1600 QC hot water valve	9/80	
70378	3900/1800 softener valve	1/100	
72396	3900/1800 side mount softener valve	1/100	
72404	3900/1800 TM 3" meter valve	1/107	
72407	3900/1800 system 5 3" meter valve	1/207	
72410	3900/1800 system 6 3" meter valve	1/207	
72412	3900/1800 sytem 7 3" meter valve	1/207	
72398	3900 TM filter valve	1/95	
70086	5000/1600 softener valve	6/42	
70083	5000/1600 3/4" standard meter valve	6/42	
70100	5000 filter valve	6/42	

COMMERCIAL FLECK CONTROL SPECIFICATIONS

FIG. NO.	CONTROL VALVE	INLET/OUTLET	DRAIN PORT	CYCLES	(1) FLOW RATE	(2) MAX BACKWASH	OPTIONS	PRICE
70056	2750	1"	3/4"M	5	26	25	e, ev, f, h, m, n, o, q, s, u	
70062	2850	1 1/2"	1"M	5	51	49	e, ev, f, h, m, n, o, s	
70079	2900	2"	3/4"M	5	106	25	e, ev, f, h, m, n, s, u	
70072	3150	2"	2"F	5	95	105	e, f, h, m, n, q, s, sm, u	
70378	3900	3"	2"F	5	250	100	e, f, h, m, n, s, sm, u	
70095	9000	3/4"&1"	1/2"F	5	21	85	b, e, f, h	
70097	9500	1 1/2"	1"M	5	43	16	e, f, h	



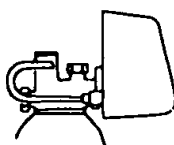
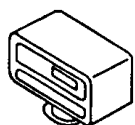
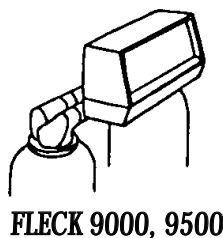
RESIDENTIAL FLECK CONTROL SPECIFICATIONS

FIG. NO.	CONTROL VALVE	INLET/OUTLET	DRAIN PORT	CYCLES	(1) FLOW RATE	(2) MAX BACKWASH	OPTIONS	PRICE
70023	1500	3/4"	1/2" F	5	17	14	e, ev, f, h, n, o, s, sm	
78015	2510	1"	1/2" F	5	19	17	b, e, ev, f, h, m, n, o, q	
70047	2700	1"	1/2" F	5	18	15	e, ev, f, h, m, n, o, q, s	
70074	3600	3/4"	1/2" F	6	17	6	b, f, h, q	
70086	5000	3/4"&1"	1/2" F	5	21	17	b, f, m, u	
70087	5600	3/4"&1"	1/2" F	6	20	7	b, f, m, u	
77373	5600SE	3/4"&1"	1/2" F	5	20	7	b, f, u	
70092	6600	3/4"&1"	1/2" F	5	20	7	b, f, u, v	
70093	6700	3/4"&1"	1/2" F	5	20	7	b, f, u, v	
71878	8500	3/4"&1"	1/2" F	5	15	4	b, u	

Time clock and demand regeneration controls available:

Alternating and interlock systems are available with commercial valves:

- 1) Flow rate based on 15 psi pressure drop through valve
- 2) Backwash rate based on 25 psi pressure drop

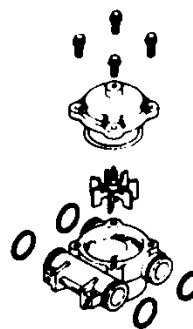
OPTION KEY

b	bypass valve
e	electronic timer
ev	environmental cover
f	backwash filter
h	hot water
m	meter initiated regeneration
n	no hard water bypass piston
o	manual operation
q	quick connect
s	service valve operator
sm	side mount
u	upflow regeneration
v	variable brining

FLECK VALVE PART ASSEMBLIES & SERVICE EQUIPMENT

METER MODULES

FIG. NO.	PART #	DESCRIPTION	PRICE
42656	60085	Model 3/4" brass w/ washer	
42657	60086	Model 5600 & 9000 3/4"	
46317	14038	Meter cover assy. std. plastic	
46562	15218	Meter cover assy. std. brass 2"	
44759	15237	Meter cover assy. ext. brass	
46542	15150	meter cover assy ext. range plastic	



TIMER MOTOR

FIG. NO.	PART #	DESCRIPTION	PRICE
64781	10844	120 volt/60 hz 3000 series	
48454	11590	120 volt/60 hz 3600 series	
44755	13944	120 volt/60 hz 3200 series	
42684	18743	120 volt/60 hz 5600 series	
50273	19659	24 volt/60 hz 5600 series	

PISTON ASSEMBLIES

FIG. NO.	PART #	DESCRIPTION	PRICE
38962	60090	Model 1500, 2500 & 2700 piston assembly	
42663	60090-HF	Model 2750 & 2900 top piston assembly	
38963	60091	Model 2700 hot water piston assembly	
45584	60097	Model 3600 hot water piston assembly	
45587	60105	Model 2850 piston assy	
42666	60104	Model 2900 piston assy no hard water black	
42665	60103	Model 2900 piston assy standard white	
45580	60092	Model 3100 piston assembly	
45588	60106	Model 3150, -00, -10, -20	
45583	60096	Model 3600 piston assembly	
51384	60102-10	Model 5600 piston assembly black for filter	
42664	60102	Model 5600 piston assembly = white for softener	
42667	60400	Model 9000 piston assembly - upper	
42668	60401	Model 9000 piston assembly - lower	



60090-HF



60400

FLECK VALVE PART ASSEMBLIES & SERVICE EQUIPMENT

BYPASS VALVES AND YOKES

FIG. NO.	PART #	DESCRIPTION	PRICE
36464	60040	Model 5600	
42632	60041	Model 5600 1"	

BRINE VALVES AND COMPONENTS

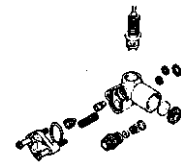
FIG. NO.	PART #	DESCRIPTION	PRICE
45490	60026	Float & grommets	
45506	60025-FFA	Model 400A body only	
44760	60029	Model 1600 short stem 2500/2700	
45513	60031	Model 3600 (NO BLFC)	
45514	60032	Model 4600 & 5600	
42630	60034	Model 2900 brine valve	
45515	60033	Model 3100	
42631	60350	Model 9000	
38957	60027-FFA	2300 safety valve assembly wo/float	

SERVICE EQUIPMENT

FIG. NO.	PART #	DESCRIPTION	PRICE
45491	16516	Stuffer 2850/3100	
36268	11098	Stuffer 2500/2750	
36269	13061	Puller 2500/2750	
36464	60040	Model 5600-brass 3/4" NPT	
45641	13759	Tool fir 5600 D.L.F.C.	
45647	60460	Meter checker - std. range	
45648	60461	Meter checker - ext. range	

INJECTOR ASSEMBLY (PLASTIC) COMPLETE

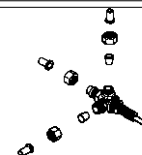
FIG. NO.	PART #	DESCRIPTION	PRICE
38960	60080	Model 1500, 2500 & 2700	
42654	60084	Model 4600/5600	
45567	60384	Model 5600 filter module	
42655	60385	Model 9000 time fill	



SIZE	COLOR	NOZZLE FIG. NO.	NOZZLE	PRICE	THROAT FIG. NO.	THROAT	PRICE
0	Red	41932	10913-R		41935	10914-R	
1	White	41933	10913-W		41936	10914-W	
2	Blue	41934	10913-BL		41937	10914-BL	
3	Yellow	50807	10913-Y		50809	10914-Y	
4	Green	50808	10913-G		50810	10914-G	
KMnO4	Gray	46156	12973		46157	12974	

SVO VALVE ASSEMBLY

FIG. NO.	PART #	DESCRIPTION	PRICE
45608	60150-1600	Model 15/25/2700 SVO VLV assy 1600	
45609	60150-3100	Model 2750, 2850, 2900	
45204	60150-3150	3100	
		Model 3150, 3900	



FLECK VALVE PART ASSEMBLIES & SERVICE EQUIPMENT

AIR CHECKS

FIG. NO.	PART #	DESCRIPTION	PRICE
42625	60002	#500 Residential Air Check	
42626	60003	#500 CPVC Hot	

TIMER

FIG. NO.	PART #	DESCRIPTION	PRICE
45659	60303-13	3200 7 day timer w/STF - 120/60	
45660	60304-13	3200 12 day timer w/STF - 120/60	
51656	60305-13	3200 demand timer w/STF - 120/60	
51383	60306-13	3210 delay meter timer w/STF - 120/60	
45661	60375	9000 timer 1/15 RPM (3/4" vlv) (1 minP/N)	
45662	60376	9000 timer 1/30 RPM (1" vlv) (2 min (P/N)	

DRIVE MOTOR ASSEMBLY WITH SWITCHES

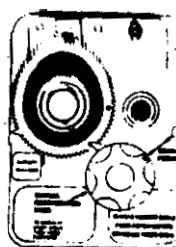
FIG. NO.	PART #	DESCRIPTION	PRICE
42642	60555-51	Model 2900 lower drive	

SEAL KITS

FIG. NO.	PART #	DESCRIPTION	PRICE
38964	60121	Model 15/25/2700 seal kit	
36267	60122	Model 25/2700 hot water seal kit	
45592	60124	Model 3600 hot water seal kit	
44761	60129	Model 2850	
45591	60123	Model 3600, 4000 & 4600 seal kit	
42679	60125	Model 5600 & 9000 seal kit	
38964	60121	Model 2500/2700/2750 seal kit	
42680	60128	Model 2900 lower seal kit	
42681	60421	Model 9000 lower seal kit	
45593	60126	Model 3100 seal assembly	
45594	60131	Model 3150 seal assembly	

FEEDER PRESSURE RELIEF VALVE

FIG. NO.	PART #	DESCRIPTION	PRICE
45534	60065	Model 2500 & 3600 filters	



**9000 SERIES
TIMER**



BRINE TANK DATA

GENERAL DATA

The complete brine system is probably one of the most important aspects of domestic and commercial fully automatic water softeners. This section contains facts, and data on all the components necessary to make a complete domestic or commercial brine system. Individual components and combinations of these components are, of course, adaptable for use in varied systems. In view of the problems normally inherent in brine systems, our purpose at this point is to furnish a proven design with data and tables on completed brine systems for fully automatic water softeners.

Our suggested brine system has been carefully thought out, designed and given extensive field tests. Please note that it is made up almost entirely of non-metallic materials and incorporates a salt grid system.

The seamless pure polyethylene salt storage tank is blow molded, eliminating structural faults and the possibility of brine seepage. Contrary to a tapered brine tank, the straight sides of this tank will allow the salt level to lower uniformly as the salt dissolves with each regeneration. This and the low water level prevent bridging of the salt.

The grid system permits use of 100% soluble pellet type salt. 1/2" water contact with salt produces fully saturated brine.

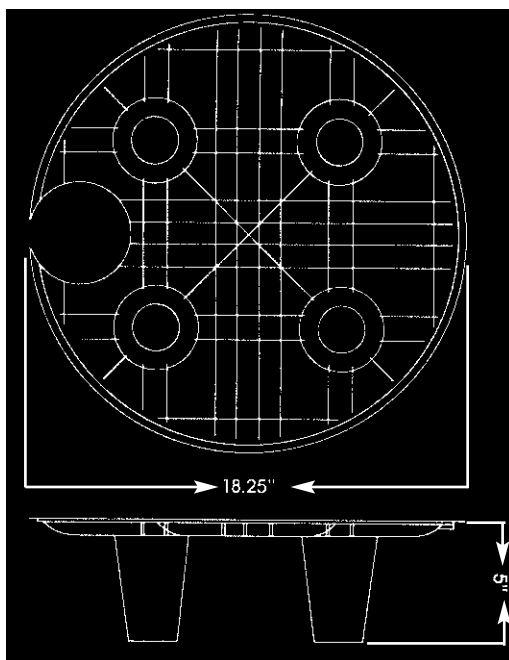
The overflow assembly is located close

to the brine level to minimize loss of salt in the event of malfunction. The overflow also prevents a skum from being formed in the tightly capped brine well.

The brine valve is protected by a grid plate, a brine well and brine well cover. Thus, salt cannot accidentally be poured in to the brine well, nor can other foreign material reach the brine solution.

To insure fully saturated brine in the brine well, a circulation hole is located in the well immediately under the grid plate.

1/4" heavy wall rigid #300 PVC is recommended for the brine pipe. This noncorrosive pipe and the brine valve can be assembled by threading the brine pipe into the valve using Teflon tape to prevent the possibility of leakage.



PLASTIC GRID

Economical, convenient, one piece salt grids with exceptional strength and durability for years of trouble free service.

ECONOMICAL - Patented one piece construction eliminates assembly time required with old style grids. Nestable, light weight design substantially reduces shipping.

DURABLE - Rugged modeled polyethylene will not transmit taste, color, or odor. Ribbed design provides maximum strength.

CONVENIENT - Nestable design and leg extensions reduce warehouse space and inventory. One piece design eliminates lost and mis-placed parts. Available with holes for 4" or 3 1/2" brine wells and blank for custom fabrication.

FIG. NO.	DESCRIPTION	UNIT CTN	CTN. WT.	PRICE
39002	Plastic Grid - 4" Brine Well Hole 18"	25	37	
50965	Plastic Grid - 3 1/2" Brine Well Hole 18"	25	37	
	3" Leg Extension Set (4 per set)	25	10	
44622	6" Leg Extension Set (4 per set)	25	16	

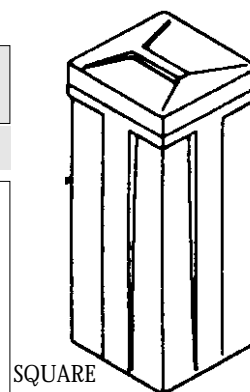
*Grid available with fine mesh screen for solar salt applications. Please consult us for specifications.

BRINE TANKS WITH COVER

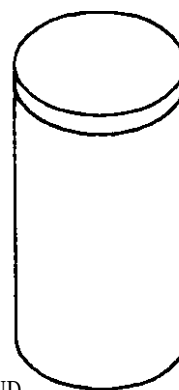
FIG. NO.	DESCRIPTION	DIA X HEIGHT	SALT	GALLONS	UNIT CTN WGT
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RESIDENTIAL (Polyethylene)

68332	Blue Square	11"x11"x38"	156	19	1/15
	Black Square	11"x11"x38"			
42779	Natural Square	11"x11"x38"			
50376	Blue Square	15"x17"	275	33	
39024	Natural Square	15"x17"			
50376	Blue Square	15"x17"			
47145	Blue Round	18"x33"	375	35	
39019	Almond Round	18"x33"			
47146	Black Round	18"x33"			
52154	Natural Round	18"x33"		35	
47147	White Round	18"x33"			
49233	Blue Round	18"x40"			
40897	Almond Round	18"x40"	450	43	
47148	Black Round	18"x40"			
47773	Fiberglass Cabinet	13.5"x35"	250		



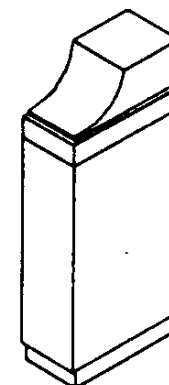
SQUARE TANK



ROUND TANK

COMMERCIAL (Polyethylene)

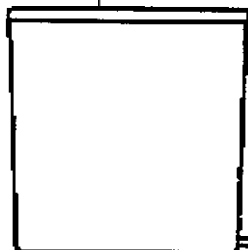
40734	Poly Black	24"x41"	650	81	1/26
40736	Poly Black	24"x50"	800	100	1/29
ROTATIONAL MOLDED					
40735	Poly Black	24"x48"	760	95	1/40
41141	Poly Black	30"x48"	1200	145	1/55
41142	Poly Black	39"x48"	2000	250	1/70
47792	Poly Black	42"x60"	2850	355	1/80
47793	Poly Black	50"x60"	4080	500	1/130



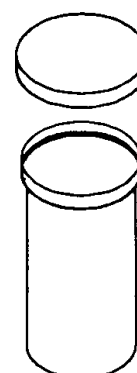
CABINET TANK

COMMERCIAL-INDUSTRIAL (Fiberglass)

	Fiberglass	48"x48"	3000	370	1/140
	Fiberglass	60"x60"	5800	730	1/220
	Fiberglass	60"x72"	9000	810	1/272
	Fiberglass	72"x60"	9500	1200	1/380

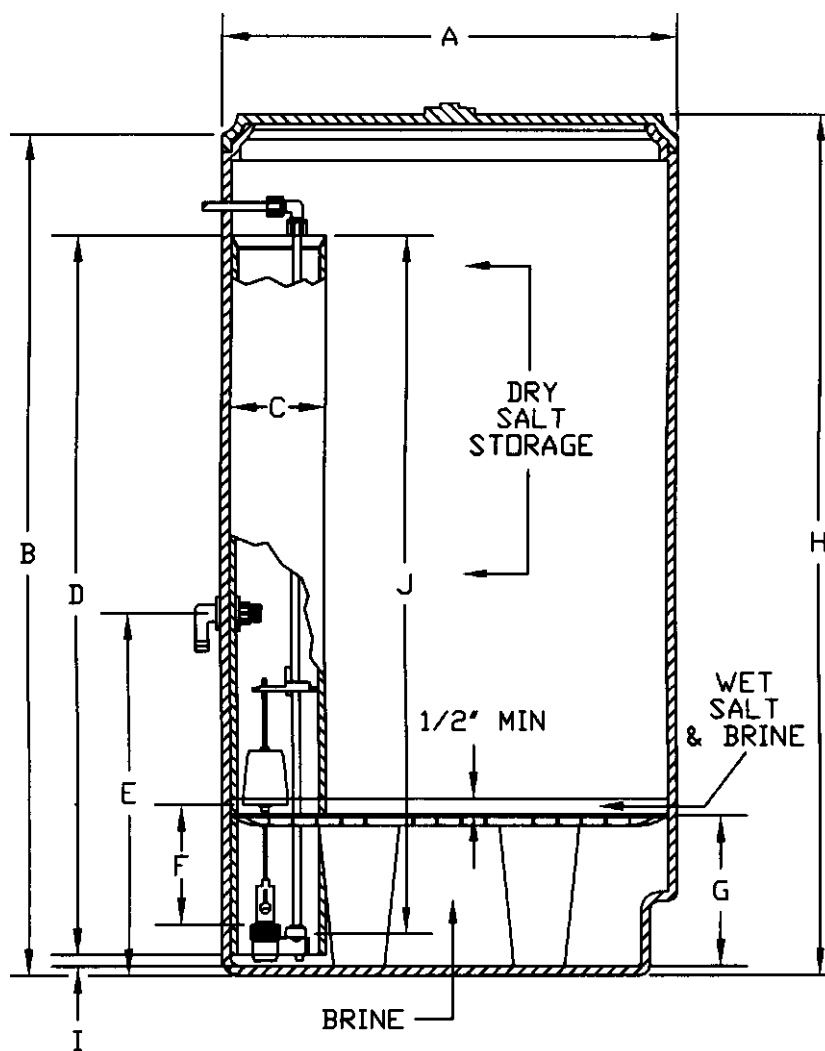


COMMERCIAL BRINE TANK



POLY TANK

18" DIAMETER BRINE TANK ASSEMBLY



Tank Dimensions in Inches

- A - 18 1/2" diameter
- B - tank height (33" or 40"), see table
- C - 3 1/2" or 4" diameter
- D - brine well length, see notes above
- E - to customer specification
- F - float setting
- G - grid height, see table
- H - 33 1/4" or 40 1/4"
- I - 1"
- J - brine pipe length, see table

Table for TP500 Plastic Grid Set (G = 5")

Pounds of Salt	Gallons of Brine	Float Setting	Brine Pipe Length*	
			33" Tank	40" Tank
4	1.5	2 3/4	26 1/2	34 1/2
5	1.9	3 1/4	27	35
6	2.3	3 1/2	27 1/4	35 1/4
7	2.6	3 3/4	27 1/2	35 1/2
8	3	4 1/4	27 3/4	35 3/4
9	3.4	4 3/4	27 3/4	35 3/4
10	3.8	5 1/4	27 3/4	35 3/4

*Brine pipe length is based on 28" brine well in 33" tank and 36" brine well in a 40" tank. Brine pipe length (J) includes threaded portion of pipe if fittings are used.

Float setting (F) is based on distance between the top of the brine valve body nut and the bottom of the float with the valve in the closed (float up) position. All dimensions to the nearest 1/4 inch.

