MARLO INCORPORATED ®

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

MFS MID 20-72

MX II CONTROLLER

SINGLE COMMERCIAL WATER FILTERS

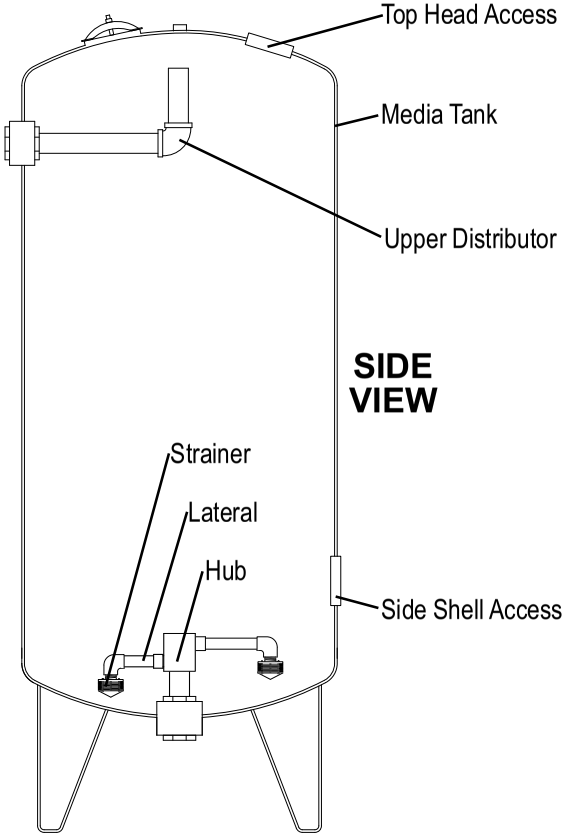
FILL IN FOR FUTURE REFERENCE

MODEL NO:
SERIAL NO:
DATE INSTALLED:
DEALER:

Marlo Incorporated
2227 South Street
P.O. Box 044170
Racine, WI 53404-7003
Ph. (262) 681-1300
Fax (262) 681-1318
www.Marlo-Inc.com

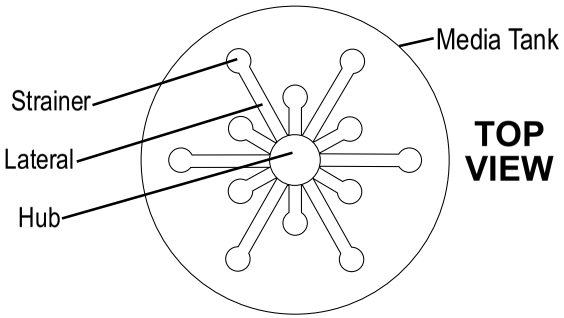
INSTALLATION WARNING

PRIOR TO Media Loading



Inspection Requirement Prior to Loading Media

1. Inspect condition of upper distributor piping. Verify fittings are tight and positioned as shown.
2. Inspect condition of strainers, laterals and hub through top or side access ports. Verify fittings are secured to hub and strainers are secured to laterals.
3. **DO NOT** load media if damaged components are observed. Contact factory.
4. Installer is responsible for media loss into treated water resulting from failure to report and repair damaged components inside media tank prior to media loading.
5. **INSTALLER WARNING:** Refer to installation instructions for media loading procedure. Improper loading of media will damage components inside media tank.



AFTER Media Loading

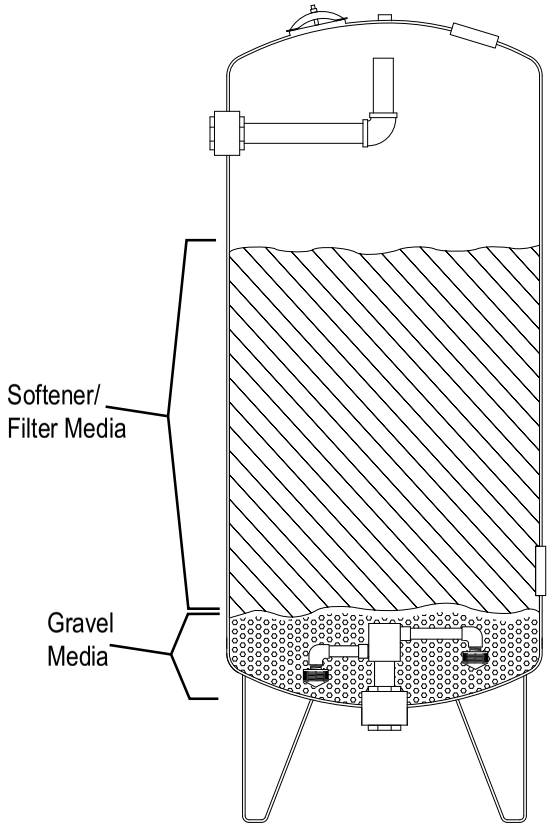


TABLE OF CONTENTS

Appendix:

- Aquamatic Diaphragm Valves

WATER TREATMENT PRODUCT WARRANTY

Marlo, Inc. warrants all water treatment products manufactured and/or distributed by it to be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If within that period any products shall be proven to Marlo, Inc.'s satisfaction to be defective, those products will be replaced, or the price refunded at Marlo Inc.'s option.

Marlo Inc.'s obligations or nonperformance, defective, or any damage caused by its products or their use, and buyer's exclusive remedy therefore, shall be limited to product replacement or refund and shall be conditioned upon Marlo Inc.'s receiving written notice together with a demand for such replacement or refund:

The foregoing warranty is exclusive and in lieu of all other expressed implied warranty (except of title) including but not limited to implied warranty of merchantability and fitness for particular purpose.

Marlo Inc. will not be subject to and disclaims the following:

1. Any other obligations or liabilities arising out of breach of contract or out of warranty.

2. Any obligations whatsoever arising from tort claims (including negligence and strict liability) or arising under other theories of law with respect to products sold or services rendered by Marlo Inc. or any undertakings, acts, or omissions relating thereto.

3. All consequential, incidental, and contingent damages.

Labor charges, change backs or handling charges are excluded from Marlo Inc.'s warranty provisions.

WATER MEDIA GUARANTEE

Under normal operating conditions:

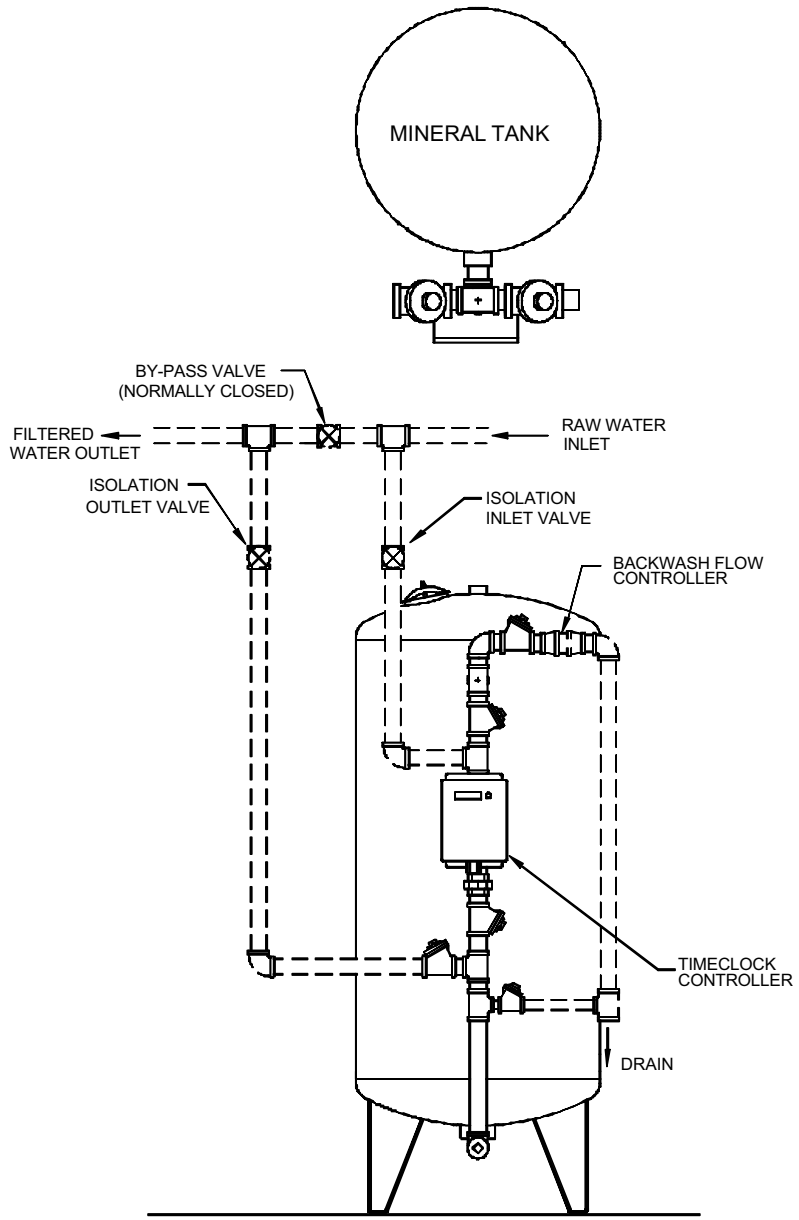
1. The loss of filter media through attrition during the first three (3) years shall not exceed 3% per year.

2. The filter media shall not be washed out of the system during backwash.

3. The color and turbidity of the effluent shall not be greater than the incoming water.

Any mechanical equipment proving defective in workmanship or material within one year after installation or eighteen (18) months after shipment, whichever comes first, shall be replaced FOB factory.

GENERAL ARRANGEMENT DRAWING



NOTE: ALL PIPING, FITTINGS, VALVES, ETC
SHOWN IN BROKEN LINES ARE BY OTHERS

SINGLE FILTER TIMECLOCK INITIATION
GENERAL ARRANGEMENT

FRAC.±	DEC. ±	FILE ID.	FILTER SGL TC		REV. 0
DRN.	MBC	SCALE	NTS	SHEET 1 OF 1	
APP'D.		DRAWING NO.	FILTER SGL TC		
DATE	7/8/03				

MARLO INCORPORATED

VALVE NEST FILTER

REVISIONS

NO.	DATE	BY	REMARKS

MFS MID 20-72 SINGLE FILTER MX-II

SPECIFICATION TABLE

Model	SERVICE FLOW RATE						BACKWASH FLOW RATE	PIPE SIZE	TANK SIZE	FLOOR SPACE	HEIGHT
	EXCELLENT		HIGH		UTILITY						
	GPM	.P	GPM	.P	GPM	.P	GPM	inches	inches	inches	inches
MID-20	25	4	35	7	50	12	30	1 1/2	20x54	21x30	72
MID-24	30	4	50	10	65	17	45	1 1/2	24x54	25x34	73
MID-30	50	6	75	13	98	18	75	2	30x54	31x40	76
MID-36	71	5	106	9	141	15	105	2 1/2	36x60	37x48	89
MID-42	97	7	145	12	192	20	150	2 1/2	42x60	43x54	94
MID-48	126	5	189	11	251	17	180	3	48x60	49x62	88
MID-54	159	7	239	14	318	19	240	3	54x60	55x70	89
MID-60	198	10	295	19	393	30	300	3	60x60	60x76	90
MID-66	240	5	360	17	480	25	360	4	66x60	67x86	105
MID-72	285	5	425	8	575	12	420	4	72x60	73x92	95

MODEL	ANTHRACITE	RED SAND	GARNET 30-40	GARNET 8-12	GRAVEL
MID-20	112	150	150	100	100
MID-24	168	250	200	150	200
MID-30	280	350	350	250	300
MID-36	392	550	550	350	400
MID-42	532	700	750	500	600
MID-48	728	950	1000	650	900
MID-54	896	1200	1250	800	1200
MID-60	1120	1500	1500	950	1500
MID-66	1344	1800	1850	1150	2000
MID-72	1624	2100	2150	1350	2500

All values are in pounds

VOLUME VERSES WEIGHT OF MEDIA

Anthracite "C"	56# per Cu. Ft.	1 Cu. Ft. per bag
Red Sand	100# per Cu. Ft.	100# per bag
Garnet 30-40	130# per Cu. Ft.	50# per bag
Garnet 8-12	140# per Cu. Ft.	50# per bag
Gravel	100# per Cu. Ft.	100# per bag

NOTE: Bag size may vary. Please confirm weight and volume before loading. Consult Media sheet on media pallet.