Table for TP500 Plastic Grid with 3" Leg Extensions (G = 8")

Pounds of Salt	Gallons of Brine	Float Setting	Brine Pipe Length	
			33" Tank	40" Tank
6	2.3	3 1/2	24 1/4	32 1/4
7	2.6	3 3/4	24 1/2	32 1/2
8	3	4	24 3/4	32 3/4
9	3.4	4 1/4	25	33
10	3.9	4 3/4	25 1/2	33 1/2
11	4.2	5	25 3/4	33 3/4
12	4.6	5 1/4	26	34
13	4.9	5 1/2	26 1/4	34 1/4
14	5.2	6	26 3/4	34 3/4
15	5.8	6 1/4	27	35
16	6.1	6 1/2	27 1/4	35 1/4
17	6.4	6 3/4	27 1/2	35 1/2
18	6.8	7 1/4	27 3/4	35 3/4
19	7.2	7 3/4	27 3/4	35 3/4
20	7.6	8 1/2	27 3/4	35 3/4

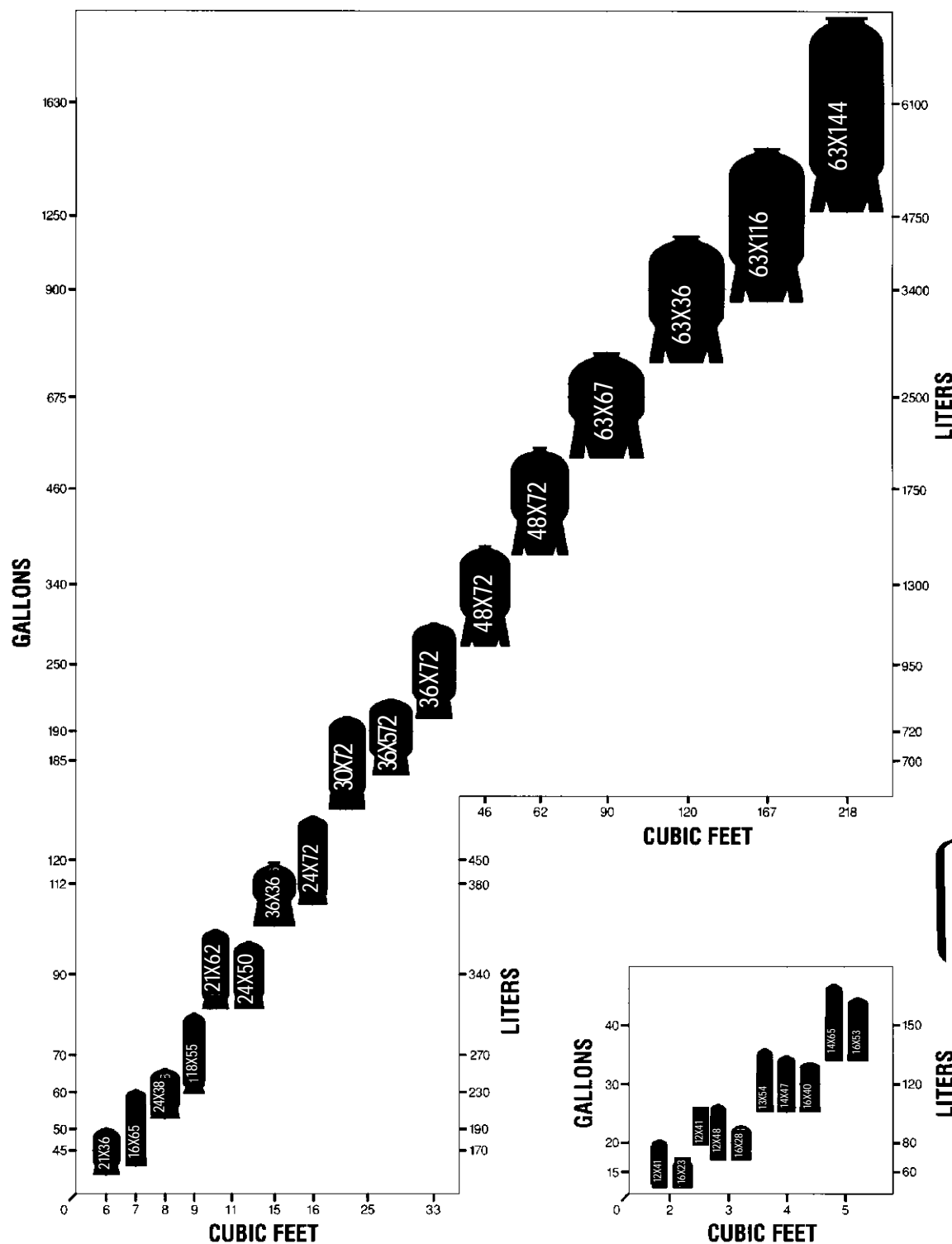
Table for TP500 Plastic Grid with 6" Leg Extensions (G = 11")

Pounds of Salt	Gallons of Brine	Float Setting	Brine Pipe Length*	
			33" Tank	40" Tank
12	4.6	5 1/4	23	31
13	4.9	5 1/2	23 1/2	31 1/4
14	5.2	6	23 3/4	31 3/4
15	5.8	6 1/4	24	32
16	6.1	6 1/2	24 1/4	32 1/4
17	6.4	6 3/4	24 1/2	32 1/2
18	6.8	7	24 3/4	32 3/4
19	7.2	7 1/4	25	33
20	7.6	7 3/4	25 1/2	33 1/2
21	7.9	8	25 3/4	33 3/4
22	8.3	8 1/4	26	34
23	8.7	8 1/2	26 1/4	34 1/4
24	9.1	9	26 3/4	34 3/4
25	9.4	9 1/4	27	35
26	9.8	9 1/2	27 1/4	35
27	10.2	9 3/4	27 1/2	35 1/4
28	10.6	10 1/4	27 3/4	35 1/4
29	10.9	10 3/4	27 3/4	35 3/4
30	11.3	11 1/2	27 3/4	35 3/4

POLYGLASS TANK

STRUCTURAL
NORTH AMERICA

Tank Volume Selector Guide



POLY GLASS TANKS

Standard top opening is 2 1/2" for all tanks through 13" diameter. All tanks available with top openings of 2 1/2", 4", 4 1/2" and 6".

Certain tanks are available with flanged opening top, bottom or both.

FIG. NO.	SIZE	PRICE	FIG. NO.	SIZE	PRICE
64320	6X12		51191	12X48	
72272	6X13		50426	12X52	
42943	6X18		48983	13X54	
51168	6X35		51318	14X47*	
58660	7X24		60708	14X50	
50424	7X35		50427	14X65*	
59400	7X40		68972	16X40	
38726	7X44		50428	16X65	
44365	8X18		47093	18X65	
58478	8X24		42600	20X62	
44666	8X30		49659	21X36	
39008	8X35		69510	21X38	
52586	8X40		51474	21X62	
38727	8X44*		44155	22X44	
47092	9X24		45466	22X54	
51784	9X35		42944	22X60	
62807	9X40		49660	24X38	
42602	9X42*		54858	24X50	
48812	9X48*		42601	24X60	
39010	10X35		42948	24X71	
32293	10X40		49387	24X72	
38729	10X44		50430	30X72	
50425	10X47		64306	36X57	
32294	10X54		50823	36X72	
47876	12X36*		50432	42X72	
37961	12X42*		55810	48X72	
			75807	63x67	

*Tanks are stocked with rubber bases and suitable for DI water.

POLYESTER FIBERGLASS TANKS

Most tanks available with dome holes.

Standard top opening is 2 1/2" for all tanks through 13" diameter. All tanks available with top openings of 2 1/2", 4", 4 1/2" and 6".

Many tanks available with side holes.

FIG. NO.	SIZE	PRICE	FIG. NO.	SIZE	PRICE
47097	8x40		32292	13x54	
52150	10x19*		44148	14x65	
32288	10x30		44152	16x23	
39016	10x35		44150	16x33	
32289	10x40*		44147	16x65*	
38733	10x44		47611	21x62	
39006	10x47		50067	24x38	
32290	10x54*		47612	24x71	
48824	12x29		45393	30x72	
32291	12x48		50066	36x72	

*Tanks available for hot water up to 150°F

STAINLESS STEEL TANKS FOR HIGHER TEMPERATURE APPLICATIONS TO 200°F

63521	8x18	67566	12x48
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For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

SELECTING MINERAL TANK JACKETS

MINERAL TANK JACKETS FIT 7", 8", 9" and 10" OD mineral tanks.

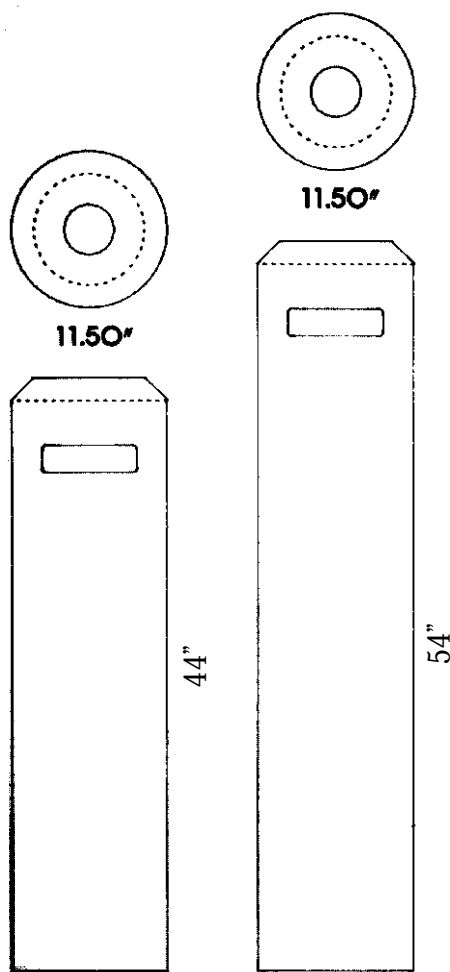


FIG. NO.	DESCRIPTION	PRICE
44614	Almond 11 1/2" OD x 44" long	
48774	Almond 11 1/2" OD x 54" long	

FOR PRIVATE LABEL MOLD INSERTS
AND CUSTOM COLORS, PLEASE
CONSULT YOUR DUFF COMPANY
WATER TREATMENT EXPERT 610-
275-4453

SELECTING TANK JACKETS

MINERAL TANKS being used for softeners or filters are available in 2 styles.

POLYGLASS - inner shell constructed of polyethylene, externally wound with continuous fiberglass, roping to provide superior strength under pressures to 150 psi and 120°F temperature.

POLYESTER FIBERGLASS REINFORCED PLASTIC (FRP) - a seamless one piece molded vessel with no welds or joints. Designed for 150 psi and 120°F temp (vinylester FRP good for 150 psi and 150°F Temp). Size ranges are 6" diameter to 16" diameter.

POLYGLASS tanks are available from Structural Fibers North America, Park Industrial and Water Tech Division of Water Mark Group. Tank opening are available in top, bottom or side configurations.

POLYESTER AND VINYLESTER tanks are available from Structural Fibers North America.

**FOR MORE SPECIFIC INFORMATION, CONTACT DUFF COMPANY WATER TREATMENT DEPARTMENT
AT 610-275-4453 FOR MORE DETAILED MINERAL TANK CATALOG**

PUROLITE® ION EXCHANGE RESINS

CATION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOLUME CAP MIN eq/l	SHIPPING WEIGHT APPRX lbs/cu ft	WATER RETENTION %	REMARKS
C-100	Strong Acid Polystyrene	Na	2.0	52	44-48	Gel type standard resin with high capacity for softening and demineralization.
C-100E	Strong Acid Polystyrene	Na	1.9	52	46-50	Gel type, particularly for softening. Resin specially treated for domestic use and for industrial use where potable water is required.
C100X10	Strong Acid Polystyrene	Na	2.2	54	40-44	Gel type with excellent resistance to oxidation. Give particularly good separation from anion resin in mixed beds.
C-147	Strong Acid Polystyrene	Na	1.8	50	55-60	Macroporous type with good resistance to attrition and osmotic shock. Excellent kinetics of exchange.
C-150	Strong Acid Polystyrene	Na	1.8	50	48-53	Macroporous type with excellent resistance to attrition and osmotic shock. For treatment of condensate, continuous processes and special applications (galvanic plating, sugar...)
C-155	Strong Acid Polystyrene	Na	2.2	50	39-44	Macroporous type. More highly cross linked. For special applications.
C-160	Strong Acid Polystyrene	Na	2.4	52	35-40	Macroporous type. Very highly crosslinked. High capacity. For special applications (Quentin process, treatment of industrial waste. Offers excellent resistance to oxidation).
C-105	Weak Acid Poly Metha- Acrylic	H	4.2	47	43-48	Gel type. High capacity. Removal of temporary hardness and alkalinity.
C-106	Weak Acid Poly Metha- Acrylic	H	2.7	46	52-58	Macroporous type with excellent resistance to osmotic shock. For special applications. Treatment of ammoniacal condensates, fixation of antibiotics.
C-115	Weak Acid Poly Metha- AcrylicNa	H	3.5	46	46-53	Very weak acidic type for special applications. (Pharmaceutical, fixation of antibiotics.

PUROLITE® WEAK BASE ANION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOL. CAP EQ/L	SHIP WGHT APPRX LBS/CU FT	WATER RETEN- TION %	REMARKS AND PRINCIPAL APPLICATIONS
A100	Polystyrene	Freebase	1.3	41	53-60	Macroporous type. Good osmotic resistance. Resin optimized for demineralization of water and sucrose.
A103	Polystyrene	Freebase	1.6	41	48-55	Macroporous type. High capacity for demineralization of glucose and other organic solutions.
A104	Polystyrene	Freebase	1.8	41	47-54	Macroporous type. Particularly high capacity for demineralization and decolorization of organic solutions including glucose, fructose...
A830	Polyacrylic	Freebase	2.7	44	47-53	Special applications. Surface removal from sea water. Effluent neutralization.
A845	Polyacrylic	Freebase	42	42	56-62	Demineralization of water high in organic matter and of organic solutions (sugar juices, gelatin...)

READY TO USE PUROLITE® MIXED BEDS

PUROLITE	APPEAR- ANCE	PUROLITE COMPO- NENT RESINS	COMPO- NENT TYPE AND %	IONIC FORMS	SHIP WGHT APPRX lbs/cu ft	USEFUL CAPACITY eq/l	APPLICATIONS
NRW 37	Without indicator	C100 (H)	40% strong acid cation	99% H	43	Min. 0.55 (for end point of 10 micromho)	Production of demineralized water of high purity. Excellent silica removal. Conductivity attainable less than 0.1 micromho.
NR2 37 IND	With indicator Blue(regenerated) Amber(exhausted)	A400 (OH)	60% strong base anion Gel Type I	95% OH			
NRW 37 SC	Without indicator	C100 (H) A400(OH)	40% strong acid cation 60% strong base anion Gel Type	99% H 95% OH	43	Minimum 0.55 (for end point of 10 micromho)	Similar to those for NRW37 plus extremely low levels of Total Organic Carbon (TOC) in effluent water.
EX MB	Without indicator (maximum color differential on separation)	C100X10 (H) A400(OH)	40% strong acid cation 60% strong base anion Gel Type I	99% H 95% OH	45	Minimum 0.54 (for end point of 10 micromho)	Similar to those for NRW37SC and with excellent separation ability for efficient regeneration.
NRW 38	Without indicator	C100 (H) A300 (OH)	40% strong acid cation 60% strong base anion Gel Type II	99% H 95% OH	43	Minimum 0.6 (for end point of 10 micromho)	Production of demineralized water of high purity at more capacity using a type II strong base anion.

PUROLITE® ION EXCHANGE RESINS

STRONG BASE ANION EXCHANGERS

PUROLITE	TYPE	IONIC FORM	TOTAL VOLUME CAP MIN eq/l	SHIPPING WEIGHT APPRX lbs/cu ft	WATER RETENTION %	REMARKS
A-400	Polystyrene Type I	Cl	1.3	43	45-54	Clear gel porous type. High operating capacity. Good kinetics giving demineralization to high purity. Good silica removal.
A-600	Polystyrene Type I	Cl	1.4	44	43-48	Clear gel type. Good mechanical strength. Production of ultra pure water. Good silica removal.
A-444	Polystyrene Type I	Cl	1.1	42	50-60	Highly porous for operating with waters high in organics.
A-300	Polystyrene Type I	Cl	1.4	44	40-45	Clear gel type. High capacity for demineralization of water.
A-500	Polystyrene Type I	Cl	1.15	43	53-58	Macroporous type. Very good mechanical and osmotic resistance. For condensate treatment and continuous systems. Good silica removal.
A-500P	Polystyrene Type I	Cl	0.8	42	63-70	Macroporous type. Highly porous. For removal of organic matter. Decolorization of sugar solutions.
A-501P	Polystyrene Type I	Cl	0.6	38	70-75	Adsorption of colloidal silica and hydrous metal oxides, iron and organics.
A-510	Polystyrene Type II	Cl	1.2	43	44-51	Macroporous type. High operating capacity. Excellent mechanical and osmotic resistance. For demineralization, fluidized beds and continuous systems.
A-850	Poly-Acrylic	Cl	1.25	45	57-62	Clear gel type. Good mechanical resistance. Reversibly removes organics with good resistance to fouling. For demineralization of water and sugar decolorization.
A-860	Poly-Acrylic	Cl	0.8	44	66-72	Macroporous type. Adsorbent resin for decolorisation of organic solutions (sugar syrups).
A-870	Poly-Acrylic	Cl Fb	1.35	44	57-62	Excellent organics removal with extremely high operating capacity, removes both strong and weak acids.

PUROLITE® GRADES PARTICLE SIZE: ANION RESINS

PUROLITE GRADE	UNIFORMITY COEFFICIENT MAXIMUM	EFFECTIVE SIZE, mm TYPICAL	SIZE RANGE LIMITATION, mm & US mesh									PRINCIPAL APPLICATIONS
			<0.3	<.42	<0.5	<.63	<.71	<.63	<.85	<1.0	<1.2	
			50	40	35	30	25	30	20	18	16	
TD	1.70	0.50	1%								5%	Standard Quality
MB	1.70	0.50	1%								2%	Mixed beds (MIXLITE)
PL	1.45	0.55		2%						5%		Condensate polishing (POLILITE).
TL	1.35	0.80		1%			1%		5%			Three component mixed bed (TRILITE)
CL	1.35	0.55		1%					5%			Continuous processes (CONTILITE)
FL	1.55	0.55		2%						10%		Floating beds, counter-flow operation (FLUDITE).
DL strong	1.35	0.60				5%				25%		Layered beds, lower layer (DOUBLITE)
DL weak	1.35	0.40	3%					5%				Layered beds, upper layer (DOUBLEITE)
S	1.50	0.55		2%							2%	Special applications (demineralization of sugar...)
C	1.50	0.55		2%							2%	High flow rate applications
G	1.50	0.63			2%						10%	Ultra low pressure loss
PUROFINE	1.2	0.45		1%			1%					High efficiency demineralization. Good kinetics, good regeneration efficiency

PUROLITE® GRADES PARTICLE SIZE: CATION RESINS

PUROLITE GRADE	UNIFORMITY COEFFICIENT MAXIMUM	EFFECTIVE SIZE, mm TYPICAL	SIZE RANGE LIMITATION, mm & US mesh									PRINCIPAL APPLICATIONS
			<0.3	<.42	<0.5	<.63	<.71	<.63	<.85	<1.0	<1.2	
			50	40	35	30	25	30	20	18	16	
STD	1.70	0.50	1%								5%	Standard Quality
MB	1.70	0.50	1%								5%	Mixed beds (MIXLITE)
PL	1.45			2%						5%		Condensate polishing (POLILITE).
TL	1.25	0.55					1%				5%	Three component mixed bed (TRILITE)
CL	1.35	0.80		1%					5%			Continuous processes (CONTILITE)
FL	1.55	0.55		2%						10%		Floating beds (FLUDITE).
DL strong	1.35	0.60				5%					15%	Layered beds, lower layer (DOUBLITE)
DL weak	1.35	0.40	1%					5%				Layered beds, upper layer (DOUBLEITE)
S	1.50	0.55		2%							2%	Special applications (demineralization of sugar...)
C	1.50	0.55		2%							2%	High flow rate applications
G	1.50	0.63			2%						5%	Dishwasher softening at high flow rate
PUROFINE	1.2	0.45		1%			1%					High efficiency demineralization. Good kinetics, good regeneration efficiency

PUROLITE® NUCLEAR GRADE QUALITY CATION AND ANION EXCHANGERS

PUROLITE	TYPE	PUROLITE STD EQUIVA- LENT	IONIC FORM	TOTAL CAPACITY MIN EQ/L	SHIP WGHT APPRX LBS/CU FT	MAX OPER TEMP F	PRINCIPAL APPLICATIONS
NRW 100	Strong Acid	CA00	H	1.8	50	250	Removal of cations including radioactive isotopes from aqueous solutions.
NRW 145	Strong Acid	C145	H	1.4	50	250	Filtration of corrosion products in BWR condensate polishers.
NRW 150	Strong Acid	C150	H	1.7	48	250	Removal of cations including radioactive isotopes. Very good resistance to osmotic shock.
NRW 160	Strong Acid	C160	H	2.2	49	250	Removal of cations including radioactive isotopes. Highly selective for cesium 137.
NRW 300	Strong Base	A300	OH	1.1	44	105	High capacity for removal of anions in radioactive streams.
NRW 400	Strong Base	A400	OH	1.0	42	120	Production of ultra pure water with low TOC for the semiconductor industry.
NRW500	Strong Base	A500	OH	1.0	42	120	Removal of anions including boric acid, radioactive isotopes and col-loids. Very good resistance to osmotic shock.
NRW600	Strong Base	A600	OH	1.0	42	120	High capacity for removal of anions from radioactive circuits. Good attrition resistance.

MIXED BEDS

PUROLITE	PUROLITE STANDARD EQUIVALENT	IONIC FORM	SHIP WGHT APPRX LBS/CU FT	MAX OPER TEMP F	PRINCIPAL APPLICATIONS
NRW 37	CA00/A400	H / OH	46	140	Demineralization and decontamination of secondary cooling circuits/effluent. Excellent resistance to attrition.
NRW37 Li7	C100/A400	Li7 / OH	46	140	Decontamination of pressurized water reactor (PWR) circuits.

NOTE: Nuclear grade mixed beds are normally supplied with near stoichiometric equivalents of anion and cation resin sites. Other ratios are supplied on request.