Power Requirements 120 Volt, 60 Hertz, Single Phase, 2A
Operating Pressure Range: 30 - 100 psig
Operating Temperature Range: 35 - 100 F

INSTALLATION INSTRUCTIONS

Before beginning installation, thoroughly review the following instructions to familiarize yourself with the general placement and identification of all components.

These instructions are written for a single unit installation, but they also generally apply to twin and triple units.

The operating pressure range is 30 - 100 psi. Water pressures not meeting these specifications should have a booster pump installed for pressure lower then 30 psi and a pressure regulator installed for pressure exceeding 100 psi.

The operating temperature range is 35-100°F. Special filters are available to handle higher temperature ranges. Consult factory for recommendations.

Catalog filters are shipped fully assembled with face piping and controllers. Care must be taken not to damage valves or controllers during uncrating and installation.

FILTER LOCATION

Select a position near a floor drain that has adequate carrying capacity to handle the water filter backwash rate. See the Specification Table located on page 3 for the backwash rate of your system.

Make sure the softeners are placed on a level concrete surface.

PIPING INSTALLATION

Install piping as shown on the general arrangement drawing. Include unions and shut-off valves on the inlet and outlet of each tank. It is recommended that a union be installed in each filter drain-line to facilitate cleaning the backwash flow control.

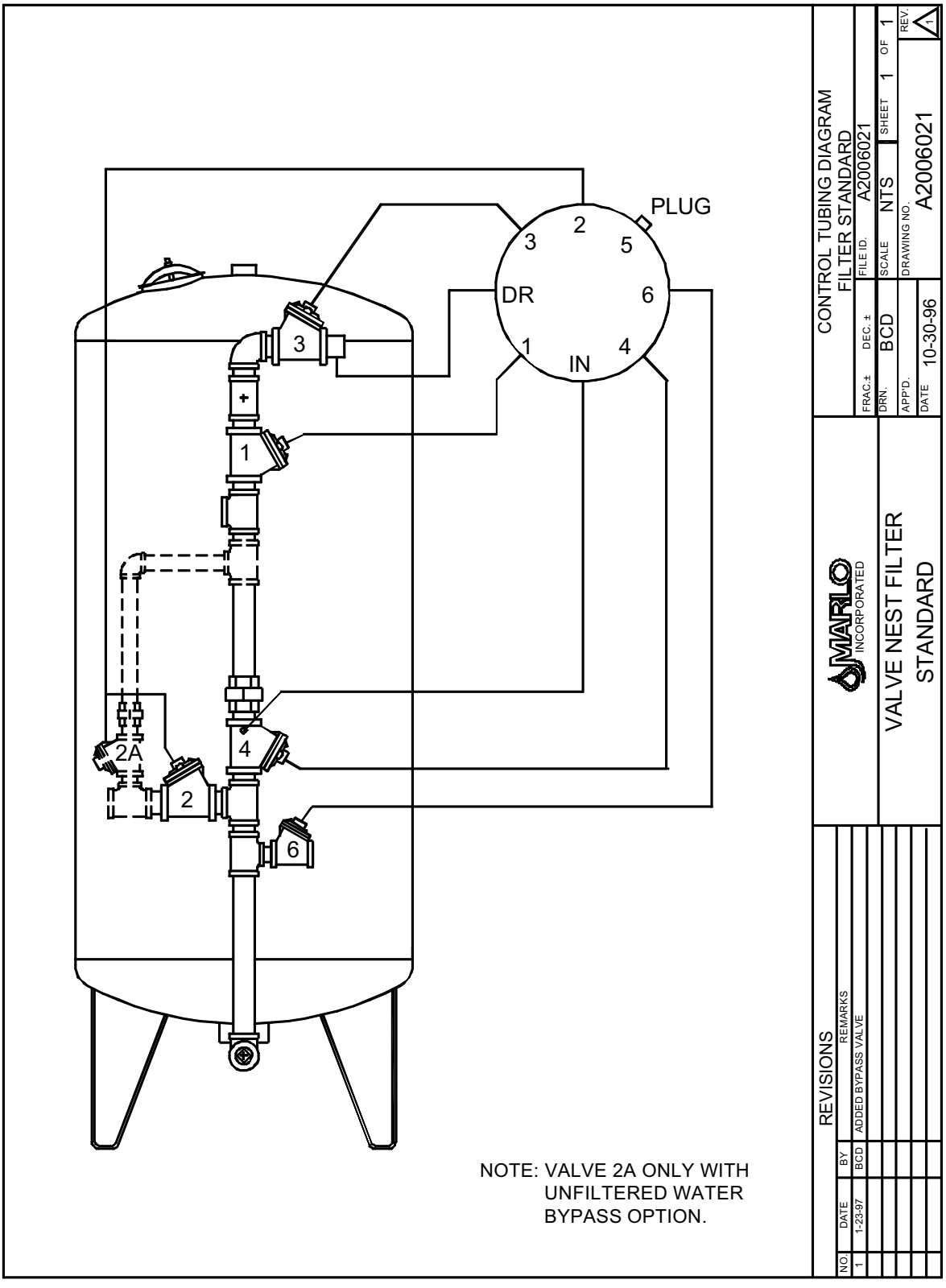
Note: Do not reduce drain-line pipe size. Do not install a shut off valve in the drain-line. Provide an air gap in the drain line in accordance with local codes (minimum: four (4) pipe diameters).

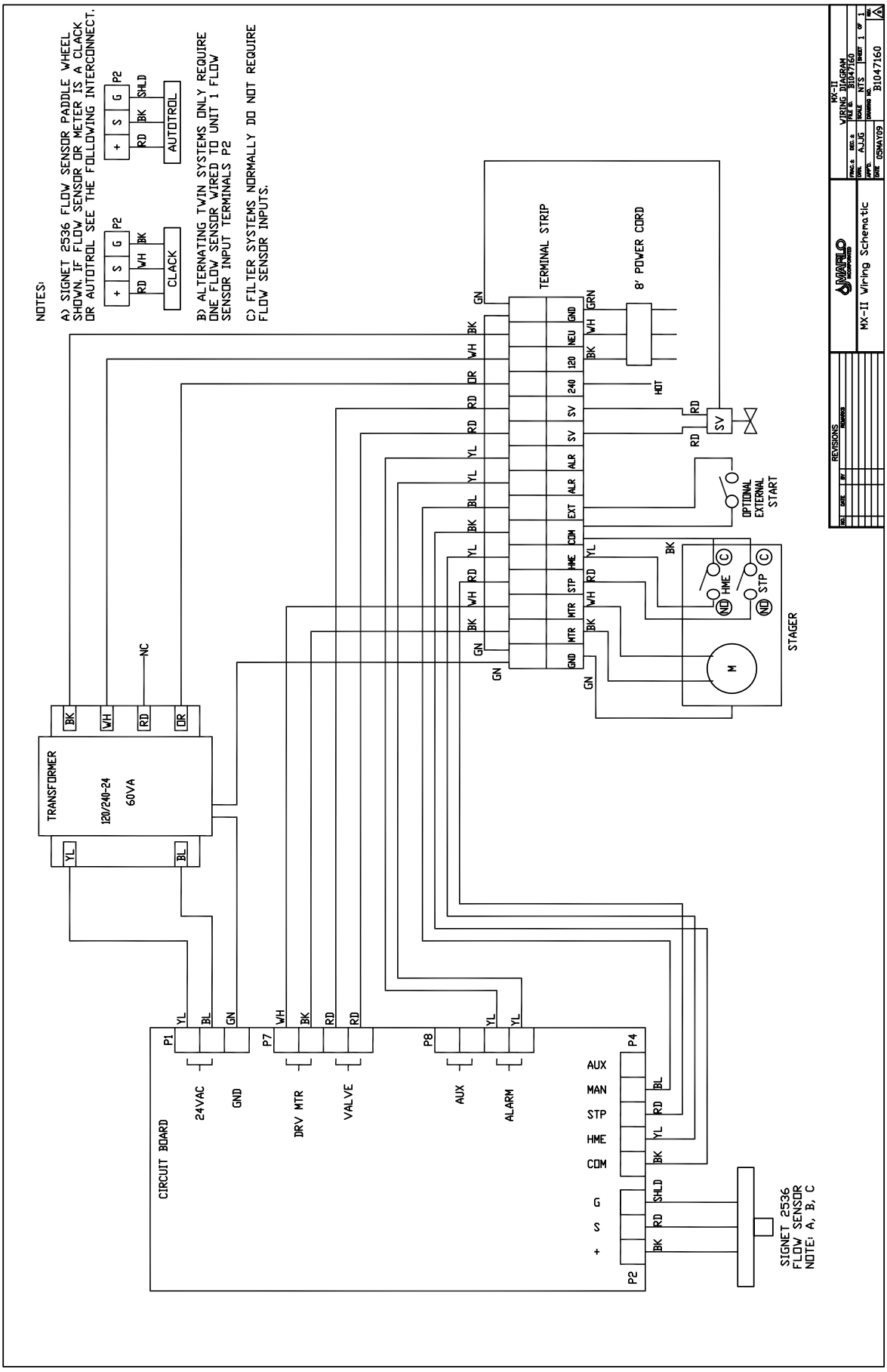
On installations with a differential pressure switch, the ¼" male tube fitting connectors must be installed in the main inlet and outlet headers as shown on the general arrangement drawing. After the piping has been completed, make sure to close all isolation valves.

CONTROL TUBING INSTALLATION

Refer to the control-tubing diagram for your filter.

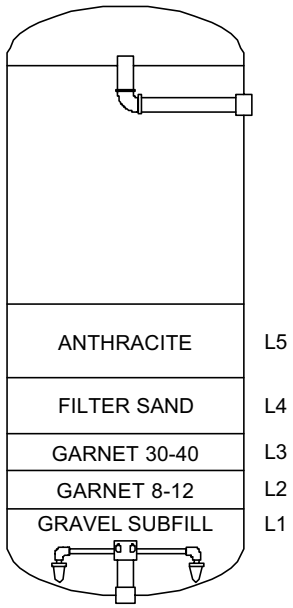
On single and skid mounted units the factory does the control tubing.




NOTES:
A) SIGNET 2536 FLOW SENSOR PADDLE WHEEL SHOWN. IF FLOW SENSOR OR METER IS A CLACK OR AUTOTROL SEE THE FOLLOWING INTERCONNECT.
+ S G P2
RD WH BK
CLACK
+ S G P2
RD BK SHLD
AUTOTROL
B) ALTERNATING TWIN SYSTEMS ONLY REQUIRE ONE FLOW SENSOR WIRED TO UNIT 1 FLOW SENSOR INPUT TERMINALS P2
C) FILTER SYSTEMS NORMALLY DO NOT REQUIRE FLOW SENSOR INPUTS.
TERMINAL STRIP
8' POWER CORD
GND
NEU
120
240
SV
SV
ALR
ALR
EXT
COM
HME
STP
MTR
MTR
GND
GRN
WH
BK
HOT
RD
SV
OPTIONAL EXTERNAL START
HME
STP
STAGER
M
TRANSFORMER
120/240-24
60VA
NC
CIRCUIT BOARD
P1
24VAC
GND
P7
DRV MTR
VALVE
P8
AUX
ALARM
P4
AUX
MAN
STP
HME
COM
P2
G
S
+
SIGNET 2536
FLOW SENSOR
NOTE: A, B, C
MX-II
WIRING DIAGRAM
PART # 30047160
SCALE NTS
DRAWING NO. B1047160
DRN. A.J.G
APPD.
DATE 09MAY09
MARLO INCORPORATED
MX-II Wiring Schematic
REVISIONS

FILTER TANK LOADING

GRAVEL LOADING



Before loading, visually check the lower distributor for shipping damage. All radial arms and baskets strainers are in place and pointing downward. Tighten any loose laterals. Do **not** load tank if there is damage is evident. Call the factory if any damage is observed.

Do begin to load the tank until you have verified that all required gravel and filter media is on site. Refer the media loading table on page 3 for the required amounts.

1. Slowly open the inlet valve and fill the tank half way or as full as possible with water. There might be a flow of water to drain.

2. The equipment provided has a plastic lower distributor system. Care should be exercised in the loading of the gravel in order to insure that the distributors are not damaged.

3. Slowly and gently pour the gravel marked for the mineral tank into the unit.

4. Drain the tank down until the gravel and water levels are the same.

5. Carefully level the gravel before loading the resin.

MEDIA LOADING

1. Reopen the inlet valve and fill the tank with water approximately 6” above the present media level.

2. Pour the quantity of L2 media specified for the unit in through the top opening and then level the layer of media.

3. Repeat steps 1 and 2 until all five layers (L3, L4, L5) of media are loaded.

4. Reopen the inlet valve and fill the tank with water to the top access opening. Close and secure the top access opening.

5. Open inlet valve and continue to fill the tank with water until it is fully pressurized.

START-UP INSTRUCTIONS

Before proceeding to start-up:

- Make sure the unit is properly installed with all piping complete
- All of the required media has been properly loaded in the tank
- Read the controls section located in this manual

1. Open the manual by-pass valve. The manual inlet and outlet valves are to remain closed.

2. Connect the power to the MX II controller. The controller display window will light up.

3. Verify the following and change if required.
   SINGLE TIME CLOCK is displayed in the window

4. Open the cover of the enclosure on and manually rotate the stager to the #1 (BACKWASH) position. The stager motor will rotate back to the #4 (SERVICE) position. This is done to confirm the controller's homing signal is operational.

5. Press and hold the **MANUAL START** button on the front of the controller. This will advance the controller to the backwash step. The stager should rotate to the step 1 (BACKWASH) position.

6. Slowly open the softener's manual inlet supply valve. Do not open fully. Full flow of water could cause loss of media. Continue to fill slowly until all air is expelled and only water flows to the drain. Water will enter from the bottom of the resin tank as air is expelled from the top drain. If the system is supplied with an air vent make sure that the valve is open during this process.

7. When only water flows to the drain and out the air vent (if applicable), open the manual inlet valve all of the way. Backwash until the water looks clean when caught in a container.

8. Advance the controller to the brine/slow rinse step by pressing and holding the **ADVANCE** button. The stager should rotate to the STEP 2 (BRINE/SLOW RINSE) position. There will be a slow flow to the drain.

9. While the stager is in the Brine/Slow Rinse position, check the level in the brine tank. The level should be dropping at a slow rate (approximately 2" per minute).

10. Advance the controller to the Fast Rinse position. The Unit 1 stager should rotate to the STEP 3 (FAST RINSE) position. There will be a high flow of water to the drain. Allow the water to flow to the drain until clear. During this time, the brine tank will fill with water until the float closes the brine tank valve. Check that all brine fittings are tight and that the water level in the brine tank is according to the unit specifications.

11. Advance the controller to the service position. The stager should rotate to the STEP 4 (SERVICE) position. There will be no flow of water to the drain.

12. Fill the brine tank with the proper amount and type of salt recommended for use with the system. See RECOMMENDED TYPES OF SALT.

13. Close the manual by-pass valve and open all outlet valves fully. The system is now in service.

WATER FILTER GENERAL OPERATION

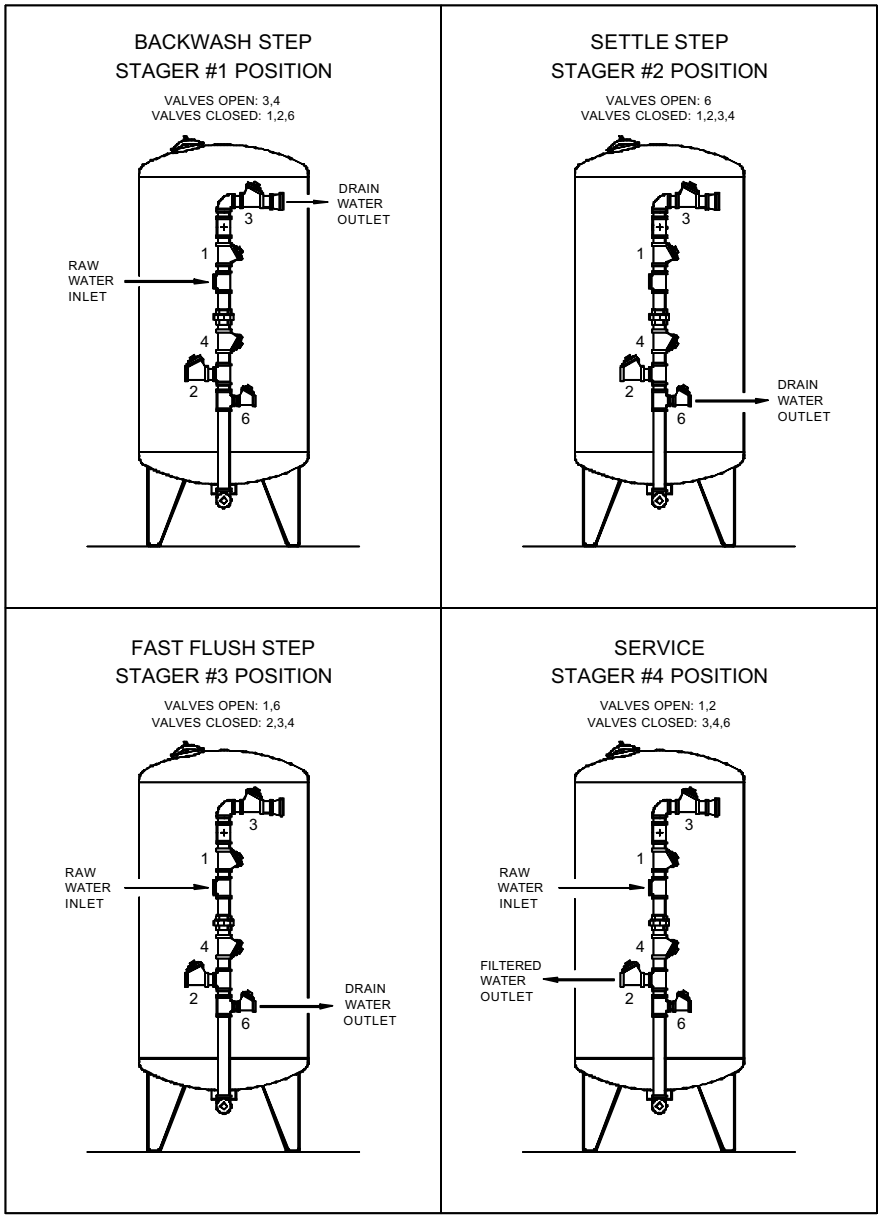
Raw water passes through the valve manifold into the top of the tank. It flows downward through the mineral bed and out through the bottom of the tank to service. As the water passes through the mineral bed, sediment present is removed by filtration action of the mineral.
The media must be cleaned periodically by the following procedure:

Backwash: The flow through the mineral bed is reversed and allowed to flow to drain. The up-flow action washes any sediment or foreign material collected in the unit out to drain. At the same time the mineral itself is restratified, thereby eliminating any possibility of channeling (approximately 10 minutes).

Settle: The media is allowed to settle in a stratified manner.

Fast Flush: The downward flow to drain in this step is increased to a high rate, which will repack the media bed.

FLOW DIAGRAM



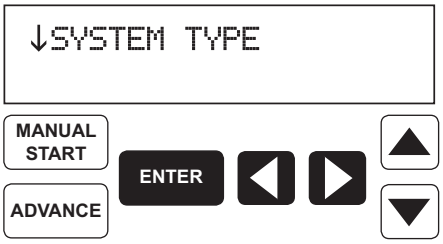
Program Guide - Single Filter MXII

NOTE: Steps must be performed within 30 seconds of each other or the controller will exit programming mode.

BEGINNING FROM FACTORY DEFAULT

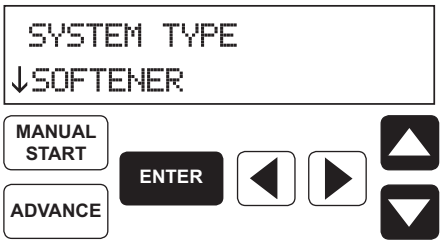
NOTE: To get to Factory Default press & hold "MANUAL START and ▼" keys until the display reads "Factory Default". Ignore "Press ENTER to Program"

STEP 1



A. Press ◀ ▶ keys simultaneously for 3 seconds to enter program mode.
B. "↓SYSTEM TYPE" appears. Press ENTER.

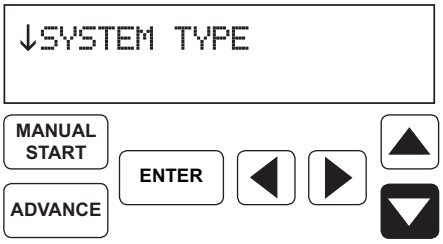
STEP 2



A. "↓SOFTENER" appears; If "↓FILTER" is not displayed, use ▲ ▼ keys until it is.
B. Press ENTER to choose FILTER.

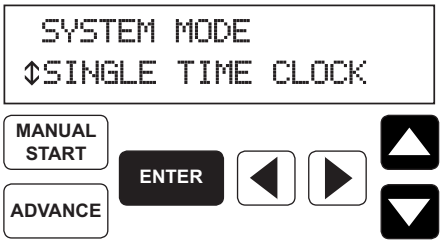
NOTE: If you toggle to "FILTER" then back to "SOFTENER", press "ENTER" key until only "↓SYSTEM TYPE" appears on top line with nothing displayed on the second line.

STEP 3



A. "↓SYSTEM TYPE" appears.
B. Press ▼.

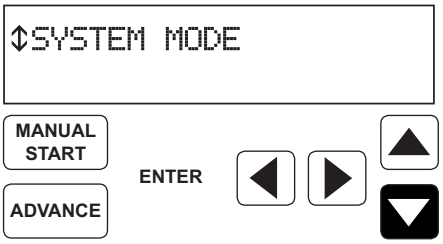
STEP 4



A. "↕SYSTEM MODE" appears.
B. Press ENTER .
C. Use ▲ or ▼ to scroll to "↕SINGLE TIME CLOCK". The screen shown here is displayed.
D. Press ENTER to choose SINGLE TIME CLOCK.
E. If necessary, Press ENTER again until the display is as shown below.

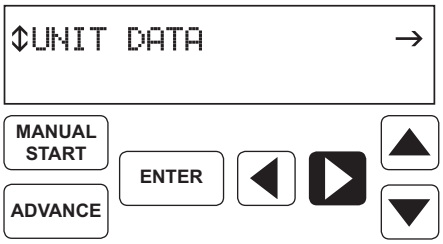
Program Guide - Single Filter MXII

STEP 5



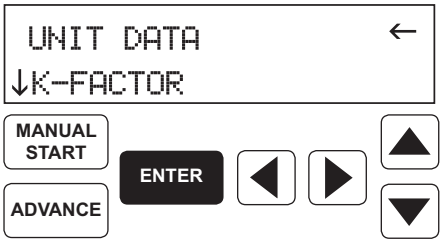
A. "↕SYSTEM MODE" should be displayed on the top line, with nothing displayed in the second line.
B. Press ▼.

STEP 6



A. "↕UNIT DATA" appears.
B. Press ▶.

STEP 7

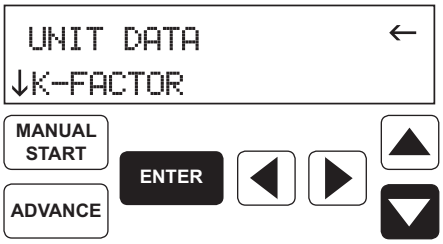


A. "↓K-FACTOR" appears.
B. Press ENTER.

STEP 8

A. Use ▲▼ keys to enter K-FACTOR value.
B. Press ENTER until the next display in step 9 is shown.

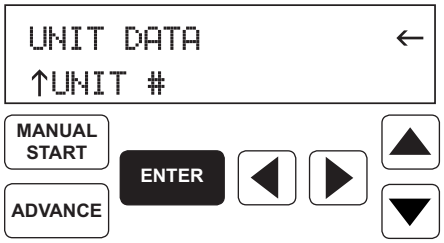
STEP 9



A. "↓K-FACTOR" appears.
B. Press ▼.

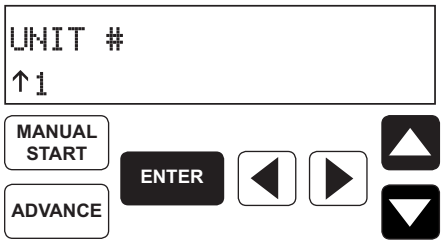
Program Guide - Single Filter MXII

STEP 10



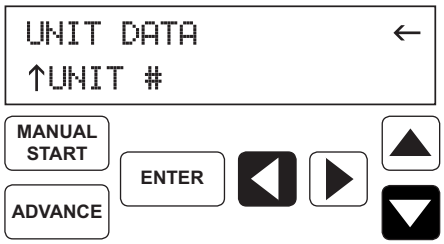
A. "↑UNIT #" appears on second line.
B. Press ENTER.