PURITY OF NUCLEAR GRADE ION EXCHANGERS

1) CATION RESINS

IONIC FORM	IMPURITIES	LEVEL PPM
H (minimum: 99.9%)	IRON	maximum:50
Li or Li& (minimum : 99%)	HEAVY METALS	maximum:40
	ALKALIS METALS	maximum:40

2) ANION RESINS

IONIC FORM	IMPURITIES	LEVEL PPM
OH (minimum : 95%)	IRON	maximum : 100
CO ₃ (maximum : 5%)	ALKALIS METALS	maximum : 20
Cl (maximum : 0.2%)		

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RESINS

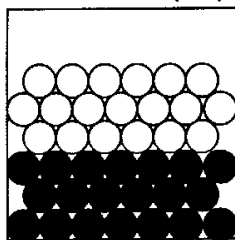
C A T I O N R E S I N					
P U R O L I T E			S Y B R O N		
FIG. NO.	DESCR	PRICE	FIG. NO.	DESCR	PRICE
60233	C100E		51446	C249	
60235	C100EB		51454	C266	
77126	C100X10		47060	C253	
57452	C100HSC		53803	ION ACC	
75380	C100EF				
52577	C106NA				

A N I O N R E S I N					
P U R O L I T E			S Y B R O N		
FIG. NO.	DESCR	PRICE	FIG. NO.	DESCR	PRICE
67665	A500P		38951	ASB2	
38952	A642		38956	A554	
47059	CLA500		68833	ASB1P	
51455	A520E				
47026	A100HP				
51453	A300C				
57454	A300				
57453	A400HS				

M I X E D B E D					
P U R O L I T E			S Y B R O N		
FIG. NO.	DESCR	PRICE	FIG. NO.	DESCR	PRICE
45382	NRW37		52286	MN60	
57536	NRW37SC				

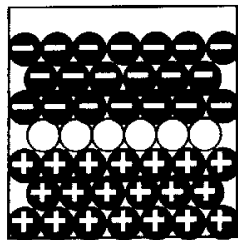
RESINS

DOUBLITE (DL)



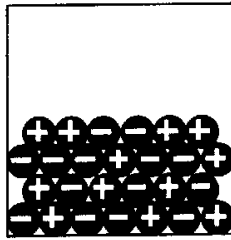
Double bed

TRILITE (TL)



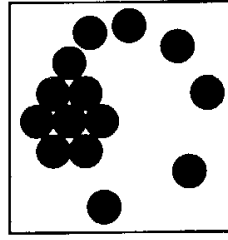
Triple Bed

MIXLITE (MB)



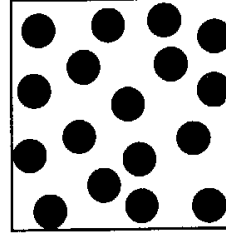
Mixed Bed

CONTLITE (CL)



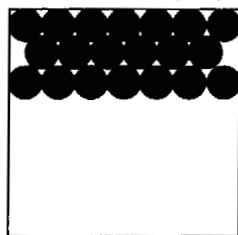
Continuous
ion exchange

FLUIDLITE (FL)



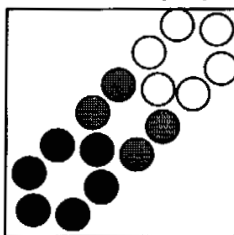
Floating bed

PACKLITE(PL)



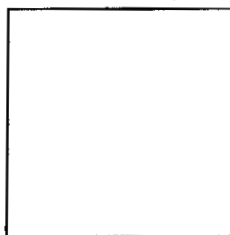
Compact bed

POLILITE(PL)



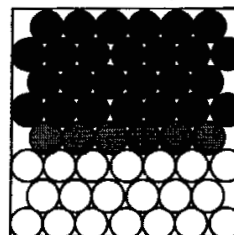
Condensate
polishing

MICROLITE(MR)



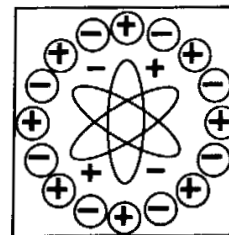
Powdered
resins

SEPARLITE(PCR)



Chromatography

NUCLEOLITE(NRW)



Nuclear Grade

PUROLITE® SPECIAL ION EXCHANGERS

PUROLITE	TYPE	FUNCTIONAL GROUPS	IONIC FORM	TOTAL CAPACITY MIN EQ/L	SHIP WGHT APPRX LBS/CU FT	WATER RETENTION %	REMARKS
A520E	Strong Base Anion	Quaternary Ammonium	Cl	1.0	43	52-56	Specifically removes nitrate in water for potable use.
A501P	Strong Base Anion	Quaternary Ammonium	Cl	0.6	38	70-75	Specially developed for the absorption of silica and metal based coolids. Can be used for the protection of membranes (RO and ultrafiltration).
S920	Chelating	Thiouronium	H	1.6	45	48-54	Selective removal of metals. Excellent selectivity and capacity for mercury removal.
S930	Chelating	Iminodiacetic	Na	1.8	45	45-50	Selective removal of polyvalent ions (including those of transition metals).
S940	Chelating	Amino-phosphonic	Na	1.0	45	60-65	Highly selective for metals of low atomic weight. Especially useful for decalcification of brine.
S950	Chelating	Amino-phosphonic	Na	1.3	45	60-65	For removal of metals from waste waters. For example in hydrometallurgy and galvanoplasting industries.
A106	Mixed base	Bi-functional	Free Base Cl	1.2	42	45-55	Demineralization, affording silica removal from low silica water at good regeneration efficiency
A107	Polystyrene	Primary Amine	Free Base Cl	1.2	42	55-60	Primary amine for special applications.

SPECIAL PRODUCT RANGES

SERIES	TYPE	PRINCIPAL APPLICATIONS	REMARKS AND PRINCIPAL APPLICATIONS
CHROMATOGRAPH PUROLITE GRADES: PCR	Strong Acid	Narrow size ranges with specific crosslinkaging available in various ionic forms (Na, Ca, K).	Separation of sugars in solution and of biochemical compounds.
CHROMATOGRAPHIC PUROLITE GRADES: PCA	Strong Base	Narrow size ranges with specific crosslinking.	Separation and concentration of nuclear waste, ion retardation, hydrometallurgy.
CATALYSIS PUROLITE GRADES: CT	Strong Acid	Products with range of porosities and crosslinking	Recommended for a variety of catalytic and pseudocatalytic applications, for example, MTBE production, esterification, alkylation, condensation and polymerization.
CATALYSIS PUROLITE GRADES: CTA	Strong Base	Pore volume 0.35 ml/g	Base catalysis of condensation reactions. As active drugs: C100MR, C100Dr (sodium polystyrene sulphonate) A 430 MR (Cholestyramine) As tablet disintegrant: C 115 MR...
PHARMACEUTICAL PUROLITE GRADES: MR AND DR RANGES	Various	Specially purified, dry ground (MR) and bead ranges (DR) for medical and veterinary use.	

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

CLOSEST COMPETITIVE EQUIVALENTS

ANION EXCHANGE RESINS

<u>PUROLITE</u>	<u>ROHM & HAAS</u>	<u>DOW</u>	<u>IONAC</u>	<u>DUOLITE</u>
A-600	IRA-400	SBR	ASB-1	A-109
A-400IRA-402	SBR-P	ASB-1P/A-104	A-101D	
A-300/A-300E	IRA-410	SAR	ASB-2/A-550	A-102D/A-104
A-850	IRA-458	-	-	A-132
A-500	IRA-900	MSA-1	A-641	A-161
A-510	IRA-910	MSA-2	A-651	A-162
A-500P	IRA-904	-	A-642	-
A-100	IRA-93/94	MWA-1	AFP-329	A-378
A-103	-	-	-	A-392
A-104	-	Dowex 66	-	-
A-444	-	Dowex II	-	-
NRW-600	IRN-78	SBR	NA-38	ARA-366
A-845	IRA-68	-	-	-
A-501P	IRA-938	-	-	-
A-520E	IRA-996	-	-	-
A-870	IRA-478	-	-	-
A-830	IRA-35	-	-	-
A-860	IRA958	-	-	-

CATION EXCHANGE RESINS

<u>PUROLITE</u>	<u>ROHM & HAAS</u>	<u>DOW</u>	<u>IONAC</u>	<u>DUOLITE</u>
C-100(Na)	IR- 120	HCR-S/HCR-W2	C-249/C-298	C-20/C-225
C-100H	120H	-	C-267	-
C-100X10	IR-122	HGR/HGR-W2	C-250/C-299	C-20X10/C-225X10
C-150	200	MSC-1	CFP-110	C-26
C-155	-	Dowex	-	C-280
C-105	IRC-76	CCR-2	CC	C-433
C-106	DP-1DP-1	-	CNN	C-464
C-115	IRC-50	-	-	-
NRW-100	IRN-177	-	NC-10	-

MIXED BED RESINS

<u>PUROLITE</u>	<u>ROHM & HAAS</u>	<u>DOW</u>	<u>IONAC</u>	<u>DUOLITE</u>
NRW-37	IRN-150	NM-60	ARM-381	
EX-MB	-	-	-	-

UNIFORM BEAD SIZE RESINS

<u>RESIN TYPE</u>	<u>PUROFINE</u>	<u>ROHM & HAAS</u>	<u>DOW</u>
TYPE I GEL ANION	PFA-400	AMBERJET 4200	MARATHON A1
TYPE II GEL ANION	PFA-300	-	MARATHON A2
GEL STRONG ACID CATION	PFC-100	AMBERJET 1200	MARATHON C
CATION FOR SOFTENERS (STRONG ACID GEL)	C-100EF	-	-

CLOSEST COMPETITIVE EQUIVALENTS

PUROLITE		ROHM & HAAS		DOW CHEM		BAYER(WEB)		MITSUBISHI	
PUROLITE	AMBERLITE	DUOLITE	DOWEX	KASTEL	LEWATIT	WOFATIT	RELITE	DIAION	

Strong Base Anion Resins

A-600	IRA-400	A-109	SBR	A-500	M-500	-	-	SA-10A
A-400	IRA-420	A-113	SBR-P	-	M-504	SBW/SW31-	-	SA-12A
A-300	IRA-416	A-104	SAR	A-300	M-600	SBK	3-A	SA-20A
A-850	IRA-458	A-132	-	-	AP-246	-	-	-
A-500	IRA-900	A-161	MSA-1	A-500P	MP-500	SZ-30	-	PA-312
A-500P	IRA-904	A-171	-	-	M-500A	-	3-AS	PA-308
A-510	IRA-910	A-172	MSA-2	A-300P	MP-600	SL-30	3-AZ	PA-412
A-520E	IMAC HP 555	-	-	-	-	-	2-AS	-
A-860	IRA-958	A-173	-	-	-	-	-	-
A-870	IRA-468/478	-	-	-	-	-	-	-

Weak Base Anion Resins

A-100	IRA-94/93	A-376	MWA-1	A-101	MP-64	AD-42/41	A-329	WA-30
A-103	-	A-368	-	-	MP-62	-	-	WA-21
A-104	-	-	66	-	-	-	-	WA-20
A-105	-	A-369	-	A-101S	-	-	-	-
A-830	IRA-60	A-374	-	-	-	-	MG-1	-
A-845	IRA-67/68	-	-	-	CA-9222	-	-	WA-11

Strong Acid Cation Resins

C-100E	IR-120	C-20A/225	HCR-SE	C-300	-	KPS	CF/L	-
	IMAC HP III	-	-	-	S-100LF	-	-	-
C-100	IR-120	C-20	HCR-W2	-	S-100	-	CF	SK-1B
C-100X10	IR-122	C-255	HGR-W2	C-300ASR	S-115	-	C-250	SK-110
C-120E	IR-118	C-206A	-	C-322	S-109	KP-6	CFA	SK-106
C-145	IMAC C 8P	-	-	C-300P	-	-	CFS	-
C-150	252	C-26	88	-	SP-112	KS-11	CFZ	PK-220
C-160	200	C-265	MSC-1	-	-	-	C-360	-

Weak Acid Cation Resins

C-105	IRC-86	C-433	CCR-2	C-101	CNP	-	CC	WK-11
C-105E	IMAC HP332/333	-	-	-	CNPLF	-	-	-
C-106	IRC-76	C-464	MWC-2	-	CNP-80	CA-20	CNN	WK-20
C-116	IRC-50	-	-	-	-	-	-	WK-10
C-116E	HP 334	-	-	-	-	-	-	-
C-118	-	-	-	-	-	-	-	-
C-118E	-	-	-	-	-	-	-	-

NUCLEAR GRADE RESIN RANGE

NRW-100	IRN-77	ARC-9351	-	-	S-100KR	-	-	SKN-1
NRW-100L17	IRN-218	ARC-9353	-	-	-	-	-	-
NRW-160	-	-	-	-	DN-KR	-	-	-
NRW-400	IRN-78L	ARA-9366	"Chloride Free"	-	S-500KR	-	-	SAN-1
NRW-450	-	-	-	-	-	-	-	-
NRW-37	IRN-150	ARA-9281D	-	-	-	-	-	-
NRW-39	-	ARA-9381	-	-	-	-	-	-

PUROFINE RANGE
Strong Acid Cation Resins

PFN C-100EF	HP-111 F	
PFC-100H	AMBERJET 1200H	MARATHON C

Strong Base Anion Resins

PFA-400	AMBERJET 4200	MARATHON A1
PFA-300	-	MARATHON A2

PRODUCTS FOR QUALITY WATER



**ECONOSOFT
WORKS HARD FOR
YOU**



Why should you use a water softener in **LAUNDRIES?**

DWC Water softening systems can help you control costs by using less detergent, less expensive detergent and making it work more efficiently. And eliminating hard water deposits that reduce flow and pressure and cause corrosion and leaks in water heaters means longer machine life and lower maintenance.

DWC water softening systems remove harsh minerals that allow stains to set and make fabrics rough and scratchy. Eliminating these makes fabric last longer, helps prevent

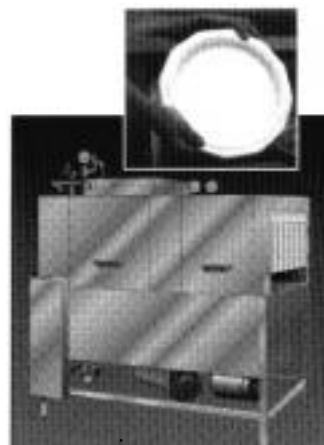
THE DWC ECONOSOFT DELIVERS - NO MATTER WHAT SIZE WASHER YOU USE!

WASHER SIZE	AVG GAL WATER/LOAD	AVG LOADS/DAY	MACHINES ON-SITE	MODEL	FIG. NO.	PRICE
35 LBS.	135	8	3	ES48C(COLD) ES48H(HOT)	42865 67543	
50 LBS.	206	8	3	ES64C(COLD) ES64H(HOT)	42868 67535	
75 LBS.	364	8	3	ES120C(COLD) ES120H(HOT)	40890 67552	

Why should you use a water softener in **DISHROOMS?**

A DWC water treatment solution can soften your problems and increase your hard cash.

DWC water softening systems can help you control costs by using less expensive detergent, less detergent, less wetting agent and making them work more efficiently. And eliminating hard water deposits that reduce flow and pressure and use corrosion and leaks in water heaters means longer machine life and lower maintenance costs. Rinse jets won't clog with mineral deposits and heating elements won't foul. DWC water softening systems remove harsh minerals that cause filming on glass and flatware leaving all your tableware cleaner increasing customer satisfaction.



THE DWC ECONOSOFT DELIVERS - NO MATTER WHAT SIZE WASHER YOU USE!

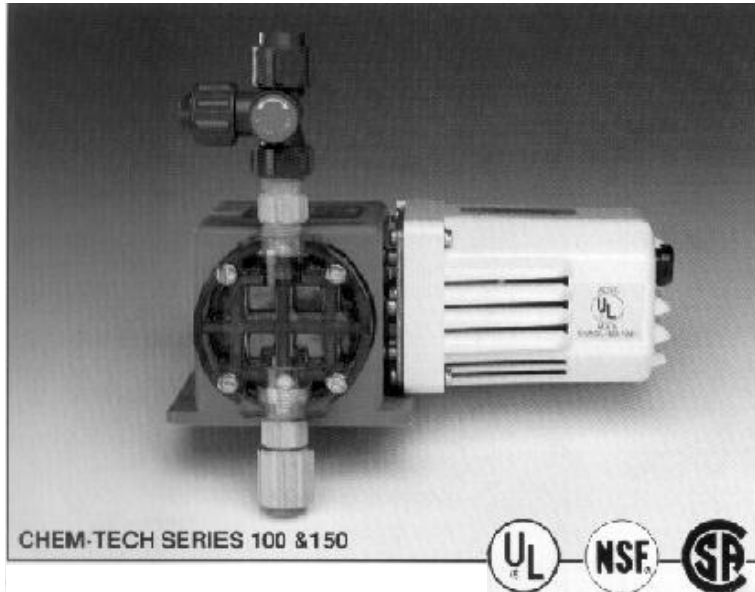
TYPE	GAL PER CYCLE	GAL PER HOUR	HRS PER DAY	MODEL	FIG. NO.	PRICE
Undercounter & single rack low temp. (140°)	1.5	55	8	ES16H	67531	
Double tank low temp. (140°)	3.8	140	8	ES24H	67572	
Undercounter & single rack high temp. (180°)	1.5	80	8	ES16HT stainless steel tank & distributor	67532	
Conveyor & flight type high temp (180°)	1.5	360	8	ES64HT stainless steel tank & distributor	67569	
Standard 32,000 grain cold water softener (100°)				DWC32F	42862	

Low temp up to 140° F rinse
High temp up to 180° F rinse
Water at 15 grains hardness.

CHEM-TECH CHEMICAL FEED PUMPS

SERIES 100 AND 150

CHEMICAL METERING PUMPS



CHEM-TECH SERIES 100 & 150

These positive displacement, diaphragm feed pumps are versatile, easy to maintain, and are engineered to satisfy a wide range of water treatment applications.

- fully adjustable output over entire operating range
- lifetime lubricated, sealed, self-maintaining gear train
- strong, chemical resistant, flame retardant housing
- operating pressures up to 100 psi
- metal reinforced, short stroke diaphragm for extra long life

THE SERIES 100D pumps feature...

- exclusive dual cam design with independent output controls for maximum operating efficiency
- dual head assemblies for feeding two different chemicals

HEAD: SAN (optional PVC, polypropylene, PPS, 316SST)

DIAPHRAGM: Hypalon (optional viton, silastic, EPDM, Teflon coated)

VALVE SEATS: Hypalon (optional viton, silastic, EPDM)

GASKETS: Teflon

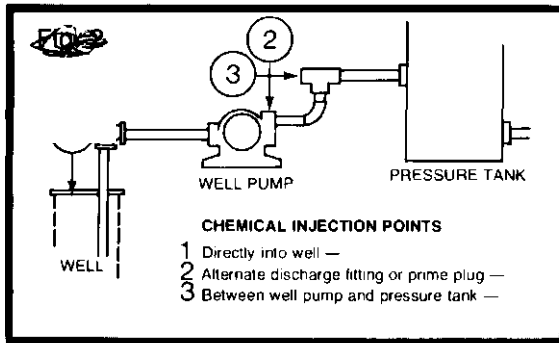
DISCHARGE TUBING: Polyethylene

SUCTION TUBING: Flexible PVC

BALL CHECKS: Ceramic (optional Teflon)

FITTINGS: PVC (optional polypropylene, PPS, 316SST)

DIMENSIONS: 6 + 3/4" H x 8 + 7/8" W x 7 + 1/4" D (SERIES 100 & 150)
6 + 3/4" H x 12 + 5/16" W x 7 + 1/4" D (SERIES 100D)

CHEM-TECH CHEMICAL
METERING PUMPSSERIES 200
CHEMICAL
METERING PUMPS

MODEL	GAL. PER DAY	LTR. PER DAY	MAX. PRSSRE (PSI)	SHIP WGHT (LBS)	FIG. NO.	PRICE
200/210	10	37	150	17		
200/215	15	56	150	17		
200/220	20	75	150	17	43375	
200/230	30	113	125	17		
200/240	40	151	125	17	25233	
200/260	60	227	125	17	43377	
200/280	80	302	100	17	43379	
200/2-100	100	378	100	17		
200/2-120	120	454	80	17		

*NOMINAL FEED RATE AT MAXIMUM STROKE SETTING

These high pressure diaphragm feed pumps provide excellent efficiency under the most strenuous conditions and are popular for in-plant process water and boiler water treatment and other industrial applications.

*Fully adjustable output over entire operating range

*Heavy duty, fan-cooled motor and oil immersed gear box for high performance.

*Metal reinforced, short stroke diaphragm for long life

*High torque motor-gear coupling ensures start-up under maximum head pressure.

HEAD: SAN(optional PVC, PP, PPS, 316SST)

DIAPHRAGM & VALVE SEATS: Hypalon (optional viton, silastic, EPDM, Teflon coated)

GASKETS: Teflon

BALL CHECKS: Ceramic (optional Teflon 316SST)

FITTINGS: PVC (optional PPS, polypropylene, 316SST)

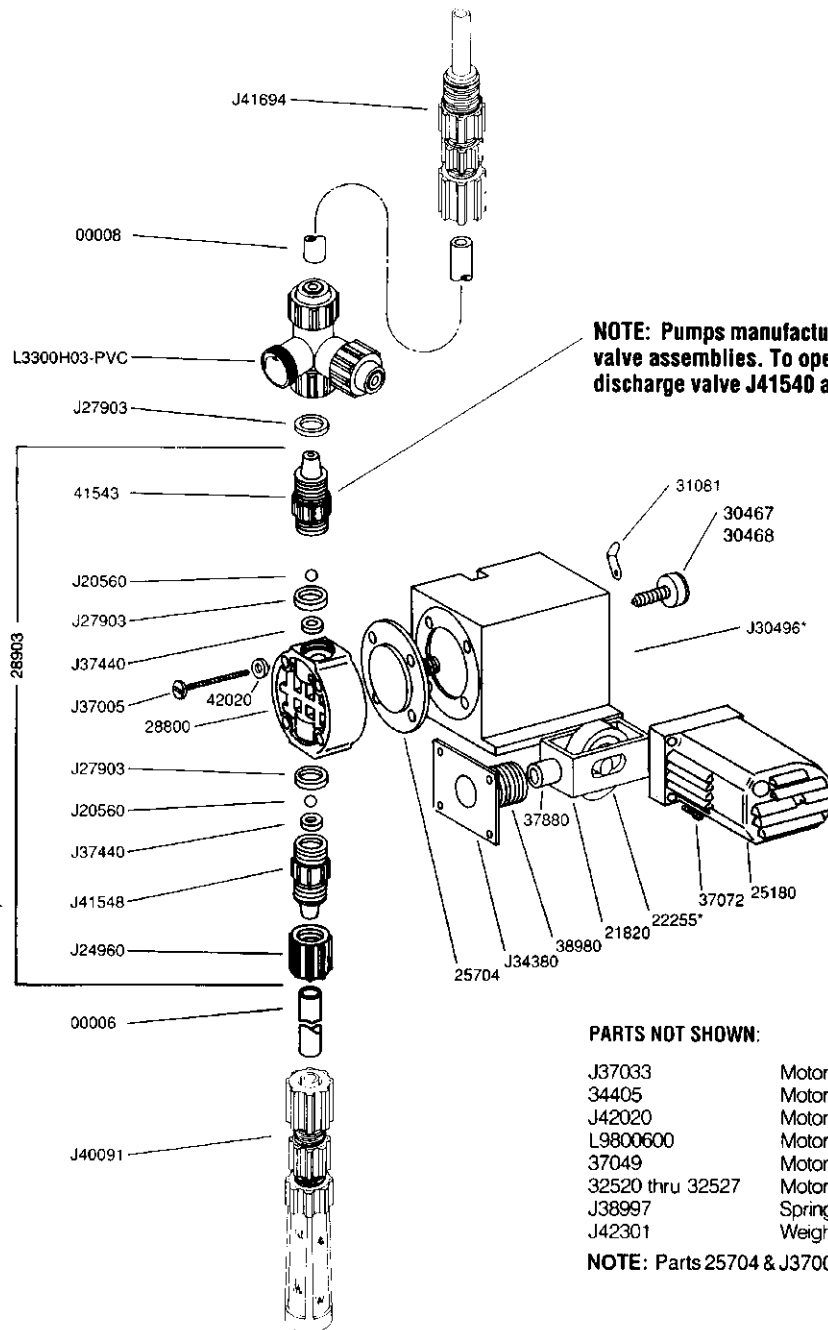
DISCHARGE TUBING: Polyethylene

SUCTION TUBING: Flexible PVC

DIMENSION: 7 + 3/4" X 7 1/4" X 13" (SERIES 200)

DIAPHRAGM PUMPS

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.



PULSAFEEDER®

A Unit of IDEX Corporation

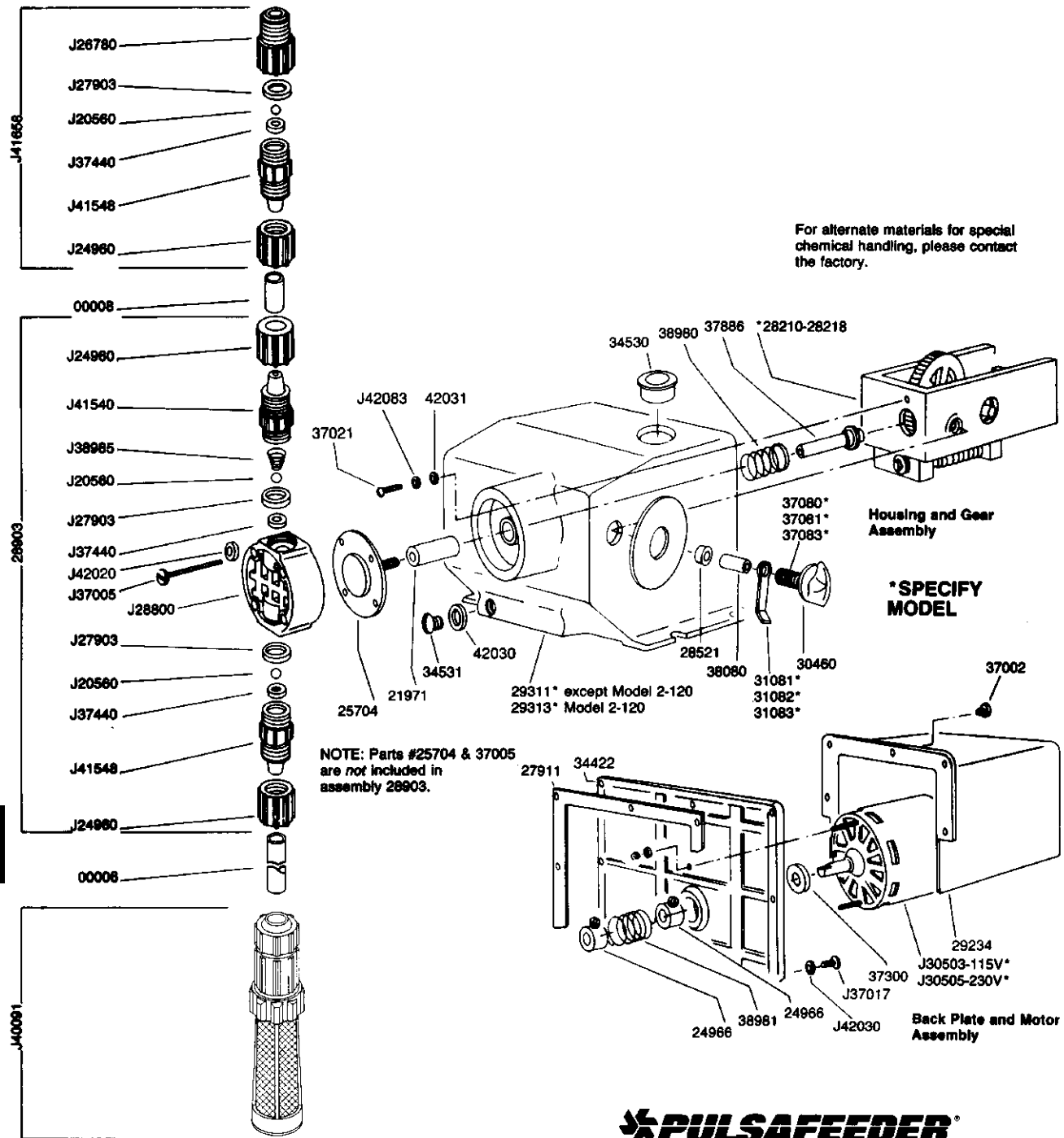
27101 AIRPORT ROAD, PUNTA GORDA, FL 33982

CHEMTECH/PULSAFEEDER SERIES 100 PARTS

NEW PART #	OLD PART #	DESCRIPTION	FIG. NO.	PRICE
00006	277P	Suction tubing per foot		
00008	279P	discharge tubing per foot		
**J20560	278P	Ball check, ceramic	32304	
21820	607P	Bracket		
22255	613P	Cam bearing assy., 003, 007, 015, 030		
22256	613P	Cam bearing assy., 024		
22257	613P	Cam bearing assy., 068, 100		
J24960		Coupling Nut	32299	
25180	625P	Motor cover		
**25704	228P	Diaphragm, Hypalon	32298	
J26780	245P	Injection fitting	32302	
J27903	237P	Gasket, teflon	33358	
**28800	242P	Head, Acrylic	32300	
**J28801	296P	Head, PVC		
**28903	A51P	Head Assembly, acrylic	32309	
30460	608P	Output adjustment knob		
30467		Knob assy., includes 30460 and 37089, 068 & 100		
30468		Know assy., includes 30460 and 37088, all models 068 & 100		
*J30496	603P	Field replacement housing assembly, S100, all except model 024		
*J30497	603P	Field replacement housing assembly, model 024		
*J30498	603P	Field replacement housing assembly, S150, all		
L3300H03-PVC		Bleed valve		
J34380	610P	Backing plate		
J34520	283PP	Foot valve plug		
J37005	621P	Head mounting bolts S.S. 10x24 (4 required)		
37032	620P	Screw, 10-24 x 1/2"		
37088	652P	Output adjustment screw, 068, 100		
37089	652P	Output adjustment screw, all models except 068 & 100		
**J37440	638P	Valve seat, hypalon	33357	
37880	626P	Diaphragm shaft		
38980	252P	Diaphragm return spring	47081	
J38985	285P	Valve spring	32307	
J40080	281P	Strainer, Polypropylene		
**J40017	A50P	Foot valve and strainer assembly	32308	
**41543	244P	Valve housing, discharge 3/8"	74349	
**J41548	247P	Valve housing, suction	32303	
J41694	A52P	Back check valve assembly	73199	
42020		Washer		

*Field replacement housing assembly includes housing with needle bearing (20580) and backing plant (J34380)

**Available in various materials - specify material when ordering.



PULSAFEEDER
A Unit of IDEX Corporation

CHEMTECH/PULSAFEEDER SERIES 200 PARTS (CONT'D)

NEW PART #	OLD PART #	DESCRIPTION	FIG. NO.	PRICE
J20560	278P	Ball Check, Ceramic	32304	
21971	683P	Diaphragm shaft bushing		
J24960	240P	Coupling nut	32299	
24966	680P	Shaft coupling (2 required)		
25704	228P	Diaphragm, hypalon	32298	
J26780	245P	Injection fitting	32302	
J27903	237P	Gasket, teflon	33358	
27911	225P	Gasket	48961	
28800	242P	Head Acrylic	32300	
28903	A51P	Head assembly	32309	
30460	266P	Output adjustment knob		
J30503	273P	Motor 115v	47083	
J30505	273P	Motor 230/260		
34422	235P	Back plate		
37300	692P	Oil seal	47082	
J37440	638P	Valve seat, hypalon	33357	
37886	216P	Diaphragm shaft		
38080	640P	Locking sleeve		
38980	252P	Diaphragm, return spring	47081	
38981	682P	Coupling spring		
J38985	285P	Valve spring	32307	
J40117	A50P	Foot valve & strainer assembly	32308	
J41540	244P	Valve housing, discharge	32301	
J41548	247P	Valve housing, suction	32303	
J41658	A52P	Back check valve assembly	38665	

YOU ARE ALWAYS WELCOME AT DUFF COMPANY!

**VISIT US ANYTIME!
201 EAST LAFAYETTE STREET
NORRISTOWN, PA 19401**



For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

PULSATRON ELECTRONIC METERING PUMPS

KEY FEATURES

Series E Plus

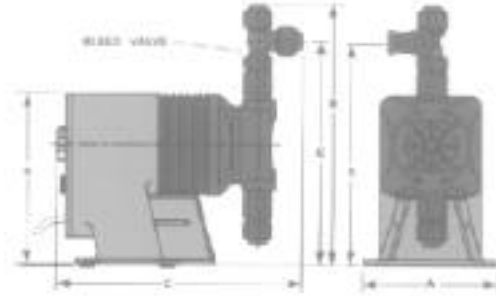
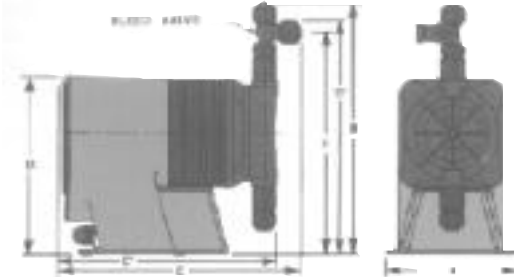
4-20 mADC direct and stop inputs or external pacing and stop inputs are available.
Auto-Off-Manual switch
Highly reliable timing circuit
EMI resistant
Thermally protected solenoid with auto-reset
Panel mounted circuit breaker
Indicator lights
Bleed valve assembly

Series E, E-DC A Plus and C Plus

Manual function controls for stroke rate and stroke length
Highly reliable timing circuit
EMI resistant
Thermally protected solenoid with auto-reset
Bleed valve assembly

Series C

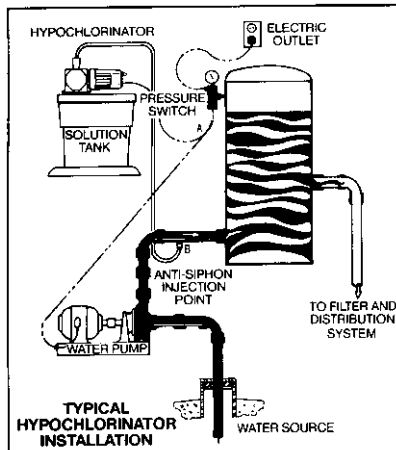
Our lowest cost alternative
Manual function control for stroke length
Highly reliable timing circuit
EMI resistant
Thermally protected solenoid with auto-reset
Bleed valve assembly



SERIES E PLUS DIMENSIONS (inches)										
Fig. No.	Mdl. No.	A	B	B ¹	C	C ¹	D	E	Ship Wt.	Price
67392	LPA2	5.4	10.3	-	10.8	-	7.5	9.0	13	
	LPA3	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPB2	5.4	10.3	-	10.8	-	7.5	9.0	13	
	LPB3	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPB4	5.4	10.6	-	10.7	-	7.5	9.2	13	
	LPD3	5.4	10.6	-	11.2	-	7.5	9.2	15	
	LPD4	5.4	10.6	-	11.2	-	7.5	9.2	15	
66541	LPE4	5.4	10.6	-	11.2	-	7.5	9.2	15	
	LPF4	5.4	10.6	-	11.7	-	7.5	9.2	18	
	LPG4	5.4	10.6	-	11.7	-	7.5	9.2	18	
	LPG5	5.4	11.0	-	11.7	-	7.5	9.6	18	
	LPH4	6.2	11.0	-	11.2	-	8.2	9.6	21	
	LPH5	6.2	11.3	-	11.2	-	8.2	10.0	21	
	LPH6	6.2	11.3	-	11.2	-	8.2	10.0	21	
	LPH7	6.1	11.7	-	11.2	-	8.2	10.3	21	
	LPH8*	6.1	-	10.9	-	10.6	8.2	-	25	
	LPK7	6.1	11.7	-	11.2	-	8.2	10.3	21	

Note: Inches x 2.54 = cm

*The LPH8 is designed without a bleed valve available.



A: The hypochlorinator may be wired in at any point between the pressure switch and the water pump.
B: Injection point located on the pressure side of the water pump prevents potential damage to pump by concentrated chlorine or precipitants.

SERIES E DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
66543	LEO2	5.0	9.6	9.6	6.5	8.2	10		
	LEO3	5.0	9.9	9.5	6.5	8.5	10		
44968	LE12	5.0	9.6	9.6	6.5	8.2	10		
66542	LE13	5.0	9.9	9.5	6.5	8.5	10		
69558	LE14	5.0	9.9	9.5	6.5	8.5	10		
	LE33	5.4	10.6	11.4	7.5	9.2	15		
	LE34L	5.4	10.6	11.4	7.5	9.2	15		
	E44	5.4	10.6	11.4	7.5	9.2	15		

Note: Inches x 2.54 = cm

SERIES A PLUS DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
	LB02	5.0	9.6	9.5	6.5	8.2	10		
	LB03	5.0	9.9	9.5	6.5	8.5	10		
	LB04	5.0	9.9	9.5	6.5	8.5	10		
	LB64	5.0	9.9	9.5	6.5	8.5	10		

SERIES C PLUS DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
	LD02	5.0	9.6	9.5	6.5	8.2	10		
	LD03	5.0	9.9	9.5	6.5	8.5	10		
	LD04	5.0	9.9	9.5	6.5	8.5	10		
69201	LD54	5.0	9.9	9.5	6.5	8.5	10		

SERIES C DIMENSIONS (inches)									
FIG. NO.	MDL NO.	A	B	C	D	E	SHIP WT.	PRICE	
47050	LC02	5.0	9.6	9.5	6.5	8.2	10		
	LC03	5.0	9.9	9.5	6.5	8.5	10		
	LCO4	5.0	9.9	9.5	6.5	8.5	10		
59169	L54	5.0	9.9	9.5	6.5	8.5	10		

CHEMICAL FEED PUMP

Cooling Water Treatment Applications

For each system a survey should be made which will include the following basic information.

1. Tons of refrigeration — 1 ton = 12,000 BTU.
2. Hours of operation per day.
3. Total water capacity of the system.

In addition, you must estimate or calculate the following:

4. Evaporation of water from the system in gallons per minute.
5. From inspection of water, decide on concentration to be maintained.
6. Amount of water to be bled from the system (bleed off in gallons per minute).
7. Total bleed off in gallons per minute per day.
8. Amount of chemical required per day.

Normally speaking, the tons of refrigeration, hours of operation per day, and the total water capacity of the system will be readily available from the mechanical contractor, mechanical engineer, or maintenance superintendent.

Figuring the amount of evaporation in gallons per minute must be determined by the number of tons refrigeration. Two different types of systems:

Using tons refrigeration:

1. **Vapor-Compression System:** Compression systems may use reciprocating, centrifugal, gear, or rotary compressors and any one or more of a variety of refrigerants, depending upon the job.

To obtain evaporation of water from the cooling system, multiply the "tons refrigeration" by the factor 0.03, and the product is the rate of evaporation of water in gpm.

2. **Adsorption Systems:** Systems using heat to raise pressure of the refrigerant instead of a compressor. Adsorption refrigeration relies on the ability of some liquid solutions to adsorb vapors when cold, readily give up when hot.

Multiply the "tons refrigeration" by the factor 0.06, the product is the rate of evaporation of water from the system in gpm.

Total Amount of Water Evaporated Per Day:

The number of gpm of water evaporated/min., as determined by one of the preceding methods, multiplied by 60, equals the number of gallons/hour evaporated. This figure, multiplied by the number of hours of operation/day, will give the total amount of water evaporated per day.

Amount of water to be bled from the system. (Bleed off in gallons per minute.)

1. The amount of water to bleed off from the system each minute is based on the amount of water evaporated per minute — and — on the desired concentration (cycles of concentration) to be maintained in the cooling system.

2. The allowable concentration (AC) to be maintained in a given cooling system will be determined by using the following rules:

(A.) Normally, as a rule of thumb, it is not recommended to use more than five cycles of concentration in a cooling system.

(B.) Allowable concentrations with vapor-compression systems.

1. Without PH Controls:

$$\text{Allowable Concentration} = \frac{40}{\text{TA \& TH}}$$

TA = Total Alkalinity
TH = Total Hardness

2. With PH Control:

$$\text{Allowable Concentration} = \frac{40}{\text{TH}}$$

Note: PH Control — Feeding acid to a cooling tower requires constant supervision by trained personnel — at best — in most small systems it is risky.

3. Allowable concentrations in adsorption systems:

(A.) **Systems under 75 Tons:**

Determine the maximum allowable concentration in the usual manner. $\frac{40}{\text{TA \& TH}}$. But in no

case allow more than two cycles of concentration.

(B.) **Systems over 75 Tons:**

Softened water on PH Control should be used.

1. If PH Control is used, figure the allowable concentration = $\frac{40}{\text{TH}}$

2. If softened water is used, figure — $\frac{40}{\text{TA}} + 10\%$.

* Maximum 5 cycles of concentration.

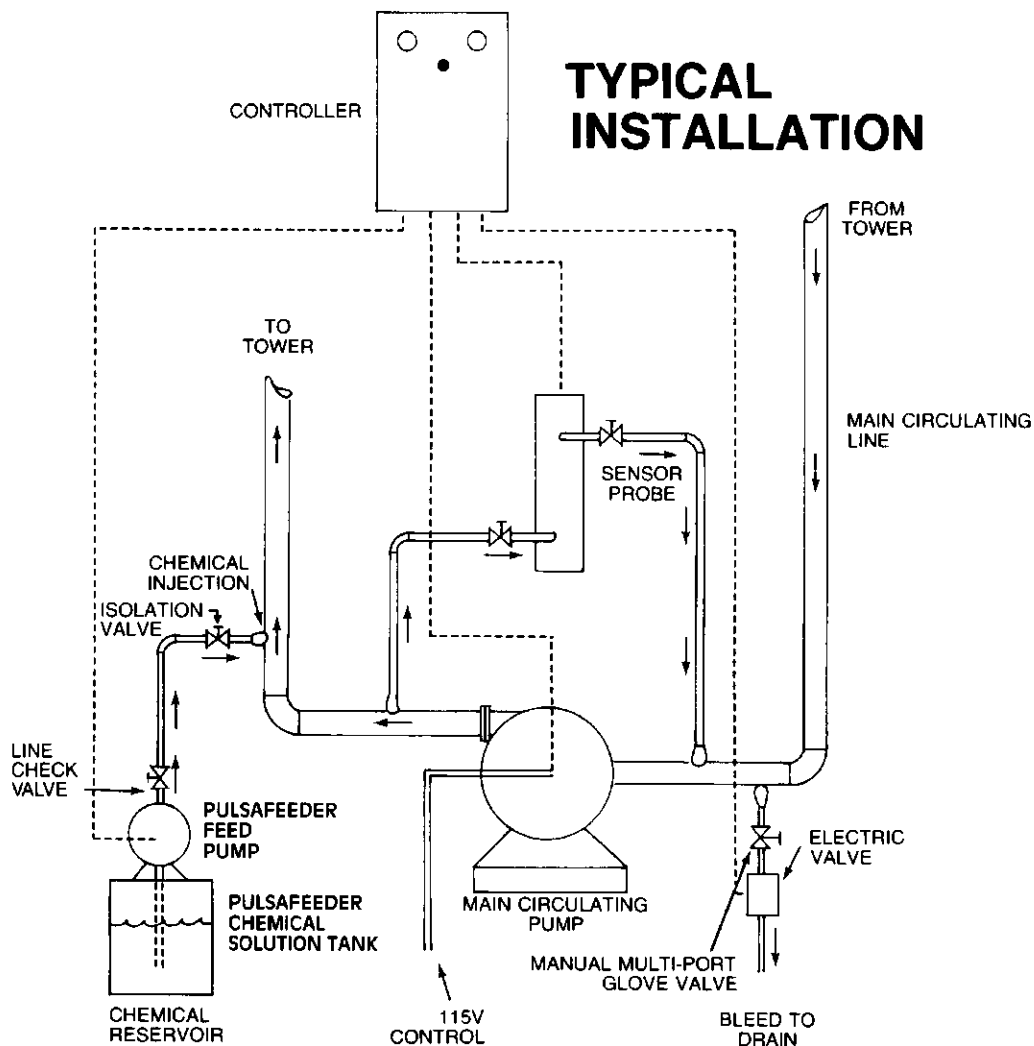
CHEMICAL FEED PUMP Cooling Water Treatment Applications

After you have determined the desired number of cycles from one of the above rules, the amount of bleed-off to obtain that specific concentration can be determined in accordance with the table to the right.