STEP 11



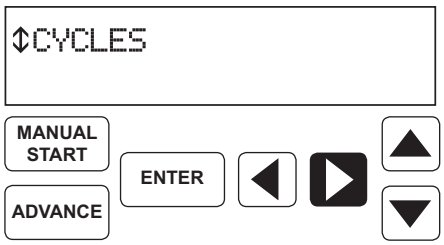
A. "UNIT #" appears on top line with the unit's # displayed on second line.
B. Use ▲ ▼ to scroll to unit (1).
C. Press ENTER until the next display in step 12 is shown.

STEP 12



A. Press ◀.
B. "↕UNIT DATA" appears by itself on top line.
C. Press ▼.

STEP 13



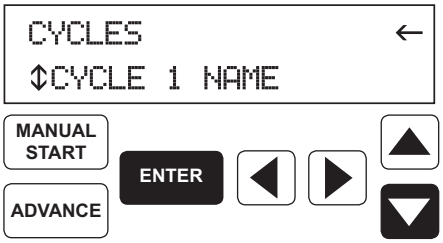
A. "↕CYCLES" appears.
B. Press ▶.
C. "↓CYCLE 1 NAME" appears on second line.

STEP 14

A. Press ENTER to choose cycle name (BACKWASH) to appear instead of CYCLE #. 'BACKWASH' is displayed on the second line.
B. Press ENTER until the display in step 15 is displayed.

Program Guide - Single Filter MXII

STEP 15

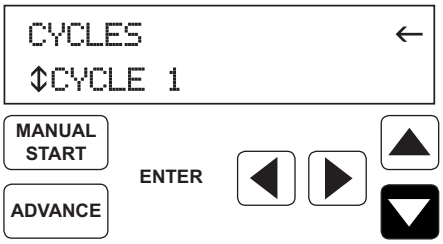


A. "↓CYCLE 1 NAME" appears on second line.
B. Press ▼. "CYCLE 1" appears.
C. Press ENTER.

STEP 16

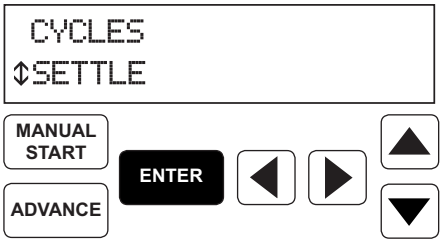
A. "CYCLE 1" appears on the first line. "0016 MINS" appears on the second line.
B. Use arrow keys to dial in time of cycle.
C. Press ENTER until the screen in step 17 is displayed.

STEP 17



A. Press ▼.
B. "↕CYCLE 2 NAME" appears on second line.

STEP 18



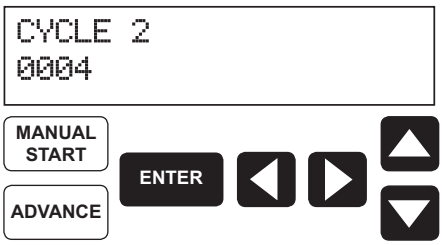
A. Press ENTER. "↕SETTLE" appears.
B. Press ENTER until the screen in step 19 is displayed.

STEP 19

A. Press ▼. "CYCLE 2" appears on second line.
B. Press ENTER.

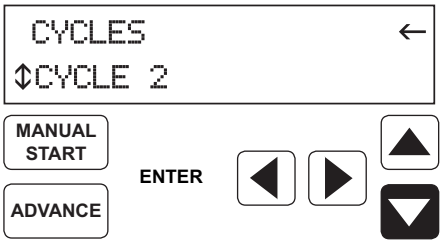
Program Guide - Single Filter MXII

STEP 20



A. "CYCLE 2" appears on top line. "0004 MINS" appears on second line.
B. Use arrow keys to dial in number.
C. Press [ENTER] until the screen in step 21 is displayed.

STEP 21



A. "CYCLES" appears on first line. "↕CYCLE 2" appears on second line.
B. Press [▼]. "↕CYCLE 3 NAME" appears on second line.

STEP 22

A. Press [ENTER].
B. Use [▲][▼] to choose the name "FLUSH".
C. Press [ENTER] until the screen in step 23 is displayed.

STEP 23

A. Press [▼]. "↕CYCLE 3" appears on the second line.
B. Press [ENTER].

STEP 24

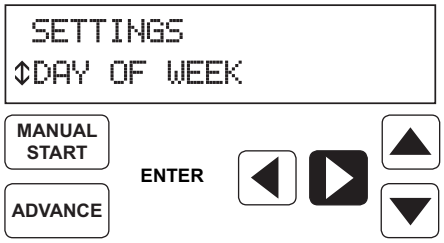
A. Dial in minutes using arrow keys.
B. Press [ENTER] until "↕CYCLE 3" is displayed on second line.
C. Press [▼].

Program Guide - Single Filter MXII

STEP 25

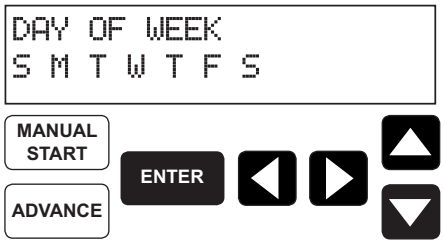
A. "↕CYCLE 4 NAME" appears on second line.
B. Press ◀ . "↕CYCLES" appears alone on first line.
C. Press ▼ .

STEP 26



A. "SETTINGS" appears.
B. Press ▶.
C. "DAY OF WEEK" appears on second line.

STEP 27



A. Press ENTER .
B. Press ◀ or ▶ to cycle through the days of the week to regenerate.
C. Press ▼ or ▲ to select or turn on the day of the week to regenerate the filter.

STEP 28

A. Press ENTER to save.
B. Press ENTER to exit.
C. Press ▼ until "ELAPSED TIME" is displayed.

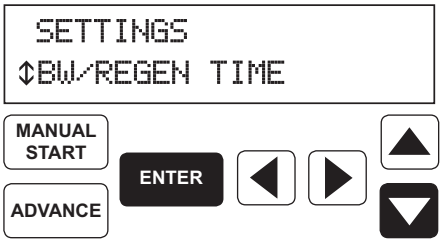
STEP 29

A. Press ENTER .
B. Press ◀ ▶ ▼ ▲ to enter the amount of HRS that must pass before the filter will regenerate.

NOTE: All zeros will disable this feature.

Program Guide - Single Filter MXII

STEP 30



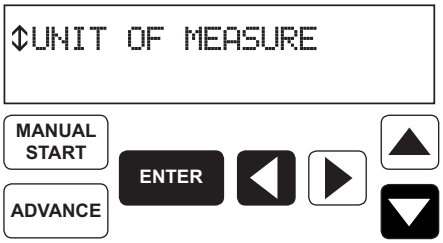
A. Press ENTER to save.
B. Press ENTER to exit.
C. Press ▼ until "BW/REGEN TIME" is displayed.
D. Press ENTER .

STEP 31

A. Press ◄ ► ▼ ▲ to change the regen time.
B. Press ENTER to save.
D. Press ENTER to exit.

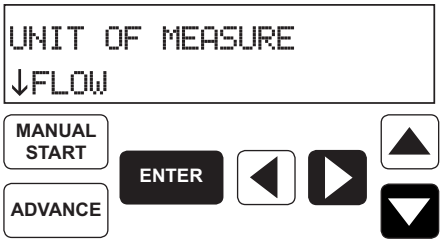
NOTE: Default time is 2 AM.

STEP 32



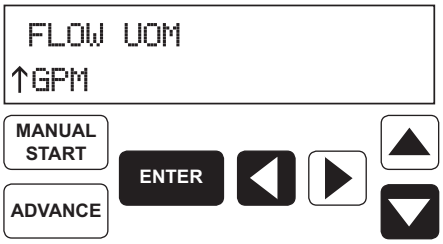
A. Press ENTER until "SETTINGS" appears on the first line.
B. Press ◄ to get out of "SETTINGS".
C. Press ▼ until "↕UNIT OF MEASURE" appears.

STEP 33



A. Press ►. "↓FLOW" appears on the second line. If not, press ▼ until "↓FLOW" appears on the second line
B. Press ENTER .

STEP 34



A. "FLOW UOM" appears on the first line and "↑GPM" appears on the second line.
B. Press ENTER .
C. Press ◄, then ▼, and finally ◄ to exit. Programming is finished and display will return to normal.

SERVICE CHART WATER SOFTENERS continued

When the unit detects a fault, the red alarm LED will display and the detected error will be displayed.

Communication Error

ERROR MESSAGE-	CAUSE
COMM FAILURE MASTER	No Unit is programmed as Unit 1 - the Master
COMM FAILURE UNIT 2	A faulty cable or a bad connection with the COM jack.
	Multiple units programmed with the same UNIT# .
	UNIT# is different from MODE selected.

Program Error

ERROR MESSAGE-	CAUSE
MODE ERROR UNIT 2	Unit 2 is programmed in a mode different from the Master - Unit 1.
AUX RELAY SP ERROR	Aux Relay Start time is programmed to a value other than 0 and the Aux Relay Stop time is not greater than the Aux Relay Start time

Drive Motor Error

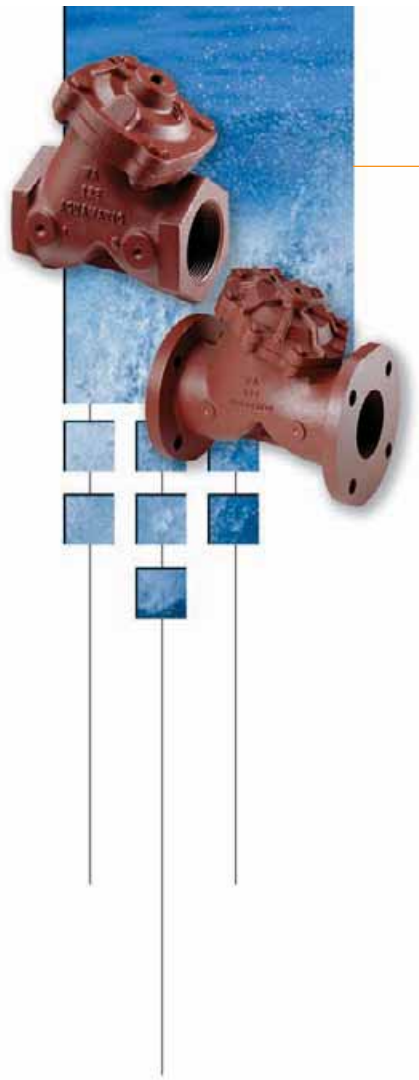
ERROR MESSAGE-	CAUSE
DRIVE FAILURE	Faulty motor wiring to terminal strip or terminal block on circuit board
	Faulty switch on the stager

RESET

Soft Reset – Press the reset button located on the circuit board
Hard Reset – Press and hold the **MANUAL START** and **DOWN** arrow for five seconds until UNIT displays the following text:

FACTORY DEFAULT HIT ENTER TO PROGRAM

Press ENTER to restore controller to default settings



GE
Water & Process Technologies

AquaMatic® Product Specifications

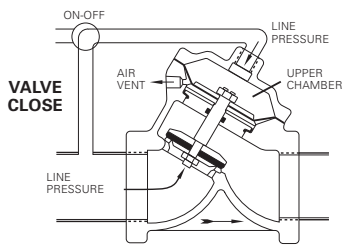
Metal Diaphragm Valves

Features and Options

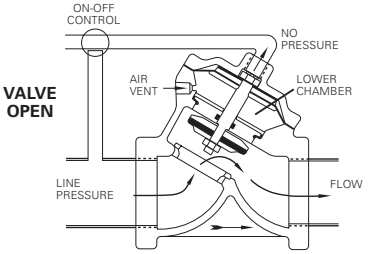
- **Low Pressure Loss** .....The AquaMatic Y-pattern diaphragm valve features a large seat opening and high lift-disc for higher flow rates at a lower pressure loss than other comparable valves
- **Positive Control** .....A separate valve flow and control chambers permits positive sealing without springs. The optional spring-assist open feature is available for low pressure and self-draining applications.
- **Cost Effective** .....The AquaMatic is a cost-effective solution both in initial cost, as well as lifetime maintenance expenses.
- **Long Diaphragm Life** .....Separate diaphragm chambers protects the diaphragm from the flow stream, while allowing the valve to be serviced in-line.
- **Durable Construction**.....The valve is constructed of cast iron, brass, stainless steel and Nitrile elastomer components, giving an unparalleled service life of three years or longer depending on the application's environment.

- Design and application engineering service
- Optional seal and diaphragm materials for special applications
- Handles liquid and gases
- Adaptable to wide variety of control devices
- Optional adjustable flow rate control
- Optional spring assist
- Optional position indication
- Optional all stainless internals (3" and 4" sizes only)

Principles of Operation



Drip-Tight Closing: *Closure is obtained by directing line pressure or equivalent independent pressure into the upper chamber. This pressure on the large diaphragm area causes the valve disc to seal against the seat. (Ratio of diaphragm to disc area is 1.3 or greater.)*



Full Open Operation: *When closing pressure in upper chamber is relieved by venting the pilot line, the valve opens, positively, by line pressure on the disc.*

Applications

In addition to the water treatment process systems, the valves are used in a wide variety of applications. Some of the typical applications are:

- Concrete Additive
- Agricultural Irrigation
- Turf Irrigation
- Air Dryers
- Pump Controls
- Fuel Handling
- Cooling Towers
- Level Control Systems
- Sand Blasting
- Car Wash Systems
- Process Water Systems
- Laundry Equipment
- Conveyor Systems
- Air Control Systems
- Dust Suppression
- Plastic Molding
- Machinery
- Nitrogen Handling
- Vacuum Control Systems
- Machine Hydraulic
- Cooling Control
- Street Cleaning Vehicles
- Centrifugal Separators
- HVAC Systems

Series 420 Valves

Standard valves are normally open. Body and cap are of cast iron. Preformed stress-relieved diaphragm of Nitrile (Buna N) on Polyamide, and static seals are Nitrile, stainless steel and brass internal parts.

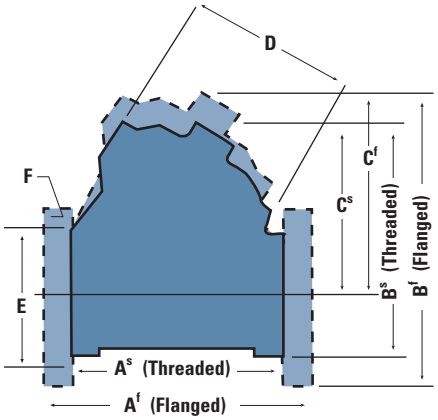
Pipe sizes are 3/4 to 3-inch threaded (N.P.T. or B.S.P.); 3-inch through 6-inch flanged drilled in accordance with ASA16.1 class 125, or BSP4504.

Options

Normally closed, spring assist closed, spring assist open, limit stop, position indicator, high temperature service, brass body and cap (3/4 to 3-inch only), optional seal and diaphragm materials for special application, stainless steel internal parts.

Operating Specifications

Working Pressure.....125 PSI (8.6 bar)
Maximum Temperature 150ºF (65ºC)
250ºF (120ºC) – Optional



Series VAV Air Valves

Standard valves are normally open. Body and cap are of cast iron. Preformed stress-relieved diaphragm of Nitrile (Buna N) on Nylon, and static seals are FKM & Hycar, stainless steel and brass internal parts.

Pipe sizes are 3/4 to 3-inch threaded (N.P.T. or B.S.P.); 3 to 4-inch flanged drilled in accordance with ASA16.1 class 125, or BSP4504.

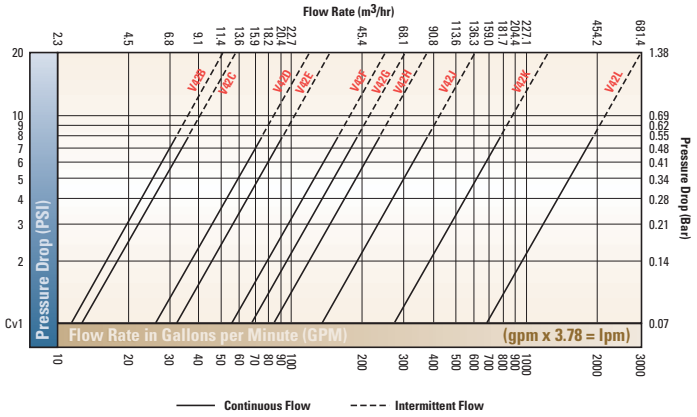
Options

Normally closed, spring assist closed, spring assist open, FKM diaphragm for high temperature service.

Operating Specifications

Working Pressure.....125 PSI (8.6 bar) maximum
Temperature 150ºF (65ºC)
250ºF (120ºC) – Optional

Metal Body Valves



Flow Thru Metal Diaphragm Valves

	Pipe Size	Model Number 420 Series	Model Number VAV Series	CV (3)	Unit	Dimensions (Approximate) A^s	A^f	B^s	B^f	C^s	C^f	D	E(1)	F(2)
Threaded	3/4"	V42B	VAVB	11.4	in.	3.69		4.25		3.75		2.75		
	1"	V42C	VAVC	12.8	mm	94		108		95		70		
	1-1/4"	V42D	N/A	26.5	in.	4.75		5.37		4.00		3.50		
	1-1/2"	V42E	VAVE	32.5	mm	121		137		102		89		
	2"	V42F	VAVF	56	in. mm	6.62 168		7.25 184		5.37 137		4.87 124		
	2"	V42G	VAVG	68	in.	7.37		8.00		5.75		5.50		
	2-1/2"	V42H	VAVH	84	mm	187		203		146		140		
	3"	V42J	VAVJ	134	in. mm	9.00 229		9.75 248		6.75 171		7.25 184		
Flanged	3"	V42J	VAVJ	134	in. mm		10.62 270		10.75 273		7.00 178	7.25 184	6.00 152	0.75 19
	4"	V42K	VAVK	275	in. mm		11.75 298		14.75 375		10.00 254	8.75 222	7.50 191	0.75 19
	6"	V42L	N/A	680	in. mm		17.00 432		19.00 483		13.50 343	15.75 402	9.50 241	0.87 2

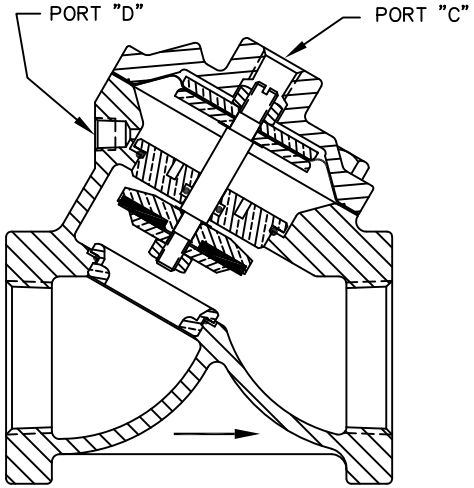
(1) *Bolt circle diameter* **(2)** *Bolt hole diameter* **(3)** *CV = Flow rate in gpm of water at 60°F @ 1psi pressure drop*

For More Information:
Contact the **Residential and Commercial Group** at **(815) 964-9421** or **(800) 245-9421** or visit **www.gewater.com**

GE
Water & Process Technologies

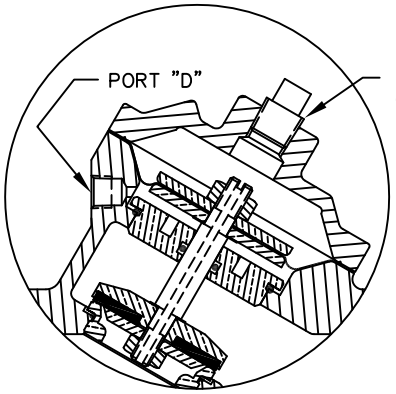
Printed in USA, P/N 1163574 Rev. F

DIAPHRAGM VALVE CONFIGURATIONS - STANDARD MODEL



NORMALLY OPEN

LINE PRESSURE/FLOW AGAINST THE VALVE SEATING DISC WILL OPEN THE VALVE. CONTROL PRESSURE APPLIED TO THE TOP OF THE DIAPHRAGM (PORT "C") WILL CLOSE THE VALVE.

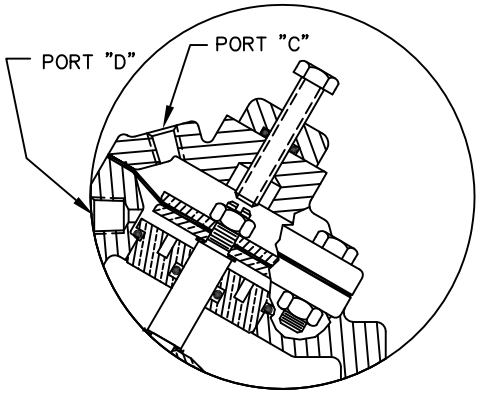


NORMALLY CLOSED

LINE PRESSURE AGAINST THE DISC, TRANSFERRED THRU THE VALVE'S HOLLOW SHAFT TO THE TOP OF THE DIAPHRAGM, WILL CLOSE THE VALVE. CONTROL PRESSURE AT PORT "D" WILL OPEN THE VALVE. ADDITION OF "SPRING ASSIST CLOSED" FEATURE IS RECOMMENDED FOR THE FOLLOWING CONDITIONS:

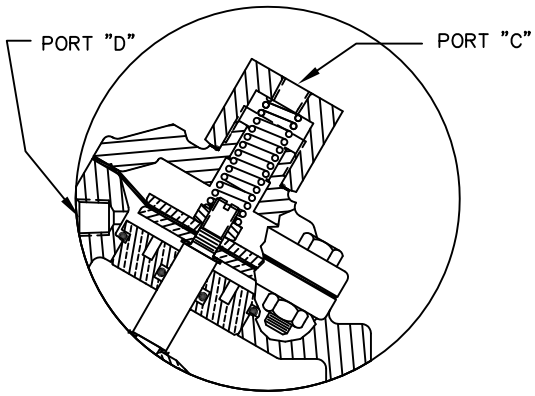
1. LOW PRESSURE AND/OR FLOW.
2. VALVE DISCHARGES TO ATMOSPHERE.

NORMALLY CLOSED FEATURE NOT RECOMMENDED FOR LINE MEDIA CONTAINING SOLIDS, HIGH TEMPERATURES OR OTHER MEDIA CONDITIONS WHICH MAY DAMAGE THE DIAPHRAGM.



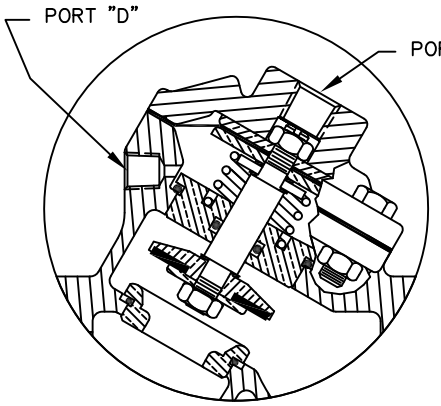
LIMIT STOP

INCLUDES AN ADJUSTMENT SCREW WHICH LIMITS THE VALVE STROKE. MAY BE USED TO CONTROL FLOW RATE, HOWEVER, FLOW RATE WILL VARY WITH CHANGES IN PRESSURE.