The rate of evaporation in gallons per minute times the percentage determined by the number of concentrations to be maintained equals the amount of water to be bled off per minute of operation.

Concentration	Rate of bleed-off as a percent of the rate of evaporation
5	25%
4	33.5%
3	50.0%
2.75	57.0%
2.5	66.0%
2.25	80.0%
2.0	100%
1.75	133%
1.5	200%
1.25	400%

Amount of bleed-off in gallons per minute.



0601759 JR

FLOW METERS

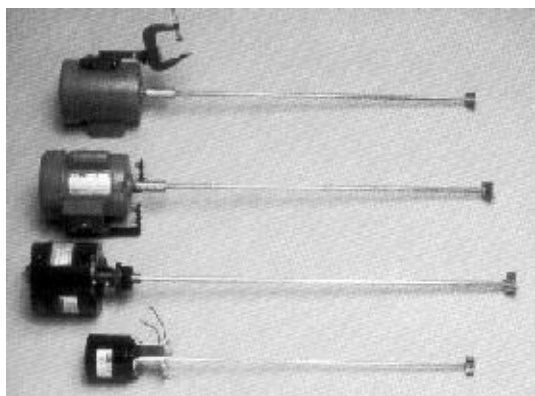
**SERIES 10,000 FLOWMETER WITH CONTACTOR**

- ☐ Specifically designed to control the metering of chemical in direct proportion to the influent flow rate.
- ☐ Available with an extensive range of Contactor (pulse) rates.
- ☐ Available from .25 gallon per contact to 50 gallons per contact.
- ☐ Internal plastic components are impervious to most chemicals.
- ☐ Contactor and register are hermetically sealed for years of trouble free operation.

SERIES 10,000 FLOWMETER-CONTACTOR SPECIFICATIONS

Type:	3/4" - 2"	3" - 6"	Temperature Limitations:	33 - 105 Degrees Fahrenheit	33 - 105 Degrees Fahrenheit
Housing:	Multi-Jet Cast Bronze	Turbine Cast Iron	Pressure Limitations:	150 PSI Maximum	250 PSI Maximum
Drive Mechanism:	Gear	Gear	Mounting:	Machined coupling-Horizontal	Flange-Horizontal
Register:	Totalizing with three sweep pointers, 0.1, 1.0 and 10 gallons per revolution	Register in 100's of gallons. Maximum reading ranges from 100 million to 1 billion, depending upon meter.			

FIG. NO.	FLOW METER	GALLONS	PRICE
77347	1/2 Flow Meter		
61916	3/4 Flow Meter	0.25 Gal per pulse	
63822	3/4 Flow Meter	0.10 Gal per pulse	
65727	3/4 Flow Meter	0.04 Gal per pulse	

CHEM-TECH MIXERS**MIXERS**

CHEM-TECH MIXERS are dynamically balanced for smooth operation and available with a variety of motors, mounting systems, and impellers.

MOTORS: Open, totally enclosed, and explosion proof motors are available in the following horsepower: 1/20, 1/4, 1/3, 1/2, and 1 hp.

MOUNTS: A choice of clamp, bracket, thread or flange mounts is available.

IMPELLERS: The CHEM-TECH stainless steel impeller offers excellent resistance to abrasion and corrosion and is available in various sizes to provide maximum mixing action for each motor model.

FIG. NO.	MODEL #	DESCRIPTION	PRICE
49316	42747-B-M-TE-H	1/20 HP bracket mount	
50545	42748-F-M-TE-H	1/20 HP bracket mount	
47051	42742-B-1-O-H	1/4 HP bracket mount	
49726	42749-F-2-O-H	1/3 HP flange mount	

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

CHEMICAL FEED PUMPS








STENNER

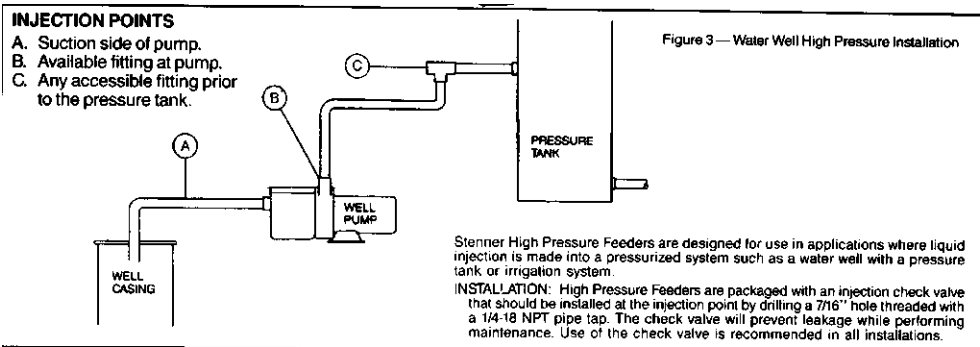
Stenner chemical feed pumps utilize the simple concept of peristaltic action. Pump action is achieved by moving a system of rollers against a flexible tube. As the open and closed sections of the tube are moved forward by the rollers, fluids and slurries are pulled through the pump and discharged from the output side.

MODELS AND OUTPUTS

The chart below shows the variety of pumps available. For special purpose applications, special voltages and frequencies, custom manufactured modes are available upon request.

STENNER PERISTALTIC PUMPS

MECHANICAL CONTROL MODELS			FIXED OUTPUT MODELS		24 HOUR OUTPUT (Maximum) US GALS	MAX DISCHARGE PRESSURE PSI								
SINGLE HEAD	DOUBLE HEAD	DOUBLE HD DUALCONTROL	SINGLE HEAD	DOUBLE HEAD										
														
45M-HP2			45MP-HP2		2.2	100								
<table><tr><td>Voltage</td><td>Fig. No.</td><td>Price</td></tr><tr><td>120</td><td>80230</td><td></td></tr><tr><td>230</td><td>77176</td><td></td></tr></table>	Voltage	Fig. No.	Price	120	80230		230	77176						
Voltage	Fig. No.	Price												
120	80230													
230	77176													
45M-HP10			45MP-HP10		10	100								
85M-HP5			85MP-HP5		4.5	100								
85M-HP17					17	100								
<table><tr><td>Voltage</td><td>Fig. No.</td><td>Price</td></tr><tr><td>120</td><td>78631</td><td></td></tr><tr><td>230</td><td>78632</td><td></td></tr></table>	Voltage	Fig. No.	Price	120	78631		230	78632						
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120	78631													
230	78632													
	100DM-HP5	100MDC-HP5		100DMP-HP5	4.5	100								
	100DM-HP20	100MDC-HP20		100DMP-HP20	20	100								
		<table><tr><td>Fig. No.</td><td>Price</td></tr><tr><td>78069</td><td></td></tr></table>	Fig. No.	Price	78069									
Fig. No.	Price													
78069														
	170DM-HP9	170MDC-HP9		170DMP-HP9	9	100								
	170DM-HP34	170MDC-HP34		170DMP-HP34	34	100								
	<table><tr><td>Voltage</td><td>Fig. No.</td><td>Price</td></tr><tr><td>120</td><td>78633</td><td></td></tr><tr><td>230</td><td>78634</td><td></td></tr></table>	Voltage	Fig. No.	Price	120	78633		230	78634					
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120	78633													
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STENNER TUBE HOUSING PARTS

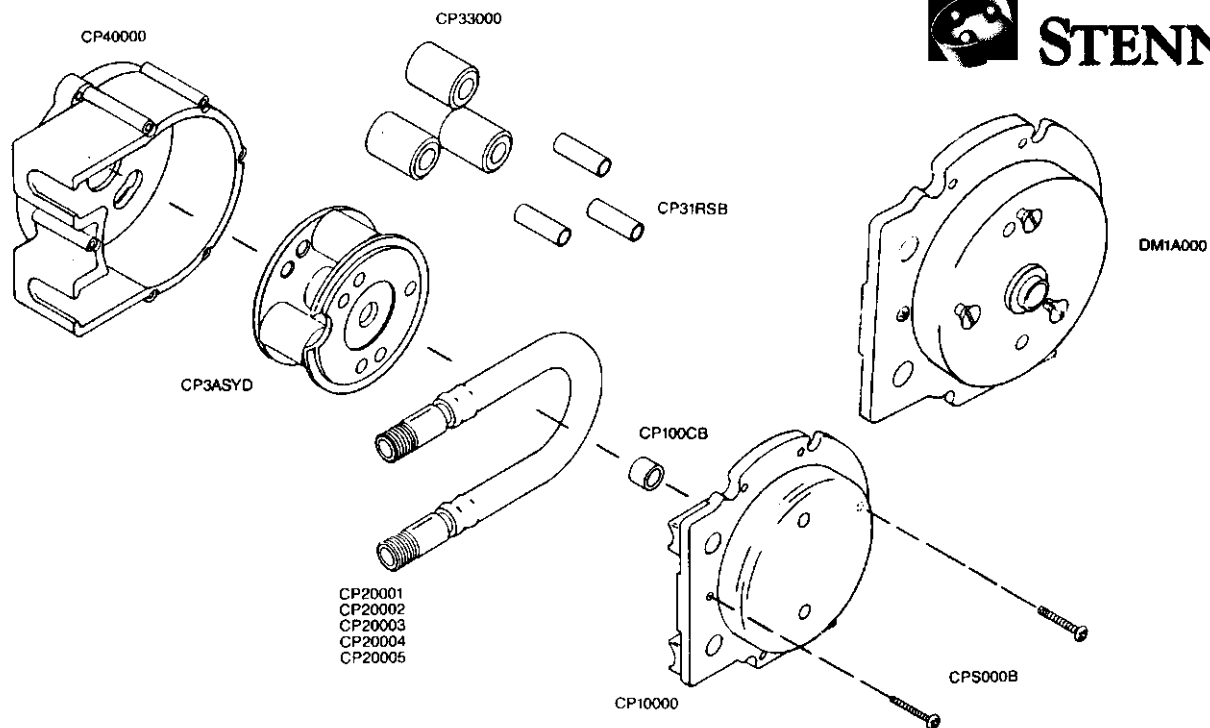
**STENNER**

FIG. NO.	PART NO.	DESCRIPTION	PRICE
TUBE HOUSINGS COMPLETE AND PARTS			
78667	CP10000	Tube housing cover with bushing	
	CP100CB	Tube housing cover bushing only	
78669	CP3ASYD	Roller assembly complete "D" shaft	
	CP31RSB	Roller shaft bushing only	
	CP33000	Standard roller	
	CP40000	Tube housing only	
78668	CPS000B	Tube housing cover screw	
78670	CPTH1D	Tube housing complete 45-1 "D"	
	CPTH2D	Tube housing complete 45-2 "D"	
	CPTH3D	Tube housing complete 45-3 "D"	
	CPTH4D	Tube housing complete 45-4 "D"	
	CPTH5D	Tube housing complete 45-5 "D"	
DM AND MDC MODEL ADAPTER TUBE HOUSING COMPLETE AND PARTS			
	DM1A000	Adapter tube housing cover with bushing	
	DM1ATC1	Adapter tube housing complete 45-1	
	DM1ATC2	Adapter tube housing complete 45-2	
	DM1ATC3	Adapter tube housing complete 45-3	
	DM1ATC4	Adapter tube housing complete 45-4	
	DM1ATC5	Adapter tube housing complete 45-5	
TUBE ASSEMBLIES FOR ALL STENNER FEEDERS			
78671	CP20001	#45-1 tube assembly W/E	
78672	CP20002	#45-2 tube assembly W/E	
	CP20003	#45-3 tube assembly W/E	
	CP20004	#45-4 tube assembly W/E	
	CP20005	#45-5 tube assembly W/E	

STENNER MISCELLANEOUS ACCESSORIES

FIG. NO.	PART NO.	DESCRIPTION	PRICE
78656	AK10000	Connecting nut 1.4"	
78657	AK20000	Ferrule 1/4"	
	AK30000	PVC injection fitting w/ ferrule and nut	
	AK4002B	20' x 1/4" black lead tube	
	AK4002W	20' x 1/4" white lead tube	
	AK4010B	100' x 1/4" black lead tube	
	AK4010W	100' x 1/4" white lead tube	
	AK4100B	1000' x 1/4" black lead tube	
	AK4100W	1000' x 1/4" white lead tube	
	CPACKIT	1/4" accessory kit (1 PVC injection fitting, 1 feeder tube assembly, 2 connecting nuts, 20' x 1/4" white lead tube, 2-1/4" ferrules).	
	HPACKIT	1/4" high pressure accessory kit (1 injection check valve, 1 HP feeder tube assembly, 2 connecting nuts, 20' x 1/4" white lead tube, 2-1/4" ferrules).	
	MAACKIT	3/8" accessory kit (1 PVC injection fitting, 1 feeder tube assembly, three 3/8" adapter nuts, three 3/8" adapter nuts, thread 3/8" lead tube adapters, 20' x 3/8" white lead tube).	
	MAADPTR	3/8" lead tube adapter	
	MANUT00	3/8" adapter nut	
	MALT002	20' x 3/8" lead tube	
	MALT010	100' x 3/8" lead tube	
	MALT100	1000' x 3/8" lead tube	
78658	MACW000	Clay lead tube weight	
	MAFVSST	Stenner foot valve strainer	
	MASST00	Stenner suction line strainer	
77764	MAGCSGR	Gearcase grease	
	MAMBOIL	Motor bearing oil	
CHECK VALVE PARTS			
	CVDBKIT	Stenner check valve kit 1/4"	
	CVDB3/8	Stenner check valve kit 3/8"	
78673	CVDBINJ	Stenner injection check valve 1/4"	
	CVDBINL	Stenner in-line check valve 1/4"	
	CVDBFDR	Stenner at-the-feeder check valve 1/4"	
	CVDB000	Check valve duckbill only	
78674	CVDBCVB	Check valve body only	
	CVDBCON	Check valve connector	
	CVIJFTG	Check valve injection fitting only	
	CVILFTG	Check valve in-line fitting only	

STENNER FEED RATE CONTROL PARTS

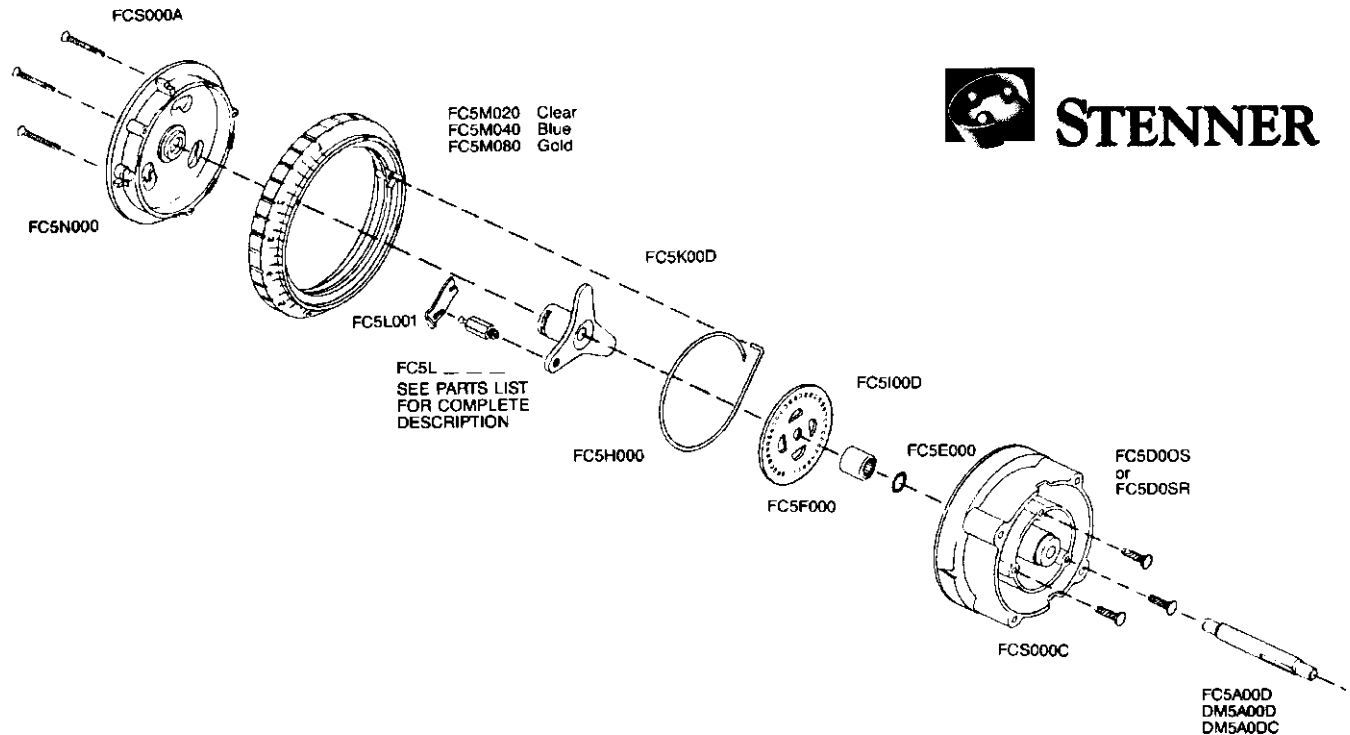


FIG. NO.	PART NO.	DESCRIPTION	PRICE
		FEED RATE CONTROLS AND PARTS	
	FC5040D	45M feed rate control comp "D"	
	FC4080D	85M feed rate control comp "D"	
	DM5040D	100DM feed rate control comp "D"	
	DM5080D	170DM feed rate control comp "D"	
	DM504DC	100MDC feed rate control comp "D"	
	DM508DC	170MDC feed rate control comp "D"	
78660	FC5A00D	45/85M mainshaft	
	DM5A00D	100/170DM mainshaft	
	DM5A0DC	100/170MDC mainshaft	
	FC5D00S	Feed rate housing (outside sale)	
	FC5D0SR	Feed rate housing (shop repair)	
	FC5E000	3/8" O-ring seal	
	FC5F000	Roller clutch	
78665	FC5H000	Variablecam	
78664	FC5I00D	"D" index plate	
	FC5K00D	Brass index spider "D"	
78663	FC5LAS	Index pin assembly with lifter	
78779	FC5L001	Index pin left only	
	FC2L002	Index pin only	
	FC5L003	Index pin holder only 3/8" hex	
	FC5L005	Index pin spring only	
	FC5M020	Clear dial ring - 25M	
	FC5M040	Blue dial ring 45M/100DM/100MDC	
	FCM080	Gold dial ring 85M/170DM/170MDC	
	FC5N000	Feed rate mounting plate	
	FCS000A	Feed rate mounting plate screw "A"	
	FCS000C	Feed rate mounting rivet "C"	

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

STENNER CHECK VALVE

INSTRUCTIONS FOR INSTALLING A STENNER IN-LINE CHECK VALVE AT THE FEEDER OUTLET FITTING.

Parts Required: 1 Stenner in-line check valve assembled as follows,
 Check valve connector, check valve body, check valve duckbill, check valve connector, in-line fitting (Figure 13A)
 Assembled all parts finger tight. Note direction of arrow which is the direction of fluid flow. Install the check valve onto the "out" tube fitting finger tight. Fasten the lead tube to the check valve using the 1/4" ferrule and connecting nut. **DO NOT USE TOOLS.** Turn the feeder on. Check for leaks.

INSTRUCTIONS FOR INSTALLING A STENNER IN-LINE CHECK VALVE



STENNER

Parts Required: 1 Stenner in-line check valve assembled as follows,
 Check valve body, check valve duckbill, check valve connector, in-line fitting (Figure 13B)
 Assembled all parts finger tight. Note direction of arrow which is the direction of fluid flow. The check valve may now be installed in series with the output tubing. Cut the outlet tubing at any convenient point. Connect the check valve to the output tubing using a 1/4" ferrule and connecting nut to fasten the lead tube to each in-line fitting. **DO NOT USE TOOLS.** Turn the feeder on. Check for leaks.

INSTRUCTIONS FOR INSTALLING A STENNER INJECTION CHECK VALVE

Parts Required: 1 Stenner injection check valve assembled as follows,
 Check valve body, check valve duckbill, check valve connector, check valve injection fitting. Note the groove on the injection fitting which identifies the 1/4" NPT threads (Figure 13C).

MAINTENANCE: Should stoppage occur, the check valve can be completely disassembled for cleaning. Insure that all openings are free and clear of debris. Remove all calcification. All parts re readily available from the factory.