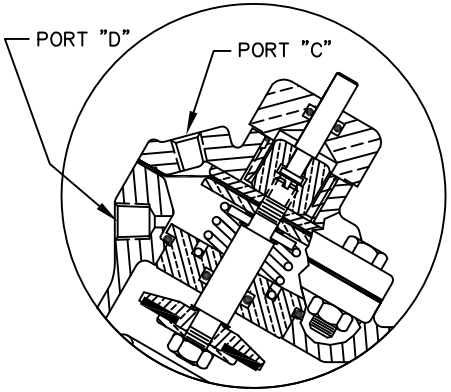
SPRING ASSIST CLOSED

SPRING SERVES AS AN ASSIST TO ASSURE FULL VALVE CLOSURE IN THE ABSENCE OF LINE AND CONTROL PRESSURES.



SPRING ASSIST OPEN

SPRING SERVES AS AN ASSIST TO ASSURE FULL VALVE OPENING IN THE ABSENCE OF LINE AND CONTROL PRESSURES.



POSITION INDICATOR

INDICATOR ROD IS ATTACHED TO MAIN VALVE STEM TO SHOW POSITION OF VALVE. ONLY AVAILABLE WITH SPRING ASSIST OPEN OPTION.

OSMONICS™
ROCKFORD OPERATIONS
2412 GRANT AVENUE, ROCKFORD, IL 61103-3991 (815) 964-9421
WWW.OSMONICS.COM

SERIES 420 DIAPHRAGM VALVES

FORM NO. 1078116

REV	DESCRIPTION	ECO	DWN	DATE	APVD
B	INITIAL RELEASE	1429	JWB	21JUN01	VKP

SCALE	DRAWN	DATE	DWG. NO.
N/A	JWB	25APR01	1078117

PRINTED IN U.S.A.

METAL DIAPHRAGM VALVES (421 THRU 429)

SERIES	PIPE SIZE	SEAT DIAMETER IN. / CM.	SEAT AREA SQ. IN. / SQ. CM.	DIAPHRAGM AREA SQ. IN. / SQ. CM.	TOTAL STROKE IN. / CM.	DIAPHRAGM CHAMBER (VOLUME) CUBIC IN. / CUBIC CM.	* Cv	** Kv	FLOW RATE @ 10 FT./SEC. (3 M./SEC.) NOTE 1 GAL./MIN. / CU.M/HR	FLOW RATE @ 20 FT./SEC. (6 M./SEC.) NOTE 2 GAL./MIN. / CU.M/HR	PRESSURE DROP @ 10 FT./SEC. (3 M./SEC.) NOTE 1 P.S.I. / bar	PRESSURE DROP @ 20 FT./SEC. (6 M./SEC.) NOTE 2 P.S.I. / bar
V42B	3/4"	0.97 / 2.5	0.74 / 4.8	2.10 / 13.0	0.47 / 1.2	2.06 / 33.8	11.4	9.8	23 / 5	46 / 10	4.1 / 0.3	16.3 / 1.12
V42C	1"	0.97 / 2.5	0.74 / 4.8	2.10 / 13.0	0.47 / 1.2	2.06 / 33.8	12.8	11.0	23 / 5	46 / 10	3.2 / 0.22	13.0 / 0.9
V42D	1 1/4"	1.34 / 3.4	1.41 / 9.1	6.49 / 41.9	0.61 / 1.5	5.20 / 85.2	26.5	23	44 / 10	88 / 20	2.8 / 0.2	11.0 / 0.7
V42E	1 1/2"	1.34 / 3.4	1.41 / 9.1	6.49 / 41.9	0.61 / 1.5	5.20 / 85.2	32.5	28	44 / 10	88 / 20	1.8 / 0.12	7.3 / 0.5
V42F	2" (425)	2.02 / 5.1	3.20 / 20.6	11.04 / 71.2	0.70 / 1.8	10.50 / 172.1	56	48	100 / 23	200 / 46	3.2 / 0.22	12.7 / 0.87
V42G	2" (426)	2.31 / 5.9	4.19 / 27.0	15.03 / 97.0	0.99 / 2.5	16.34 / 267.8	68	59	130 / 29	260 / 58	3.7 / 0.25	14.7 / 1.01
V42H	2 1/2"	2.31 / 5.9	4.19 / 27.0	15.03 / 97.0	0.99 / 2.5	16.34 / 267.8	84	72	130 / 29	260 / 58	2.4 / 0.16	9.7 / 0.67
V42J	3"	2.96 / 7.5	6.88 / 44.4	22.69 / 146.4	1.05 / 2.7	32.80 / 537.6	134	116	214 / 49	428 / 98	2.6 / 0.18	10.2 / 0.7
V42K	4"	3.84 / 9.7	11.58 / 74.7	33.82 / 218.2	1.92 / 4.9	78.83 / 1292.0	275	238	360 / 83	720 / 166	1.7 / 0.12	6.9 / 0.47
V42L	6"	6.06 / 15.4	28.84 / 186.1	120.28 / 776.0	1.70 / 4.3	296.52 / 4860.0	680	588	899 / 204	1798 / 408	1.8 / 0.12	7.0 / 0.5

* Cv – FLOWRATE (GAL./MIN.) OF WATER AT 60° F. AT 1 P.S.I. PRESSURE DROP

** Kv – FLOWRATE (CU. M./HR) OF WATER AT 15.5° C. AT 1 BAR PRESSURE DROP

NOTE 1: MAXIMUM CONTINUOUS VELOCITY THROUGH THE VALVE.

NOTE 2: MAXIMUM CONTINUOUS VELOCITY. EXTENDED SERVICE AT THIS VELOCITY MAY CAUSE CAVITATION.

TO DETERMINE FLOWRATE AT ANY GIVEN PRESSURE DROP, THE FOLLOWING FORMULAS CAN BE USED.

FOR WATER AND LIQUIDS:

$$Q = \frac{Cv\sqrt{\Delta P}}{\sqrt{e}}$$

Q – FLOWRATE IN GAL./MIN.
ΔP – PRESSURE DROP (LB./SQ. IN.)
e – SPECIFIC GRAVITY (WATER = 1.00)

FOR AIR AND GAS:

WHEN P2 < .5P1

$$Cv = \frac{CFM\sqrt{e}}{.5P1}$$

WHEN P2 > .5P1

$$Cv = \frac{CFM\sqrt{e}}{\sqrt{\Delta P\ P2}}$$

CFM – CU. FT./MIN. FLOW
e – SPECIFIC GRAVITY (AIR = 1.00)
P1 – INLET PRESSURE (LB./SQ. IN.)
P2 – OUTLET PRESSURE (LB./SQ. IN.)

THE DATA PRESENTED HERE IS BELIEVED TO BE RELIABLE AND OFFERED AS SUGGESTION ONLY. ACTUAL RESULTS MAY VARY DEPENDING UPON APPLICATION.

OSMONICS
ROCKFORD OPERATIONS
2412 GRANT AVENUE, ROCKFORD, IL 61103-3991 (815) 964-9421
WWW.OSMONICS.COM

SERIES 420 DIAPHRAGM VALVES

FORM NO. 1078116

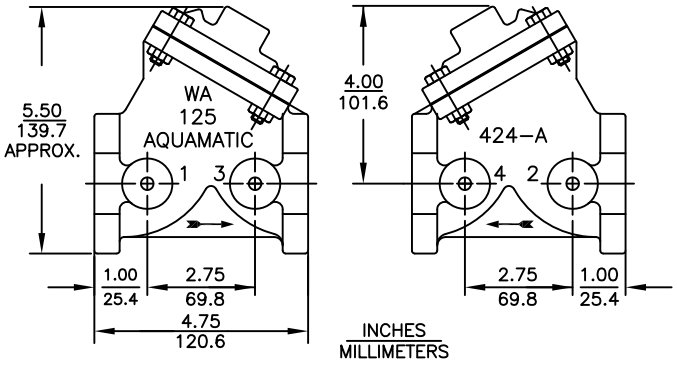
REV	DESCRIPTION	ECO	DWN	DATE	APVD
B	INITIAL RELEASE	1429	JWB	21JUN01	VKP

SCALE	DRAWN	DATE	DWG. NO.
N/A	JWB	25APR01	1078117

PRINTED IN U.S.A.

DIAPHRAGM VALVE INFORMATION - STANDARD MODEL

1-1/4" & 1-1/2" DIAPHRAGM VALVE - STANDARD MODEL



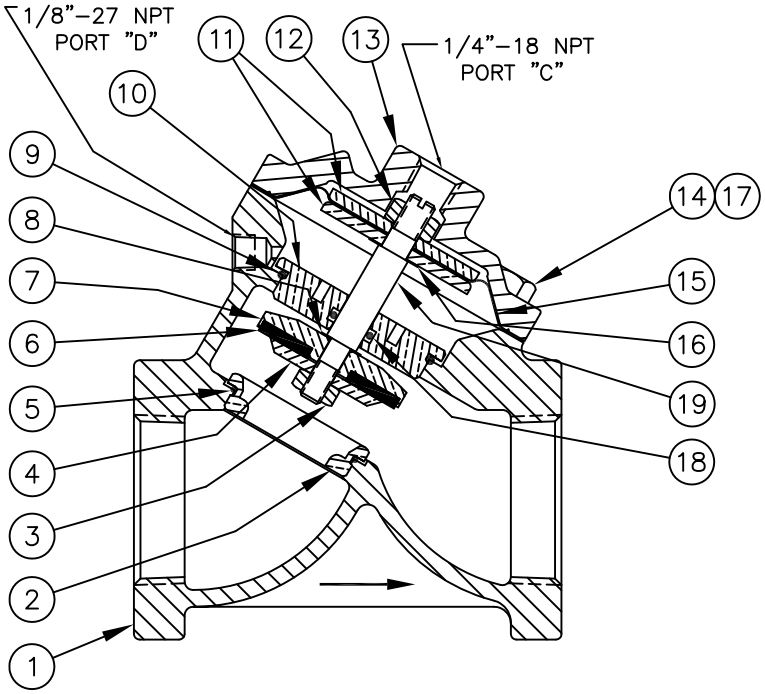
REPAIR PARTS KITS

DESCRIPTION	PART NO.		
	1070069 (424-RA)	1070082 (424-RAE)	1070094 (424-RAV)
DIAPHRAGM & SEALS KIT CONSISTS OF ITEM NO'S 3,5,6,8,9,12,15,16,18	BUNA N INCLUDES DIAPHRAGM 1074222 (424-FB)	E.P.D.M. INCLUDES DIAPHRAGM 1074222 (424-FB)	FKM INCLUDES DIAPHRAGM 1074224 (424-FV)
INT. PARTS KIT (NORM. OPEN) CONSISTS OF STANDARD ITEM NO'S 4,7,10,11(2),19	1070119 (424-RF)		
SEAT (ITEM NO. 2)	1074245 (424-MO)		

ASSEMBLY TOOLS

DESCRIPTION	PART NO.
FOR INSTALLATION & REMOVAL OF SEAT (ITEM #2) (TOOL NOT SHOWN)	1074247 (424-MT)
FOR INSTALLATION & REMOVAL OF SHAFT GUIDE (ITEM #10) (TOOL NOT SHOWN)	1074227 (424-GT)

NO.	DESCRIPTION		STD	PART NO.	QTY.
1	BODY, CAST IRON	1-1/4" NPT	*	1074196 (424-A5)	1
		1-1/2" NPT	*	1074199 (424-A6)	
	CAST BRASS	1-1/4" NPT		1074190 (424-AB5)	
		1-1/2" NPT		1074193 (424-AB6)	
2	SEAT - BRASS (REQ'S ASSY. TOOL)		*	1074245 (424-MO)	1
3	HEX NUT (1/4-28)		*	1263852	1
4	DISC PLATE - BRASS		*	1074237 (424-K)	1
5	O-RING	BUNA N	*	1071678 (ORB-028)	1
		E.P.D.M.		1071723 (ORE-028)	
		VITON		1071793 (ORV-028)	
6	DISC	BUNA	*	1074232 (424-J)	1
		E.P.D.M.		1074233 (424-JE)	
		FKM		1074236 (424-JV)	
		HYCAR		1074234 (424-JH)	
7	DISC HOLDER - BRASS		*	1074229 (424-H)	1
8	GASKET - COPPER		*	1073948 (200-GG)	1
9	O-RING	BUNA N	*	1071695 (ORB-132)	1
		E.P.D.M.		1071734 (ORE-132)	
		FKM		1071806 (ORV-132)	
10	SHAFT GUIDE - BRASS (REQ'S ASSY TOOL)		*	1074225 (424-GGO)	1
11	DIAPHRAGM PLATE - BRASS		*	1074220 (424-D)	2
12	HEX NUT (5/16-24)		*	1263853	1
13	CAP	CAST IRON	*	1074202 (424-C)	1
		CAST BRASS		1074206 (424-CB)	
14	HEX SCREW	PLATED STEEL	*	1072399 (SCZ-0007)	4
		STN. STL.		1072392 (SCS-0156)	
15	DIAPHRAGM	BUNA N	*	1074222 (424-FB)	1
		FKM		1074224 (424-FV)	
16	GASKET - COPPER		*	1074252 (424-R)	1
17	HEX NUT	PLATED STEEL		1071656 (NUZ-0008)	4
		STN. STL.		1071649 (NUS-0007)	
18	O-RING	BUNA N	*	1071689 (ORB-110TC)	1
		E.P.D.M.		1071726 (ORE-110TC)	
		FKM		1239021 (ORV-110TC)	
19	SHAFT (NORMALLY OPEN)		*	1074239 (424-L)	1



1070023 (V42D-0000-00000) (1-1/4" NPT)
1070025 (V42E-0000-00000) (1-1/2" NPT)

NORMALLY OPEN (STANDARD)

NOTE:

1. AMERICAN NATIONAL STANDARD TAPER PIPE THREADS (NPT) PER ANSI B2.1-1968
2. VALVES AVAILABLE WITH B.S.P.T. END CONNECTIONS.