FIGURE 13 A — STENNER CHECK VALVE AT FEEDER (CVDBFDR)

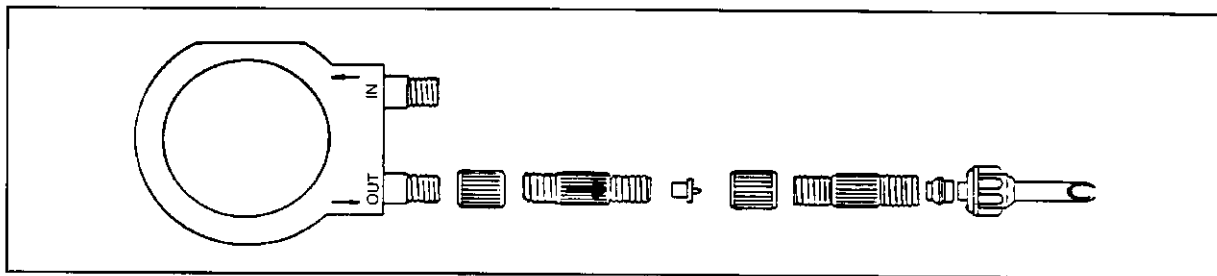


FIGURE 13B — STENNER IN-LINE CHECK VALVE (CVDBINL)

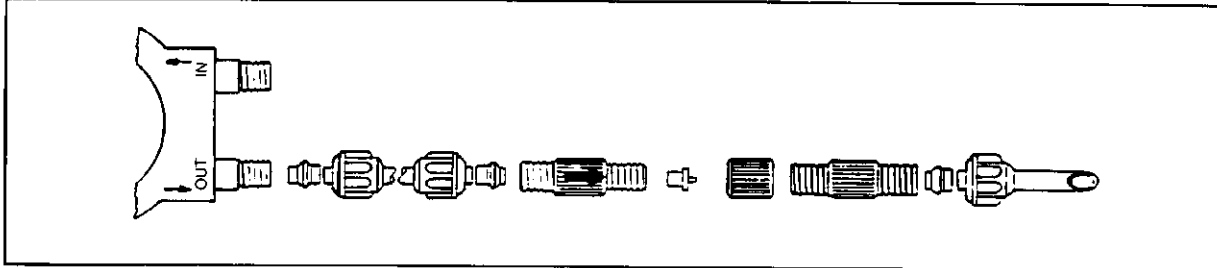
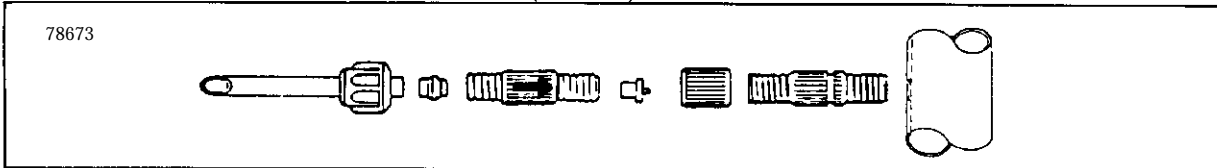
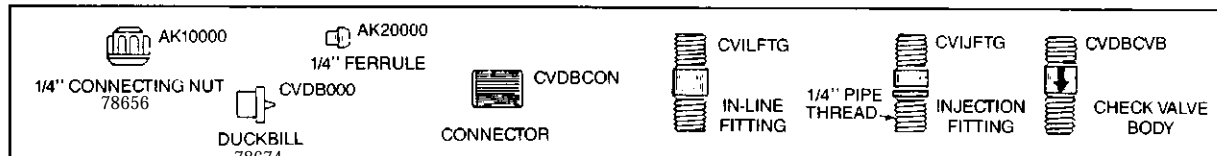


FIGURE 13C — STENNER INJECTION CHECK VALVE (CVDBINJ)



CHECK VALVE PARTS



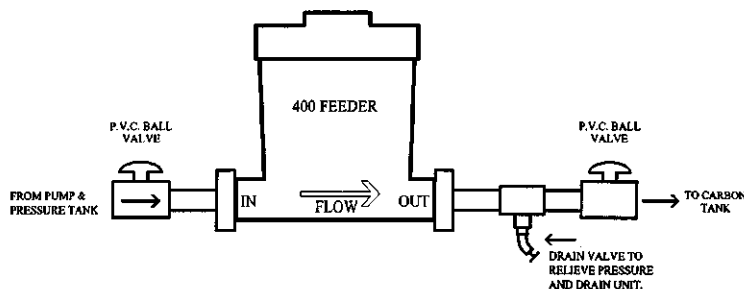
MECHANICAL (NON-ELECTRIC) CHLORINATOR

APF AUTOMATIC PROPORTIONAL FEEDERS

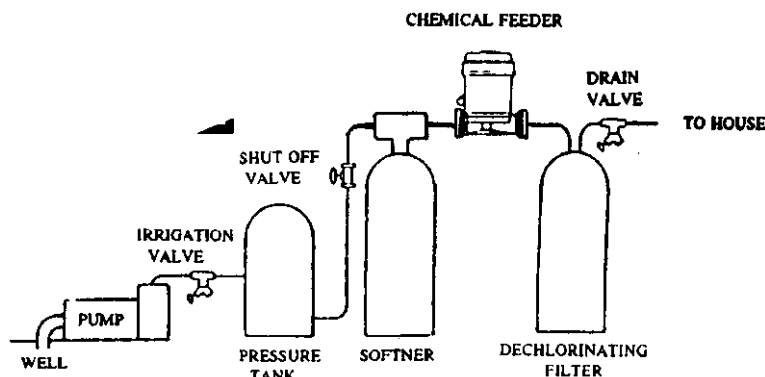
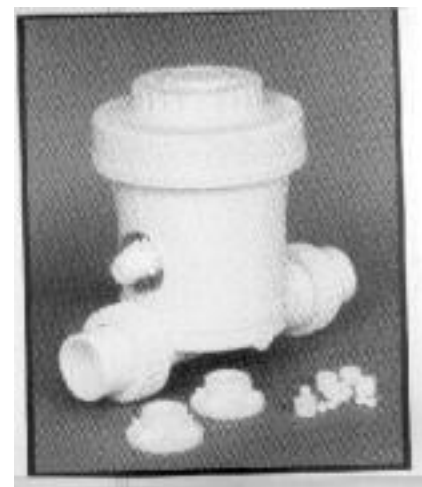


	MODEL 2	MODEL 20
FIG. NO.	38978	42581
PRICE		
FLOW CAPACITY		
MAXIMUM	18 GPM	18 GPM
MINIMUM	.25 GPM	.25 GPM
PRESSURE		
MAXIMUM	80 PSI (5.5 BAR)	80 PSI (5.5 BAR)
MINIMUM	5 PSI (0.3 BAR)	5 PSI (0.3 BAR)
WATER TEMP	33°-100°F	33°-100°F
OUTPUT		
MAX FEED RATIO	.002	.02
MIN FEED RATIO	.0001	.001
MAX DELIVERY	52 gpd	518 gpd
MIN DELIVERY	.04 gpd	.36 gpd
SUCTION LIFT	60"	60"
% OF ADDITIVE		
MINIMUM	.01%	.1%
MAXIMUM	.2%	2.0%

C400 PVC CHLORINATOR



Non electrical chemical feed system. Powered by water pressure and operates only when water is used. The C400 uses chlorine pellets and does require a carbon tank. Union adapters up to 1 1/2".



DESCR.	FIG. NO.	PRICE
C400 Chlorinator	46955	
14 Lb Pellets	47505	
35 Lb Pellets	38980	

For additional information call: 610-275-4453 or Fax: 610-279-6299
Prices are a guide only. Please call for current prices.

DIRECT WELL TREATMENTS

Well Pro Dry Pellet Chlorinator

WP230 CHLORINATOR

220 Volt, 60/50 Hz, 2 Watts

Pellet Feed Rate: 3 pellets/minute

Pellet Storage: 3 1/2 Lbs.

Dimension: 34" x 11" x 8"

Weight: 12 Lbs.

FIG. NO.	PRICE
45373	

CHLORINE PELLETS

EPA registered: 5051-1

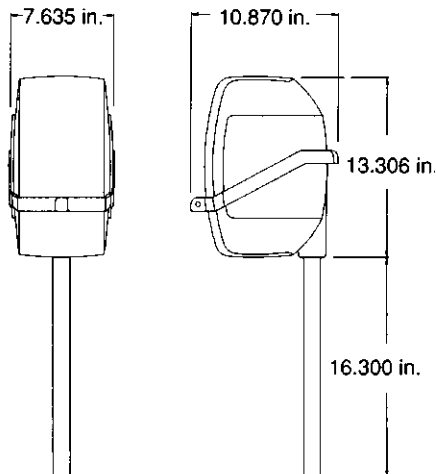
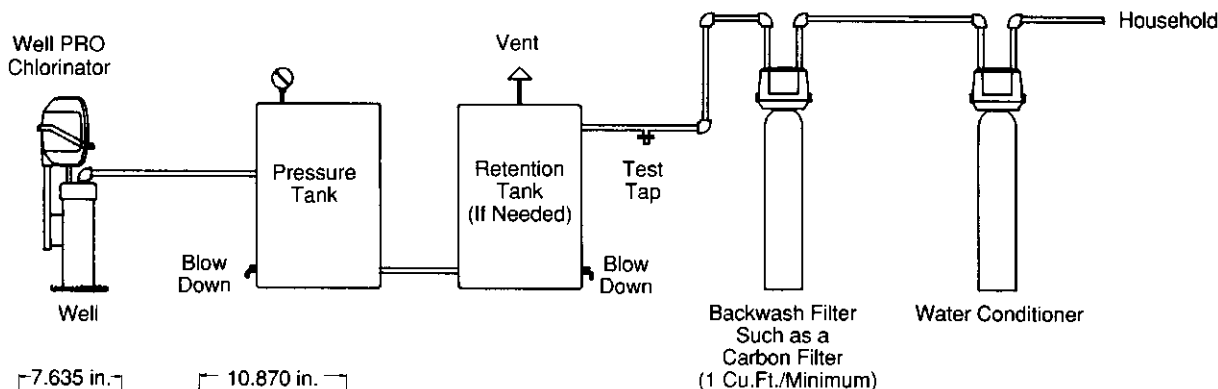
Active Ingredient: Calcium Hypochlorite (70% available chlorine)

Pellet Weight: .79g (.028 oz.)

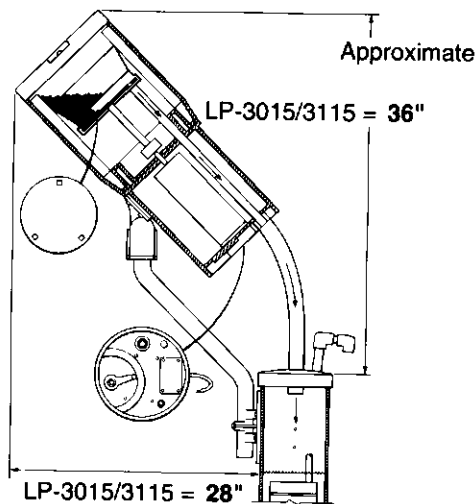
FIG. NO.	PRICE
45390	

NOTE: Most water systems require final filtering to completely remove precipitated iron and manganese from the chlorinated water. See your WELL PRO dealer about installing a backwash filter.

TYPICAL PRIVATELY-OWNED WATER SYSTEM



Land-O-Matic Dry Pellet Chlorinator



CHLORINE PELLETS

EPA Registered 50510-1

Active Ingredient: Calcium Hypochlorite 70%

Active Ingredient: Soluble Material 30%

Pellet Weight: 0.035 oz

Pellet Size: 3/8" diameter x 5.16" long

For control of foul smelling, corrosive hydrogen sulfide. Sink staining iron and manganese. Slime-causing, pump clogging iron bacteria, as well as control of fecal and coliform type bacteria.

220 Volt, 60/50 Hz, 31 Watts

Pellet Feed Rate: 6 pellets/minute

Dimension: 12.5 x 15.3 x 30.5 Inches

Weight: 31 Lbs.

MODEL #	FIG. NO.	PRICE
LP3115	38979	

SIZE	FIG. NO.	PRICE
14 LB	47505	
35 LB	38980	

WATER TREATMENT CHEMICALS

Well Sanitizer

- **Accurate**
- **Economical**
- **Easy to Use**
- **Safe to Store**
- **EPA Registered**

Every new well, or existing water supply system that has been disrupted for service or repair, should be disinfected before it is returned to use. Water in the well and storage tank should be treated with a strong chlorine solution to destroy disease organisms. All pipe lines and fixtures in the distribution system should be rinsed and flushed with chlorinated water.

OSMONICS Autotrol Well Sanitizer chlorinating pellets can be used for well, storage tank or cistern sanitation. the amount of pellets used will depend on the amount of water in the system, to be sanitized.

NOT FOR USE WITH AUTOMATIC FEEDERS

FIG. NO.	PRICE
31604	

HOW TO SANITIZE A WATER SYSTEM USING OSMONICS/AUTOTROL WELL SANITIZER

WELL DIAMETER - INCHES	FOR EACH 100 FEET OF WATER DEPTH USE:*		
	Weight of Pellets lbs. - oz.	Cups of Pellets	Number of Pellets
2	0-1.5	1/4	40
3	0-3.0	2/5	80
4	0-6.0	3/4	140
5	0-8.0	1	200
6	0-12.0	1-1/2	300
8	1-5.0	2-1/2	500
10	2-0	4	800
12	3-0	6	---
24	12-0	24	---
36	26-0	---	---

*TO PRODUCE A 400 PPM CHLORINE DOSAGE.



WATER TREATMENT CHEMICALS



SALT - SODIUM CHLORIDE

Most water softening systems pass the water through a bed of special resins, which can exchange sodium ions for "hard" calcium and magnesium ions in the water. Eventually, the resin exhausts its sodium and must be "recharged". This is done by running salt brine, containing sodium, through the resin bed, removing the calcium and magnesium ions from the bed and leaving a new supply of sodium. The brine is produced by the addition of salt to the water softener.

Many industries require softened water for such uses as processing and dyeing textiles, tanning leather, cleaning dairy equipment and commercial laundering. Water softening systems are installed in some municipal water systems for the dual purpose of protecting the plant equipment and better serving industrial and residential users. But the greatest use of water softeners is in homes. People have come to expect quality in their water as in other things in their lives.

SIZE	FIG. NO.	PRICE
50 LB BAG SOLAR SALT	9304	
80 LB BAG SOLAR SALT	9301	
50 LB SALT PELLETS	46832	
80 LB SALT PELLETS	50433	
RED-OUT - 40 LB (HELPS REMOVE IRON)	47517	
SKID OF 50 LB BAGS SOLAR SALT	43719	
SKID OF 80 LB BAGS SOLAR SALT	43720	
SKID OF 50 LB SALT PELLETS	50652	
SKID OF 80 LB SALT PELLETS	50661	



POTASSIUM CHLORIDE

Substitute for solar salt. Regenerant for all water softeners. Reduces sodium levels in drinking water and chloride levels in discharge.

FIG. NO.	PRICE
45347	

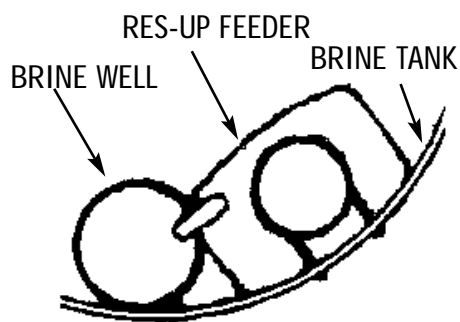


IRON OUT

All purpose rust and stain remover.

SIZE	FIG. NO.	PRICE
18 oz box	9302	
5 lb box	9303	
50 lb box	47063	

WATER TREATMENT CHEMICALS

RESUP

Res-up feeders are easily installed in both round and rectangular brine tanks

RESUP is formulated to penetrate resin bead pores and loosen up iron and other impurities for more thorough cleaning of the resin bed.

RESUP FEEDERS enter the proper amount of resup cleaner for each softener regeneration.

RESUP CLEANER

SIZE	FIG. NO.	PRICE
1 QT	44332	
1 GAL	46842	
55 GAL	51746	

RESUP FEEDER

AVG DLVY PER DAY	COLOR	FIG. NO.	PRICE
.4 OZ or 12 cc	Yellow Tubing	47786	
1 OZ or 30 cc	Clear Tubing	47787	



A DIVISION OF THE DUFF CO.

Products for Quality Water

Potassium Permanganate

*DWC's Potassium Permanganate . . .
use to increase your iron filter performance.*

Dissolved iron and manganese when oxidized are converted to an insoluble oxide which can then be removed by an iron filtration system.

DWC's Potassium Permanganate, when used in iron filtration systems according to instructions in owners manual, strongly oxidizes the dissolved iron and manganese in water for effective filtration and removal.

SIZE	FIG. NO.	PRICE
1.5 lb	9298	
5 lb.	38985	
110 lb. drum	45456	

WATER TREATMENT CHEMICALS

DESCRIPTION	FIG. NO.	PRICE
S/C GRANULAR ACID - 50 LB drum - white, dry, granular acid removes the hardest mineral and scale deposits in well screen and casing. Increases water well production and lowers power cost. Safe on rubber and metal.	58164	
CITRIC ACID - 50 LB - Lowers Ph in a safe manner. Also used to clean boilers.	43714	
CAUSTIC SODA - 100 LB - Used to raise Ph in a chemical feed application.	23544	
CAUSTIC SODA - 5 GAL - Used to raise Ph in a chemical feed application.	50791	
SODA ASH - 50 LB - Mineral used to raise Ph in chemical feed application.	9300	
SODA SESQUICARBONATE - 100 LB - Finer and cleaner form of Soda Ash. Better dilution for raising Ph in chemical feed application.	47948	
ALUMINUM SULFATE - 50 lb - Floccula agent used to settle out minerals and organics from solution.	46833	
IODINE - 3 LB - Disinfection agent that must be used in low dose levels.	35040	

DUFF COMPANY

WE SELL SOLUTIONS!

**CALL US WITH
YOUR QUESTIONS!
610-275-4453**



RETENTION TANKS

COMPOSITE STYLE - MANUFACTURED BY STRUCTURAL FIBERS

FIG. NO.	MODEL NO.	DIAMETER	HEIGHT	WEIGHT (LBS)	PRICE
	CT 30	16	44	25	
	CT 40 SQ	21	35	28	
	CT 40	16	56	33	
47942	CT80	21	67	43	
47943	CT120	24	73	63	

Maximum operating pressure = 75 psi

EPOXY COATED STEEL TANKS

FIG. NO.	MODEL NO.	DIAMETER	HEIGHT	WEIGHT (LBS)	PRICE
	RT30	16	39	32	
50798	RT42T	16	53	44	
	RT42S	20	36	53	
50799	RT80	20	64	84	
50800	RT120	24	66	139	
	RT220	30	78	295	

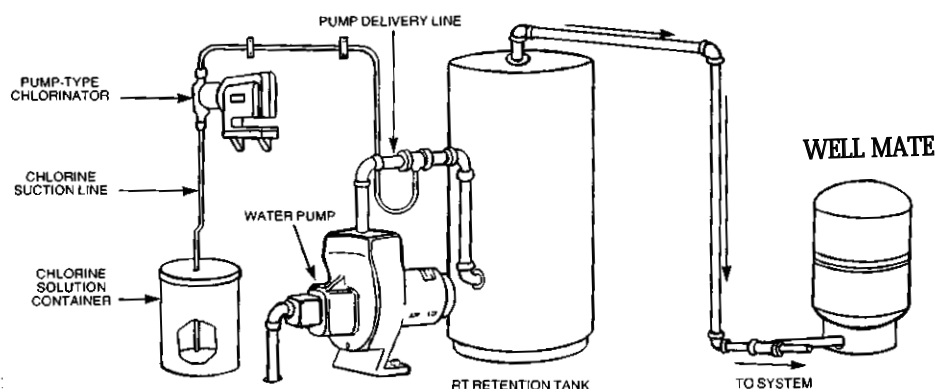
Maximum operating pressure = 75 psi, TEMP 125°F

GALVANIZED TANKS

FIG. NO.	MODEL NO.	DIAMETER	HEIGHT	WEIGHT (LBS)	PRICE
25514	GT30	16	39	52	
7854	GT42T	16	51	71	
7858	GT42S	20	34	71	
7861	GT80	20	64	114	
7864	GT120	24	65	154	
23340	GT220	30	80	303	

Maximum Operating Pressure 75 PSI, Temp 140°F. Option: Galvanized tanks can be ordered for 125 PSI.

Typical Installation w/Chemical Feed Pump

Polyethylene Solution Tanks

Used to hold mixed chemical solutions for chemical feed pumps. The lids feature a convenient feed hole for easy solution replenishment.

FIG. NO.	SIZE	DIMENSIONS	PRICE
25237	15 Gal	14 x 24	
39019	30 Gal	18 x 30	
49219	35 Gal	23 x 26	
40897	40 Gal	18 x 40 1/2	
49251	55 Gal	23 x 40 1/2	
40734	75 Gal	24 x 40 1/2	

WELLMATES

Composite construction means they are rust proof, won't dent or scratch, half the weight of steel tanks and they meet ANSI/NSF #61 standards for water system components.



FIG. NO.	MODEL NO.	CAPACITY	MAX OPER PRESSURE PSI	HEIGHT	DIAMETER	WEIGHT/LB	PRICE
7835	WM6	19.8	100	32"	16"	19	
7840	WM9	30	100	44"	16"	24	
7843	WM12	40	100	57"	16"	30	
45396	WM25WB	87	125	55"	24"	70	
57456	WM35WB	120	125	74"	24"	100	

WB = Wide Body

ROMATE TANKS

ROMATE

Permeate storage vessels for Reverse Osmosis Water.