SEE REVERSE SIDE FOR CONFIGURATION OPTIONS

FORM NO. 1077614

REV	DESCRIPTION	ECO	DWN	DATE	APVD
G	CHANGED SHAFT NUTS & UPDATED O-RING P/N'S	1635 1672	MSM	01Nov05	

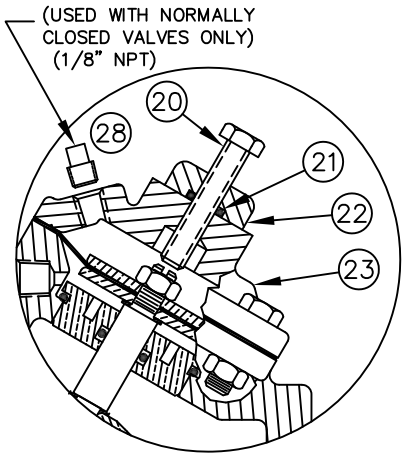
GE Osmonics
ROCKFORD OPERATIONS
2412 GRANT AVENUE
ROCKFORD, IL 61103-3991
(815) 964-9421 WWW.GEWATER.COM

SERIES 424 DIAPHRAGM VALVE
1 1/4" & 1 1/2" N.P.T. OR B.S.P.T.

DRAWN	DATE	DRAWING NO.
JWB	25Apr01	1084019

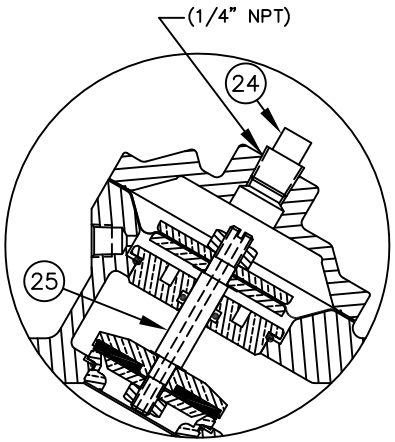
PRINTED IN U.S.A.

1-1/4" & 1-1/2" DIAPHRAGM VALVE - OPTIONAL MODELS



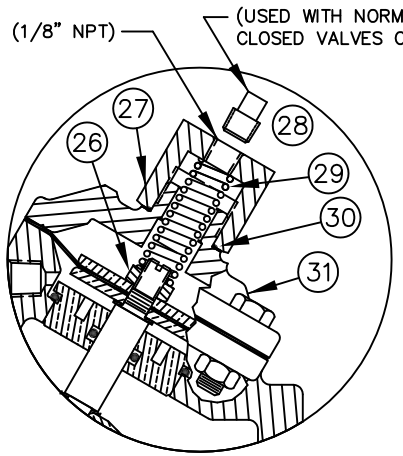
1072720 (V42D-0010-00000) (1-1/4" NPT)
1070028 (V42E-0010-00000) (1-1/2" NPT)

LIMIT STOP



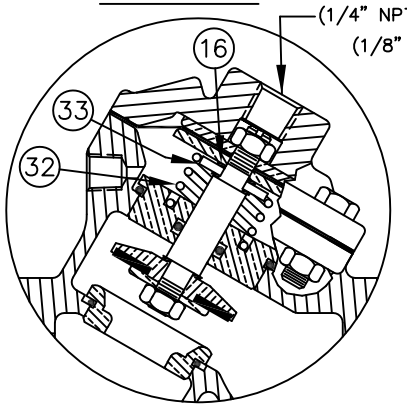
1072723 (V42D-0030-00000) (1-1/4" NPT)
1070026 (V42E-0030-00000) (1-1/2" NPT)

NORMALLY CLOSED



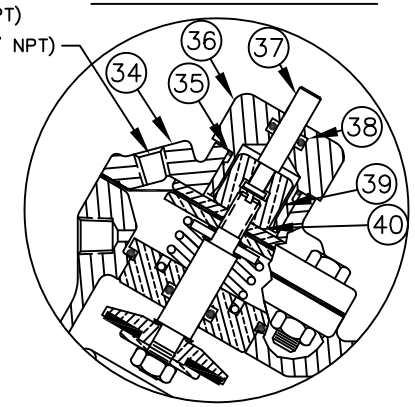
1072716 (V42D-0002-00000) (1-1/4" NPT)
1072792 (V42E-0002-00000) (1-1/2" NPT)

SPRING ASSIST CLOSED



1072715 (V42D-0001-00000) (1-1/4" NPT)
1070027 (V42E-0001-00000) (1-1/2" NPT)

SPRING ASSIST OPEN



1072722 (V42D-0021-00000) (1-1/4" NPT)
1072804 (V42E-0021-00000) (1-1/2" NPT)

POSITION INDICATOR

NOTE:

1. SPRING ASSIST CLOSED MODEL CANNOT BE COMBINED WITH LIMIT STOP MODEL.
2. VALVES AVAILABLE WITH B.S.P.T. END CONNECTIONS.

NO.	DESCRIPTION		STD	PART NO.	QTY.
	LIMIT STOP MODEL				
20	SCREW		*	1072362 (SCS-0031)	1
21	O-RING		*	1071668 (ORB-012)	1
22	NUT		*	1077534 (400-H)	1
23	CAP	CAST IRON	*	1074210 (424-CCC)	1
		CAST BRASS		1074213 (424-CCCB)	
	NORMALLY CLOSED MODEL				
24	PIPE PLUG (1/4" N.P.T.)	PLATED STEEL	*	1071918 (PLZ-0008)	1
		BRASS		1071904 (PLB-0009)	
25	SHAFT (NORMALLY CLOSED)		*	1074241 (424-LL)	1
	SPRING ASSIST CLOSED MODEL				
26	CENTERING NUT		*	1074276 (424-X)	1
27	RETAINER NUT - BRASS		*	1074274 (424-TT)	1
28	PIPE PLUG (1/8" N.P.T.)	PLATED STEEL	*	1071917 (PLZ-0005)	1
		BRASS		1071903 (PLB-0007)	
29	SPRING		*	1074270 (424-SS)	1
30	O-RING		*	1071674 (ORB-020)	1
31	CAP	CAST IRON	*	1074208 (424-CC)	1
		CAST BRASS		1074209 (424-CCB)	
	SPRING ASSIST OPEN MODEL				
16	GASKET - COPPER		*	1074252 (424-R)	1
32	SPRING		*	1236766	1
33	CENTERING WASHER - BRASS		*	1074382 (426-HA)	1
	POSITION INDICATOR MODEL				
34	CAP	CAST IRON	*	1074217 (424-CF)	1
		CAST BRASS		1074218 (424-CFB)	
35	O-RING		*	1071692 (ORB-116)	1
36	SHAFT GUIDE BUSHING		*	1074121 (421-GF)	1
37	INDICATOR SHAFT		*	1074251 (424-PM)	1
38	O-RING		*	1071688 (ORB-108TC)	1
39	TOP NUT		*	1074272 (424-TB)	1
40	LOCKWASHER		*	1073590 (WAS-0007)	1

SEE REVERSE SIDE FOR
STANDARD NORMALLY OPEN MODEL

FORM NO. 1077614

CONVERSION KITS

DESCRIPTION	PART NO.
CONVERSION KIT (LIMIT STOP) CONSISTS OF STANDARD ITEM NO'S 20,21,22,23	1074243 (424-LSC)
CONVERSION KIT (SPRING ASSIST CLOSED) CONSISTS OF STANDARD ITEM NO'S 26 THRU 31	1074266 (424-SCC)
CONVERSION KIT (SPRING ASSIST OPEN) CONSISTS OF STANDARD ITEM NO'S 10,16,32,33	1074269 (424-SOC)
CONVERSION KIT (POSITION INDICATOR) CONSISTS OF STANDARD ITEM NO'S 34 THRU 40	1074250 (424-PIC)

REPAIR PARTS KITS

DESCRIPTION	PART NO.
INT. PARTS KIT (LIMIT STOP) CONSISTS OF STANDARD ITEM NO'S 20,21,22	1074242 (424-LS)
INT. PARTS KIT (NORM. CLOSED) CONSISTS OF STANDARD ITEM NO'S 4,7,10,11(2),25	1070130 (424-RG)
INT. PARTS KIT (SPRING ASSIST CLOSED) CONSISTS OF STANDARD ITEM NO'S 26,29,30	1074265 (424-SC)
INT. PARTS KIT (SPRING ASSIST OPEN) CONSISTS OF STANDARD ITEM NO'S 16,32,33	1074268 (424-SO)
INT. PARTS KIT (POSITION INDICATOR) CONSISTS OF STD ITEM NO'S 35 THRU 40	1074249 (424-PI)

REV	DESCRIPTION	ECO	DWN	DATE	APVD
G	CHANGED SHAFT NUTS & UPDATED O-RING P/N'S	1635 1672	MSM	01Nov05	

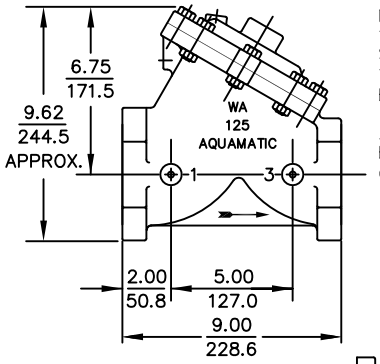
GE Osmonics
ROCKFORD OPERATIONS
2412 GRANT AVENUE
ROCKFORD, IL 61103-3991
(815) 964-9421 WWW.GEWATER.COM

SERIES 424 DIAPHRAGM VALVE
1 1/4" & 1 1/2" N.P.T. OR B.S.P.T.

DRAWN	DATE	DRAWING NO.
JWB	25Apr01	1084019

PRINTED IN U.S.A.

3" DIAPHRAGM VALVE - STANDARD MODEL



1070043 (V42J–0000–00000)
3" NPT ENDS

INCHES
MILLIMETERS

NOTE:
1. AMERICAN NATIONAL STANDARD TAPER PIPE THREADS (NPT) PER ANSI B2.1–1968

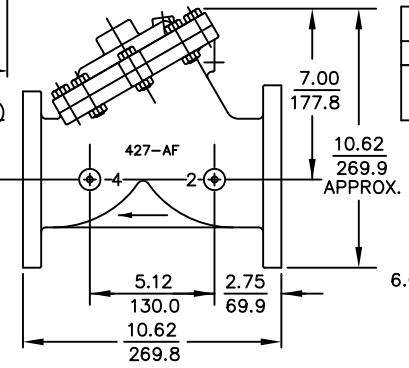
2. VALVES AVAILABLE WITH B.S.P. OR J.I.S. END CONNECTIONS.