FIG. NO.	MODEL NO.	CAPACITY (GAL)	HEIGHT	DIAMETER	WEIGHT/LB	PRICE
47207	ROMATE4	3.6	19 3/8	9	8	
80141	ROMATE4E	3.6	19 3/8	9	8	
73909	ROMATE15	14.5	26 1/2	16	15	
45354	ROMATE20	19.8	32	16	19	
45355	ROMATE30	29.5	44	16	23	
45356	ROMATE40	40.3	56 3/4	16	30	
48693	ROMATE80	86.7	55 1/2	24 1/4	58	

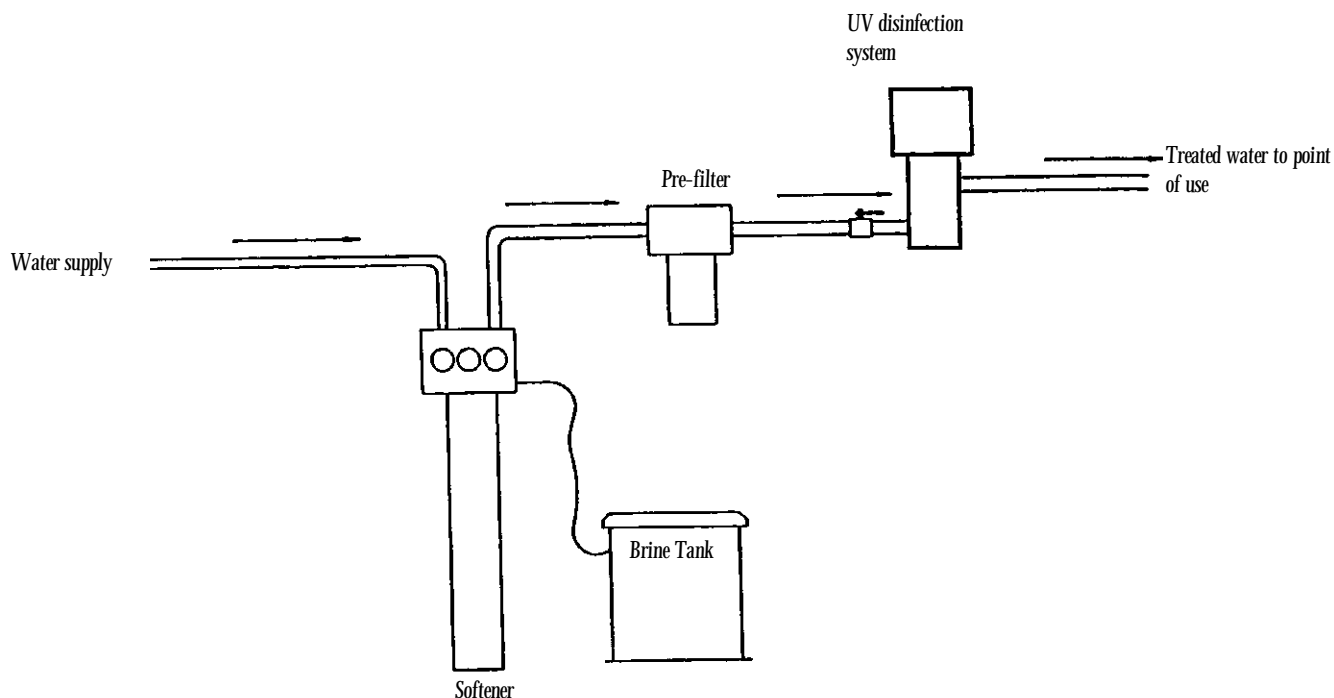
these non metallic tanks will never chip, rust or dent!

Maximum pressure = 125 PSI



ULTRAVIOLET WATER EQUIPMENT

DWC Ultraviolet water treatment equipment is for germicidal solution, TOC/organic reduction and deoxygenization. Generally, equipment is manufactured using 304 stainless for potable and light commercial/industrial markets and 316L for critical industrial and high purity water markets. DWC UV lights utilize germicidal UV lamps that produce short wave radiation that is lethal to bacteria, viruses and other micro-organisms present in common water.



RECOMMENDED MAXIMUM CONCENTRATION LEVELS

BEFORE ULTRAVIOLET INFLUENT
FOR STANDARD APPLICATIONS

TURBIDITY	5 NTU	MAXIMUM
SUSPENDED SOLIDS	10 MG/1	MAXIMUM
COLOR	NONE	MAXIMUM
IRON	0.3 MG/1	MAXIMUM
MANGANESE	0.05 MG/1	MAXIMUM
Ph	6.5-9.5	MAXIMUM

ULTRAVIOLET LIGHTS

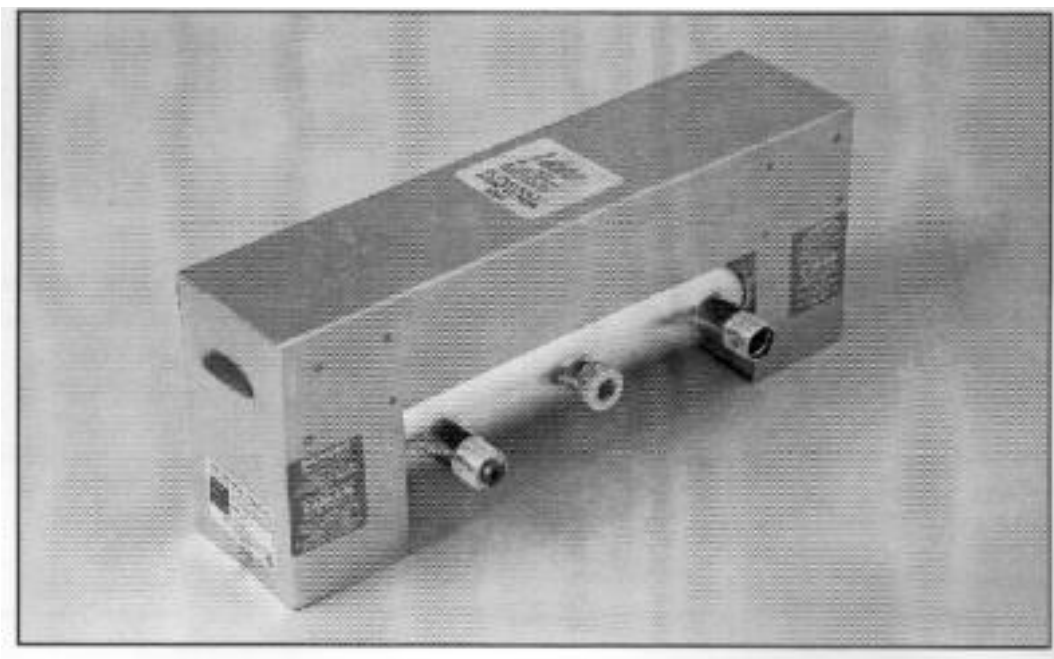


FIG. NO.	DESCRIPTION	PRICE
43606	GUS 7 GPM UV Light	
50814	GUS 7 GPM UV Light w/ alarm	
69722	GUS 7 GPM UV Light w/ alarm & wiper	
43607	GUS 15 GPM UV Light	
50816	GUS 15 GPM UV Light w/ alarm	
51216	GUS 20 GPM UV Light	
64805	GUS 30 GPM UV Light	
66420	GUS 30 GPM UV Light w/ alarm	
76428	DWC 1 GPM UV Light	
52339	DWC 7 GPM UV Light	
52395	DWC 15 GPM UV Light	
	DWC 24 GPM UV Light w/ wiper	
76070	SL8 8GPM UV Light	
57424	SV7 GPM UV Light w/ alarm	
57425	SV10 GPM UV Light w/ alarm	

Call DUFF COMPANY for the right size UV light to fill your needs promptly.

DUFF COMPANY has the right UV bulb in stock for your requirement regardless of where you purchased your UV light originally!

Simply measure the overall length from tip to tip and tell us how many prongs are on each side.

IMPORTANT - U/V bulbs should be changed a minimum of once each year!!!

Call us for any other requirements like quartz, o-rings, ballasts, etc.

UV LAMPS

FIG. NO.	DESCRIPTION	OVERALL LENGTH	PRICE
45479	1 Pin each end	14" overall length	
23545	1 Pin each end	17" overall length	
23546	1 Pin each end	27" overall length	
31886	1 Pin each end	33" overall length	
47503	1 Pin each end	45 7/8" overall length	
51743	2 Pins each end	12" overall length	
41938	2 Pins each end	14" overall length	
50634	2 Pins each end	17" overall length	
43539	2 Pins each end	31" overall length	
47602	3 Pins one end	33" overall length	
48510	4 Pins one end	12" overall length	
41939	4 Pins one end	14" overall length	
50465	4 Pins one end	17" overall length	
63764	4 Pins one end	25" overall length	
47602	4 Pins one end	33" overall length	

it is helpful to know who the manufacturer of the uv is for absolute accuracy in mactching up bulbs!

QUARTZES FOR UV LAMPS

MANUFACTURER'S NAME REQUIRED

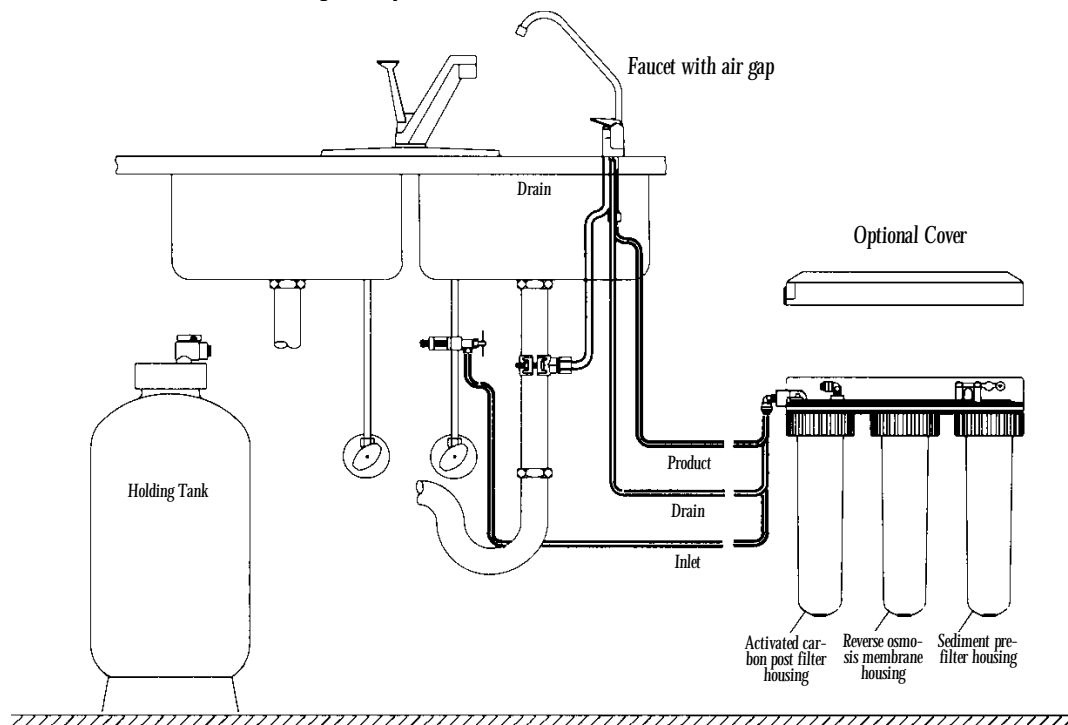
FIG. NO.	DESCRIPTION	PRICE
45462	14" open ends	
51028	15" open ends	
51077	16" closed ends	
38953	18" open ends	
47760	19" closed ends	
25796	27" open ends	
63765	27" closed ends	
38954	33" open ends	
70468	35" closed ends	



REVERSE OSMOSIS

Reverse Osmosis (RO) is one of the most convenient and economical methods of reducing unwanted contaminants in your drinking water. RO is the process by which water molecules are forced, by water pressure, through a semipermeable membrane. Most of the impurities and other contaminants are rinsed to the drain while the refined water is routed to a special holding tank.

Typical installation of reverse osmosis drinking water system



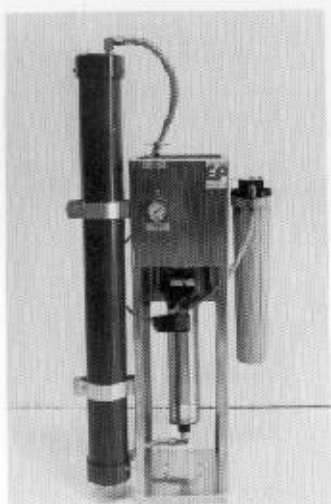
For best results with CTA membrane the following incoming water specifications need to be followed. CTA is Cellulose Triacetate membranes that are chlorine tolerable.

INCOMING WATER SPECIFICATIONS

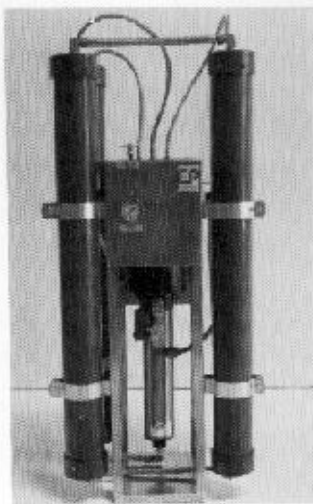
Water Pressure Range	40-125 psi
Maximum Total Dissolved Solids (T.D.S.)	no more than 1500 ppm
Water Temperature Range	40-85°F
Allowable pH Range	5-8.5
Maximum Hardness	no more than 10 grains per gallon or presoften
Maximum Iron	no more than 0.1 ppm
Maximum Manganese	no more than 0.05 ppm
Hydrogen Sulfide Restriction	hydrogen sulfide must not be present
Chlorine Level ⁴	0.2-2.0 ppm
Bacteria Restriction ⁵	water source must be potable

COMMERCIAL REVERSE OSMOSIS

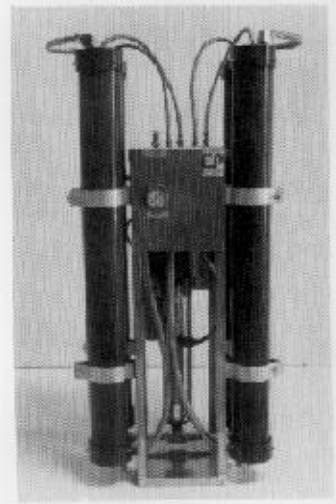
REVERSE OSMOSIS SYSTEM SPECIFICATIONS – 1,500 to 6,000 GALLONS PER DAY



EPRO-1500



EPRO-4500



EPRO-6000

Standard features:	Optional features:	Applications:
<ul style="list-style-type: none"> - T.F.C. R.O. Membranes - 98% average salt rejection - Expandability from EPRO-1500 to EPRO-3000 or from EPRO-4500 to EPRO-6000 - 5 micron sediment prefilter - Stainless Steel tubing - Centrifugal booster pump 	<ul style="list-style-type: none"> - Low pressure shut-off switch - Product water flow meter - Waste water flow meter - Waste recycle valve - Waste recycle flow meter - Stainless Steel pump - 50 Hz/220V motor - Prefilter pressure gauges - Repressurization system - Storage tank - UV sterilizer - TDS monitor - Brackish water membranes - Fiberglass housings - High-Efficiency Model with High-Flow Membranes 	<ul style="list-style-type: none"> - Households - Restaurants - Carwashes - Bottled water - Hospitals - Pretreatment for D.I. - Plant nurseries - Fisheries - Printing Processes - Ice Machines

SYSTEM SPECIFICATIONS

FIG. NO.	PRODUCTION *		OPERATING PRESSURE 3rd YEAR (psi)		DIMENSIONS (in/cm)			WEIGHT (lb/kg)	INLET (MPT)	NO. 4" x 40" ELEMENTS	DESIGNED RECOVERY %	MOTOR HP (1-phase)			
												60 Hz 230V		60 Hz 220V	
	GPD	LPD	Standard Model	High-Efficiency	Height	Length	Width					Standard Model	High-Efficiency	Standard Model	High-Efficiency
60020	1500	5680	202	114	50/127	24/61	24/61	95/43	3/4"	1	19	1.5	1/2	1	1
EPRO-3000	3000	11360	207	117	50/127	24/61	24/61	120/55	3/4"	2	32	1.6	3/4	1	1
EPRO-4500	4500	17035	213	120	50/127	24/61	24/61	150/68	3/4"	3	40	3	3/4	3	1.5
EPRO-6000	6000	22715	219	124	50/127	24/61	24/61	180/82	3/4"	4	60	3	3/4	3	1.5

* Based on 24 hour operation, feed TDS of 600 mg/L and temperature of 25°C

THIS WILL PROVIDE THE FOLLOWING RESULTS...

MICROLINE® C.T.A.-14S PERFORMANCE SPECIFICATIONS

<u>Membrane Rating</u>	
Membrane Production ¹	produces 14 ± 2 gallons per day
Membrane T.D.S. Reduction ¹	90% minimum
<u>System Rating</u>	
Warm Climate Production ²	produces 9½ ± 2 gallons per day
Warm Climate T.D.S. Reduction ²	85%+ typical
Cold Climate Production ³	produces 6 ± 1 gallons per day
Cold Climate T.D.S. Reduction ³	85%+ typical

1 Measured at Industry Standard condition of 60 psi, 77°F, 500 ppm T.D.S., and discharging to atmosphere.

2 Actual capacity measured at 55 psi, 77°F, and 750 ppm T.D.S. per Industry Standard S-300-91.

3 Actual capacity measured at 50 psi, 50°F, and 325 ppm T.D.S.

4 Chlorinated feed water is necessary for membrane protection.

5 Do not use this system where the feed water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.

FIG. NO.	DESCR	GPD	STAGE	PRICE
25230	DWC CTA RO	14 Gallon Per day	3	
45076	DWC CTA RO	14 Gallon Per day	4	

TFC or Thin Film Composite membranes are not chlorine tolerant but do prevent bacteria infusions. The following are applicable for TFC membrane RO's.

MICROLINE® T.F.C.-25D/25DN PERFORMANCE SPECIFICATIONS

<u>Membrane Rating</u>	
Membrane Production ¹	produces 25 ± 5 gallons per day
Membrane T.D.S. Reduction ¹	95% minimum
<u>System Rating</u>	
Warm Climate Production ²	produces 16 ± 4 gallons per day
Warm Climate T.D.S. Reduction ²	90%+ typical
Cold Climate Production ³	produces 9 ± 2 gallons per day
Cold Climate T.D.S. Reduction ³	90%+ typical

INCOMING WATER SPECIFICATIONS

Water Pressure Range	40-125 psi
Maximum Total Dissolved Solids (T.D.S.)	no more than 2000 ppm
Water Temperature Range	40-110°F
Allowable pH Range	5-10
Maximum Hardness	no more than 10 grains per gallon or presoften
Maximum Iron	no more than 0.1 ppm
Maximum Manganese	no more than 0.05 ppm
Hydrogen Sulfide Restriction	hydrogen sulfide must not be present
Chlorine Restriction ⁴	chlorine must not be present
Bacteria Restriction ⁵	water source must be potable

1 Measured at Industry Standard condition of 60 psi, 77°F, 500 ppm T.D.S., and discharging to atmosphere.

2 Actual capacity measured at 55 psi, 77°F, and 750 ppm T.D.S. per Industry Standard S-300-91.

3 Actual capacity measured at 50 psi, 50°F, and 325 ppm T.D.S.

4 Chlorine will damage a T.F.C. Membrane. The Sediment/Carbon Prefilter Cartridge will remove chlorine from the incoming water. Change cartridge every 6 months, more often if the water contains more than 1 ppm chlorine.

5 Do not use these systems where the feed water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.

FIG. NO.	DESCRIPTION	GPD	STAGE	PRICE
49113	DWCTFC25S	25 GPD	3	
45616	DWCTFC25D	25 GPD	4	

QEST**DWC PRESENTS QEST- A TOTAL POLYBUTYLENE SYSTEM FOR THE PROFESSIONAL
PLUMBER AND WATER TREATMENT DEALER.**

QEST offers the professional plumber a practical hot/cold pressure plumbing system for every kind of job...new construction...remodeling...and repair. You can rely on practical QEST systems because they were developed to meet the needs of the plumbing professional. Each system has been thoroughly tested and time proven, and they meet national standards, agency approvals and many state and local codes. The key work for QEST systems is "efficiency". One man can easily carry a 1000' roll of 1/2" polybutylene tubing (47 pounds). And because polybutylene is flexible at all temperatures, it can be installed in long lengths with a minimum number of joints and elbows.

Here are just a few additional advantages offered by QEST systems.

TROUBLE FREE POLYBUTYLENE

Corrosion resistant-no electrolysis-freeze damage tolerant

CRIMP AND THREAD CONNECTIONS

No exotic parts to fail-no solvents, bonding agents or "glues" used

No solder, flux or gas used-more positive connections, quicker, easier.

LOW HEAT CONDUCTIVITY

Low temperature loss: hot stays hot, cold stays cold

ELIMINATES MOST WATER HAMMER CONDITIONS

FIG. NO.	DESCRIPTION	PRICE
41072	1/2"X100' COIL QEST PIPE	
41073	3/4"X100' COIL QEST PIPE	
50231	1/2"X20' COIL QEST PIPE	
44652	3/4"X10' COIL QEST PIPE	
50232	3/4"X20' QEST PIPE	
41074	1/2" TEE	
43325	1/2"X3/4" TEE	
43327	3/4"X1/2"X1/2" TEE	
41091	3/4"X1/2"X3/4" TEE	
41076	3/4"X1/2" TEE	
41075	3/4" TEE	
41077	1/2" 90	
43333	3/4"X1/2" 90	
41078	3/4" 90	
43335	1/2" MALE 90	
43337	3/4" MALE 90	
41079	1/2" COUPLING	
41081	3/4"X1/2" COUPLING	
41080	3/4" COUPLING	
41085	1/2" FEMALE ADAPTER	
41086	3/4" FEMALE ADAPTER	
41083	1/2" MALE ADAPTER	
41084	3/4" MALE ADAPTER	
43345	1/2" COP MALE X QEST ADAPTER	
43346	3/4" CP MALE X QEST ADAPTER	
43347	1/2" COP FEMALE X QEST ADAPTER	
43348	3/4" COP FEMALE X QEST ADAPTER	
41094	1/2" CRIMP RING	
41095	3/4" CRIMP RING	
43351	1/2" CRIMP TOOL	
43350	3/4" CRIMP TOOL	
44654	1/2" J-HOOK	
44655	3/4" J-HOOK	

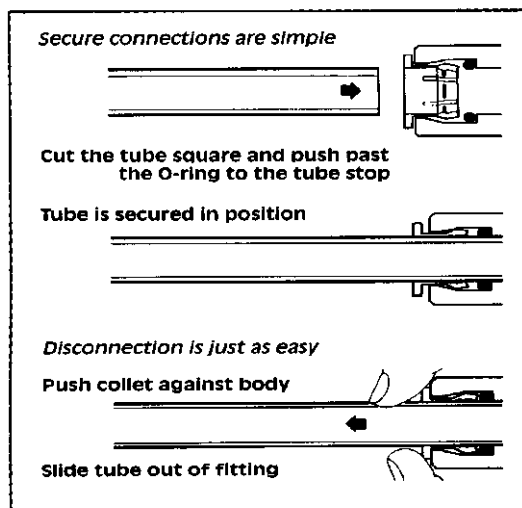
For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

SUPER SPEEDFIT...

FAST, RELIABLE TUBING CONNECTIONS WITH NO TOOLS!

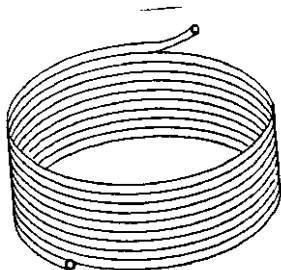
This simple concept, pioneered by John Guest over 20 years ago, now embodies a comprehensive line of over 3,000 products addressing virtually every tubing-connection requirement. From the Food Service Industry to the movement of compressed air, John Guest Super Speedfit push-in fittings afford the most efficient and cost effective solution in tubing connections.



SUPER SPEEDFIT FITTINGS MAKE SECURE CONNECTIONS SIMPLE

In all applications, JG Super Speedfit fittings require no tools. Tubing is simply inserted into the fitting collet to effect a secure connection. Whether metal or plastic tubing is used, the integrity of the connection is assured - John Guest fittings are manufactured to the strictest tolerances. Our production processes employ statistical process control to ensure the absence of variation. Our designs provide superior flow characteristics and eliminate the need for sealants. Moreover, our fittings can be reused repeatedly without the loss of connection integrity.

POLYETHYLENE TUBING



SIZE	COIL SIZE	FIG. NO.	PRICE
1/4	100	17713	
1/4	1000	48750	
5/16	100	17714	
3/8	100	17715	
3/8	1000	51797	
1/2	100	17716	
5/8	100	17718	
5/8	500	48749	
3/4	100	44589	

JOHN GUEST FITTINGS UNION CONNECTOR



MALE ADAPTER

FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82249	1/4	1/8	
82251	1/4	1/4	
82252	1/4	3/8	
82253	3/8	1/4	
82254	3/8	3/8	
82255	3/8	1/2	
82256	1/2	3/8	
82257	1/2	1/2	

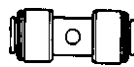
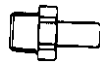


FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82264	1/4		
82265	3/8		
82266	1/2		
83770	3/8x5/16		
82275	3/8x1/4		
82276	1/2x3/8		

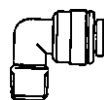
STEM ADAPTER



UNION TEE

FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82258	1/4		
83769	5/16		
82259	3/8		
82260	1/2		

FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82267	1/4	1/4	
82268	3/8	1/4	
82269	3/8	3/8	



FIXED ELBOW

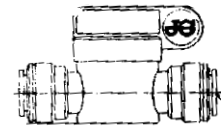


UNION ELBOW

FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82261	1/4		
82262	3/8		
82263	1/2		
82277	3/8x1/4		

FIG. NO.	TUBE O.D.	PIPE THREAD	PRICE
82284	1/4	1/4	
82285	1/4	3/8	
82286	3/8	1/4	
82287	3/8	3/8	

SHUT OFF VALVES



1/4" straight speedfit

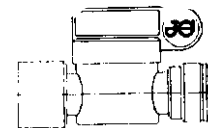
FIG. NO.	PRICE
82291	

1/4" straight speedfit x 1/4 MPT

FIG. NO.	PRICE
82289	

1/4" angle speedfit x 1/4 FPT

FIG. NO.	PRICE
82295	

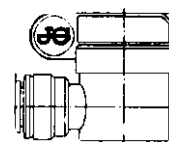


3/8" straight speedfit

FIG. NO.	PRICE
82292	

3/8" straight speedfit x 3/8 mpt

FIG. NO.	PRICE
82290	



3/8 angle speedfit x 3/8 FPT

FIG. NO.	PRICE
82296	

MISCELLANEOUS

DESCRIPTION	FIG. NO.	PRICE
1/4" Poly tube Blue/ft.	82408	
3/8" Poly tube Blue/ft.	82411	
1/4" locking clips	82297	
3/8" locking clips	82298	
Tubing cutter	82299	
Release tool set	82300	
3/8x1/2 Stem X Hose Adapter	83772	

For additional information call: 610-275-4453 or Fax: 610-279-6299

Please call for current prices.

NYLON COMPRESSION FITTINGS

MALE CONNECTORS



FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
3559	1/8	1/8	
3564	1/4	1/8	
3565	1/4	1/4	
3567	1/4	3/8	
47104	5/16	1/8	
3569	5/16	1/4	
22282	3/8	1/8	
3570	3/8	1/4	
3571	3/8	3/8	
47105	3/8	1/2	
29583	1/2	1/8	
29584	1/2	1/4	
3572	1/2	3/8	
3575	1/2	1/2	
24097	5/8	3/8	
3576	5/8	1/2	
3577	3/4	1/2	
29585	3/4	3/4	
47106	7/8	3/4	

FEMALE CONNECTORS



FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
29617	1/4	1/8	
29618	1/4	1/4	
29619	5/16	1/4	
29620	3/8	1/4	
29621	3/8	3/8	
29622	1/2	3/8	
29624	1/2	1/2	
29625	5/8	1/2	

MALE ELBOWS

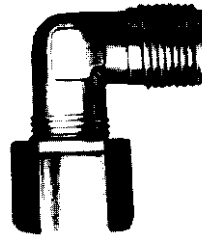


FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
3589	1/8	1/8	
42455	1/4	1/8	
3590	1/4	1/4	
3592	1/4	3/8	
3593	5/16	1/4	
3596	3/8	1/4	
3599	3/8	3/8	
3600	1/2	3/8	
3604	1/2	1/2	
48970	5/8	3/8	
3606	5/8	1/2	

UNION & REDUCING UNION CONNECTORS



FIG. NO.	TUBE O.D.	PRICE
3579	1/4	
29587	5/16	
3581	3/8	
3583	1/2	
3585	5/8	
3587	3/4	
29586	1/4-1/8	
29588	5/16-1/4	
29589	3/8-1/4	
29590	1/2-3/8	

FEMALE ELBOWS

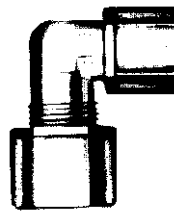


FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
29602	1/8	1/4	
29603	1/4	1/8	
29604	1/4	1/4	
29605	5/16	1/4	
29606	3/8	1/4	
29608	3/8	3/8	
29609	1/2	3/8	
29610	1/2	1/2	
29611	5/8	1/2	

BULK HEAD UNIONS



FIG. NO.	TUBE O.D.	PRICE
29612	1/4	
29613	5/16	
29614	3/8	
29615	1/2	
29616	3/4	

UNION ELBOWS

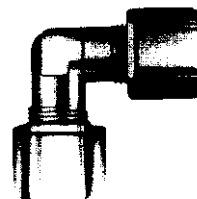


FIG. NO.	TUBE O.D.	PRICE
3609	1/4	
29591	5/16	
3611	3/8	
3612	1/2	
3614	5/8	

NYLON COMPRESSION FITTINGS

MALE BRANCH TEES

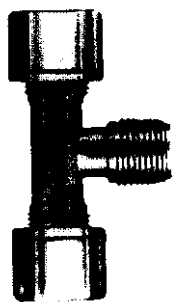


FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
17463	1/4	1/8	
3616	1/4	1/4	
29592	5/16	1/4	
3617	3/8	1/4	
3619	3/8	3/8	
3621	1/2	3/8	
3622	1/2	1/2	
3623	5/8	1/2	

UNION TEES

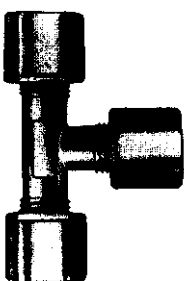


FIG. NO.	TUBE O.D.	PRICE
3626	1/8	
3628	1/4	
3630	5/16	
3631	3/8	
3635	1/2	
3638	5/8	
29593	5/8-3/8	

MALE RUN TEES

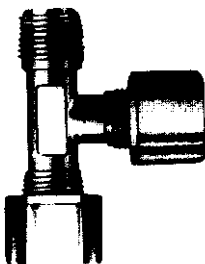


FIG. NO.	TUBE O.D.	PIPE THRD	PRICE
29594	1/4	1/8	
29595	1/4	1/4	
29596	5/16	1/4	
29597	3/8	1/4	
29598	3/8	3/8	
29599	1/2	3/8	
29600	1/2	1/2	
29601	5/8	1/2	

INSERT

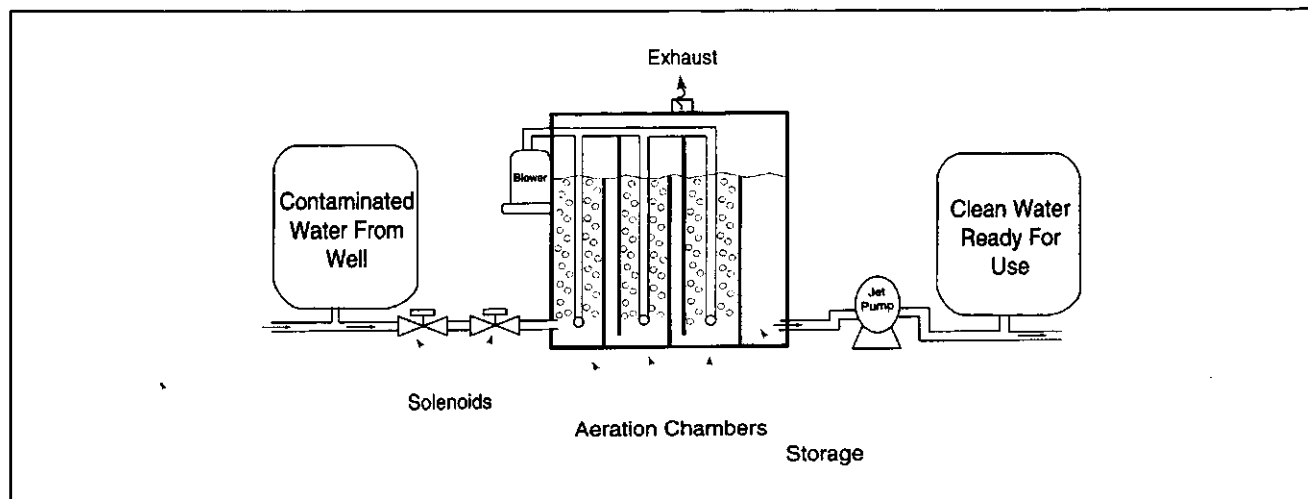


FIG. NO.	TUBE O.D.	PRICE
3675	1/4	
3678	5/16	
3682	3/8	
3685	1/2	



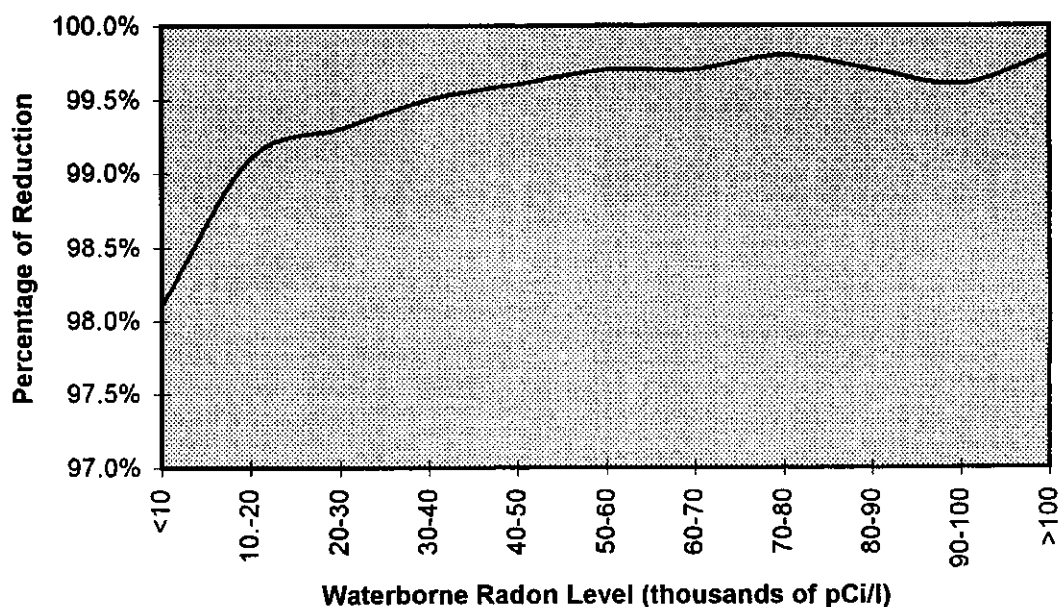
JACO

The AIRaider for Radon and VOC Removal



The patented AIRaider™ systems use the patented Cascade Rinse™ process to introduce the contaminated water in a predetermined fashion that maximizes air to water contact. High pressure filtered air is propelled through special anti-fouling diffusers that equally distribute the air in each of the treatment chambers. This process separates the radon and VOC's from the water. The cleaned water awaits repressurization in a built-in storage tank. The gases released from this process are vented safely to the outside air through a 2" vent line.

AIRaider 433 Radon Reduction



AIRraider™ System Specifications

System Component	AIRraider™ 312	AIRraider™ 433
Aeration Tank Size	18.5"W x 16.5"L x 29.5"H (22 gallons)	18.5"W x 30"L x 32"H (44 gallons)
Standard Pressure Tank Size (Well-X-Trol WX202)	18" diameter (22 gal. / 7 gal. draw down)	18" diameter (22 gal. / 7 gal. draw down)
Total Footprint	18.5"W x 33"L	18.5"W x 54"L
Total Weight	150 lbs.	195 lbs.
Aeration Tank Material	FDA approved polypropylene	FDA approved polypropylene
Jet Pump	1/2 hp, 115V / 10.8 amp or 230V / 5.4 amp	1/2 hp, 115V / 10.8 amp or 230V / 5.4 amp
Regenerative Blower	1/8 hp, 115V / 2.0 amp or 230V / 1.0 amp	1/2 hp, 115V / 5.6 amp or 230V / 2.8 amp
Control Panel	UL listed, 115V or 230V	UL listed, 115V or 230V
Vent Line (not included)	2" Schedule 40 PVC	2" Schedule 40 PVC
Plumbing	3/4"	3/4" or 1"
Flow Rate	7 gpm recommended	7 gpm normal, up to 20 gpm possible*
Radon and VOC Reduction	up to 90 - 95+%	up to 99+%

* Larger jet pump may be needed to achieve 13-20 gpm outflow.

AIRraider™ System Selection

Site Specifications		AIRraider™ 312	AIRraider™ 433
Plumbing Pipe Size	3/4"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	1"		<input checked="" type="checkbox"/>
	1-1/4" or larger		Special Order*
Flow Rate (GPM)	7 or less	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	7-13		<input checked="" type="checkbox"/>
	13 or more		Special Order*
Radon Level (pCi/l)	< 35,000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	> 35,000		<input checked="" type="checkbox"/>
	> 250,000		Call For Order Info**

* System will require a larger jet pump and/or holding tank. Call DUFF COMPANY for details.

** Levels exceeding 250,000 pCi/l may require special considerations. Call DUFF COMPANY for information.

FIG. NO.	AIRRAIDER MODEL	DESCR	PRICE
72805	312	LESS PUMP	
66331	312	WITH PUMP & TANK	
72806	312	W/ GRUNDFOS JETPAK	
72804	433	LESS PUMP	
72793	433	WITH PUMP & TANK	
69158	433	W/ GRUNDFOS JETPAK	

For additional information call: 610-275-4453 or Fax: 610-279-6299
Please call for current prices.

TEMPERATURE CONVERSION TABLE

0 to 100						100 to 1000					
C.			F.			C.			F.		
-17.8	0	32.0	10.0	50	122.0	38	100	212	260	500	932
-17.2	1	33.8	10.6	51	123.8	43	110	230	266	510	950
-16.7	2	35.6	11.1	52	125.6	49	120	248	271	520	968
-16.1	3	37.4	11.7	53	127.4	54	130	266	277	530	986
-15.6	4	39.2	12.2	54	129.2	60	140	284	282	540	1004
-15.0	5	41.0	12.8	55	131.0	66	150	302	288	550	1022
-14.4	6	42.8	13.3	56	132.8	71	160	320	293	560	1040
-13.9	7	44.6	13.9	57	134.6	77	170	338	299	570	1058
-13.3	8	46.4	14.4	58	136.4	82	180	356	304	580	1076
-12.8	9	48.2	15.0	59	138.2	88	190	374	310	590	1094
-12.2	10	50.0	15.6	60	140.0	93	200	392	316	600	1112
-11.7	11	51.8	16.1	61	141.8	99	210	410	321	610	1130
-11.1	12	53.6	16.7	62	143.6	100	212	413	327	620	1148
-10.6	13	55.4	17.2	63	145.4	104	220	428	332	630	1166
-10.0	14	57.2	17.8	64	147.2	110	230	446	338	640	1184
- 9.44	15	59.0	18.3	65	149.0	116	240	464	343	650	1202
- 8.89	16	60.8	18.9	66	150.8	121	250	482	349	660	1220
- 8.33	17	62.6	19.4	67	152.6	127	260	500	354	670	1238
- 7.78	18	64.4	20.0	68	154.4	132	270	518	360	680	1256
- 7.22	19	66.2	20.6	69	156.2	138	280	536	366	690	1274
- 6.67	20	68.0	21.1	70	158.0	143	290	554	371	700	1292
- 6.11	21	69.8	21.7	71	159.8	149	300	572	377	710	1310
- 5.56	22	71.6	22.2	72	161.6	154	310	590	382	720	1328
- 5.00	23	73.4	22.8	73	163.4	160	320	608	388	730	1346
- 4.44	24	75.2	23.3	74	165.2	166	330	626	393	740	1364
- 3.89	25	77.0	23.9	75	167.0	171	340	644	399	750	1382
- 3.33	26	78.8	24.4	76	168.8	177	350	662	404	760	1400
- 2.78	27	80.6	25.0	77	170.6	182	360	680	410	770	1418
- 2.22	28	82.4	25.6	78	172.4	188	370	698	416	780	1436
- 1.67	29	84.2	26.1	79	174.2	193	380	716	421	790	1454
- 1.11	30	86.0	26.7	80	176.0	199	390	734	427	800	1472
- 0.56	31	87.8	27.2	81	177.8	204	400	752	432	810	1490
0	32	89.6	27.8	82	179.6	210	410	770	438	820	1508
0.56	33	91.4	28.3	83	181.4	216	420	788	443	830	1526
1.11	34	93.2	28.9	84	183.2	221	430	806	449	840	1544
1.67	35	95.0	29.4	85	185.0	227	440	824	454	850	1562
2.22	36	96.8	30.0	86	186.8	232	450	842	460	860	1580
2.78	37	98.6	30.6	87	188.6	238	460	860	466	870	1598
3.33	38	100.4	31.1	88	190.4	243	470	878	471	880	1616
3.89	39	102.2	31.7	89	192.2	249	480	896	477	890	1634
4.44	40	104.0	32.2	90	194.0	254	490	914	482	900	1652
5.00	41	105.8	32.8	91	195.8				488	910	1670
5.56	42	107.6	33.3	92	197.6				493	920	1688
6.11	43	109.4	33.9	93	199.4				499	930	1706
6.67	44	111.2	34.4	94	201.2				504	940	1724
7.22	45	113.0	35.0	95	203.0				510	950	1742
7.78	46	114.8	35.6	96	204.8				516	960	1760
8.33	47	116.6	36.1	97	206.6				521	970	1778
8.89	48	118.4	36.7	98	208.4				527	980	1796
9.44	49	120.2	37.2	99	210.2				532	990	1814
			37.8	100	212.0				538	1000	1832

Read known temperature in bold face type. Corresponding temperature in degrees Fahrenheit will be found in column to the right. Corresponding temperature in degrees will be found in column to the left.