REPAIR PARTS KITS

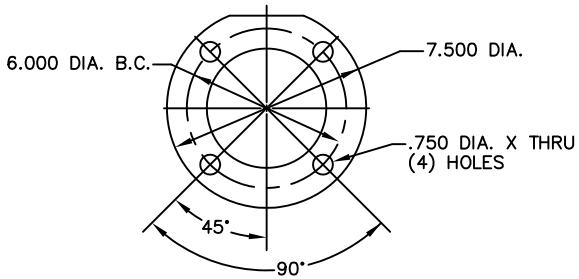
DESCRIPTION	PART NO.		
	1070072 (427–RA)	1070085 (427–RAE)	1070097 (427–RAV)
DIAPHRAGM & SEALS KIT CONSISTS OF ITEM NO'S 3(2),5,6,8(2),9,14,16	BUNA N INCLUDES DIAPHRAGM 1074475 (427–FB)	E.P.D.M. INCLUDES DIAPHRAGM 1074475 (427–FB)	FKM INCLUDES DIAPHRAGM 1074477 (427–FV)
INT. PARTS KIT (NORM. OPEN) CONSISTS OF STANDARD ITEM NO'S 4,7,10,11(2),17,18	1070122 (427–RF)		
SEAT (ITEM NO. 2)	1074505 (427–MO)		

ASSEMBLY TOOLS

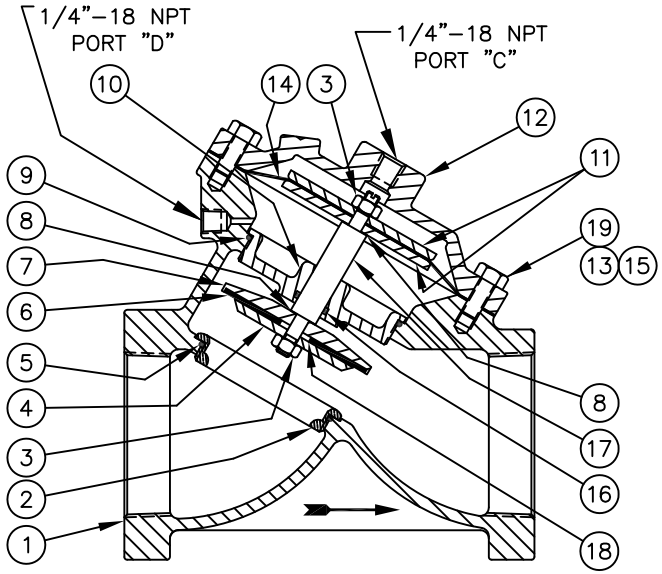
DESCRIPTION	PART NO.
FOR INSTALLATION & REMOVAL OF SHAFT GUIDE (ITEM #10) (NOT SHOWN)	1–1/4" HEX SOCKET



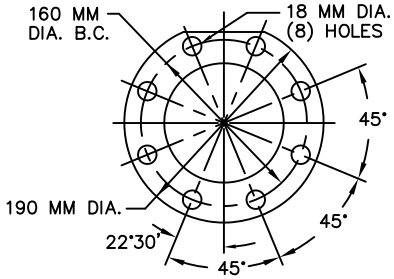
1070044 (V42J–3000–00000)
FLANGED ENDS



AMERICAN FLANGE PER
A.S.A. 16.1 CLASS 125



NORMALLY OPEN (STANDARD)



METRIC FLANGE PER
BS4504, DIN 10 & ISO R 2084

SEE REVERSE SIDE FOR
CONFIGURATION OPTIONS

NO.	DESCRIPTION		STD	PART NO.	QTY.
1	BODY	CAST IRON THREADED	*	1074446 (427–AS)	1
		CAST IRON FLANGED	*	1074438 (427–AF)	
		CAST BRASS THREADED		1074449 (427–ASB)	
2	SEAT	BRASS	*	1074505 (427–MO)	1
		STN. STL.		1074507 (427–MV)	
3	HEX NUT (5/16–24)		*	1263853	2
4	DISC PLATE	BRASS	*	1074493 (427–K)	1
		STN. STL.		1074495 (427–KS)	
5	O–RING	BUNA N	*	1071706 (ORB–233)	1
		E.P.D.M.		1071754 (ORE–233)	
		FKM		1071826 (ORV–233)	
6	DISC	BUNA	*	1074487 (427–J)	1
		E.P.D.M.		1074489 (427–JE)	
		FKM		1074492 (427–JV)	
		HYCAR		1074490 (427–JH)	
7	DISC HOLDER	BRASS	*	1074485 (427–HO)	1
		STN. STL.		1074486 (427–HSS)	
8	GASKET	COPPER	*	1074252 (424–R)	2
9	O–RING	BUNA N	*	1071708 (ORB–237)	1
		E.P.D.M.		1071755 (ORE–237)	
		FKM		1071828 (ORV–237)	
10	SHAFT GUIDE (REQ'S ASSY TOOL)	BRASS	*	1074481 (427–GO)	1
		STN. STL.		1074479 (427–GASO)	
11	DIAPHRAGM PLATE	BRASS	*	1074471 (427–D)	2
		STN. STL.		1074472 (427–DA)	
12	CAP	CAST IRON	*	1074454 (427–C)	1
		CAST BRASS		1074457 (427–CB)	
13	HEX SCREW	PLATED STEEL	*	1072405 (SCZ–0025)	6
		STN. STL.		1072390 (SCS–0152)	
14	DIAPHRAGM	BUNA N	*	1074475 (427–FB)	1
		FKM		1074477 (427–FV)	
15	HEX NUT	PLATED STEEL	*	1071658 (NUZ–0014)	6
		STN. STL.		1071652 (NUS–0014)	
16	O–RING	BUNA N	*	1071691 (ORB–114TC)	1
		E.P.D.M.		1071729 (ORE–114TC)	
		FKM		1242391 (ORV–114TC)	
17	SHAFT (NORMALLY OPEN)		*	1074496 (427–L)	1
18	DISC SPACER	BRASS	*	1074382 (426–HA)	1
		STN. STL.		1074384 (426–HAS)	
19	HEX SCREW	STN. STL.	*	1072359 (SCS–0020)	2

FORM NO. 1077617

REV	DESCRIPTION	ECO	DWN	DATE	APVD
H	CHANGED SHAFT NUTS & UPDATED O–RING P/N'S	1635 1672	MSM	01Nov05	

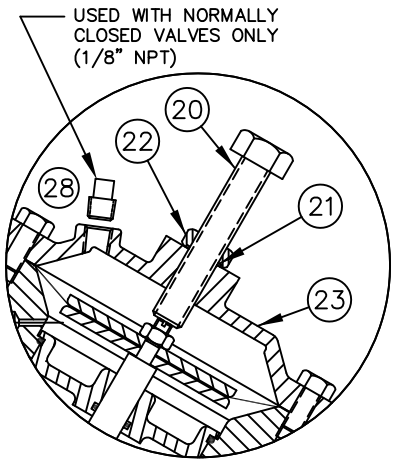
GE Osmonics
ROCKFORD OPERATIONS
2412 GRANT AVENUE
ROCKFORD, IL 61103-3991
(815) 964-9421 WWW.GEWATER.COM

SERIES 427 DIAPHRAGM VALVE
3" PIPE SIZE

DRAWN	DATE	DRAWING NO.
JWB	02May01	1084022

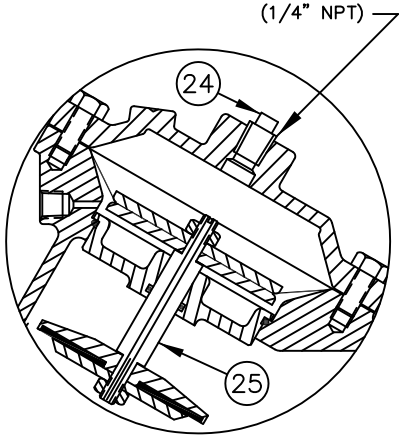
PRINTED IN U.S.A.

3" DIAPHRAGM VALVE - OPTIONAL MODELS



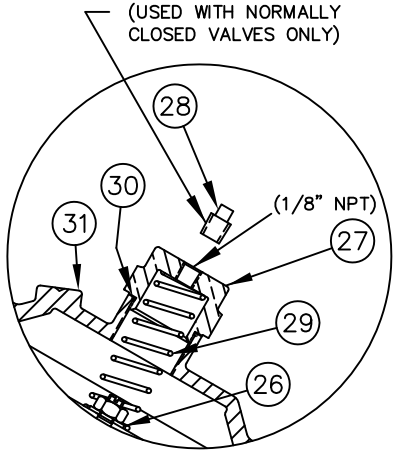
1073045 (V42J-0010-00000) (THREADED)
1073103 (V42J-3010-00000) (FLANGED)

LIMIT STOP



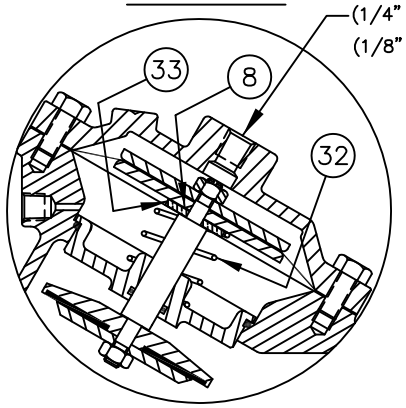
1073055 (V42J-0030-00000) (THREADED)
1073113 (V42J-3030-00000) (FLANGED)

NORMALLY CLOSED



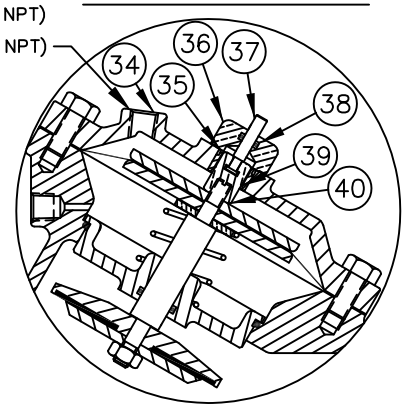
1073047 (V42J-0002-00000) (THREADED)
1073100 (V42J-3002-00000) (FLANGED)

SPRING ASSIST CLOSED



1073045 (V42J-0001-00000) (THREADED)
1073097 (V42J-3001-00000) (FLANGED)

SPRING ASSIST OPEN



1073054 (V42J-0021-00000) (THREADED)
1077374 (V42J-3021-00000) (FLANGED)

POSITION INDICATOR

NOTE:

1. SPRING ASSIST CLOSED MODEL CANNOT BE COMBINED WITH LIMIT STOP OR POSITION INDICATOR MODELS.

2. VALVES AVAILABLE WITH B.S.P. OR J.I.S. END CONNECTIONS.

SEE REVERSE SIDE FOR STANDARD NORMALLY OPEN MODEL

NO.	DESCRIPTION		STD	PART NO.	QTY.
	LIMIT STOP MODEL				
20	SCREW		*	1072365 (SCS-0043)	1
21	O-RING		*	1071690 (ORB-112)	1
22	NUT		*	1074434 (426-U)	1
23	CAP	CAST IRON	*	1074462 (427-CCC)	1
		CAST BRASS		1074465 (427-CCCB)	
	NORMALLY CLOSED MODEL				
24	PIPE PLUG (1/4" N.P.T.)	PLATED STEEL	*	1071918 (PLZ-0008)	1
		BRASS		1071904 (PLB-0009)	
		STN. STL.		1071915 (PLS-0001)	
25	SHAFT (NORMALLY CLOSED)		*	1074499 (427-LL)	1
	SPRING ASSIST CLOSED MODEL				
26	CENTERING WASHER	BRASS	*	1074083 (421-AH)	1
		STN. STL.		1074084 (421-AHS)	
27	RETAINER NUT	BRASS	*	1074430 (426-TT)	1
		STN. STL.		1078686	
28	PIPE PLUG (1/8" N.P.T.)	PLATED STEEL	*	1071917 (PLZ-0005)	1
		BRASS		1071903 (PLB-0007)	
		STN. STL.		1071916 (PLS-0002)	
29	SPRING		*	1074428 (426-SS)	1
30	O-RING		*	1071677 (ORB-025)	1
31	CAP	CAST IRON	*	1074460 (427-CC)	1
		CAST BRASS		1074461 (427-CCB)	
	SPRING ASSIST OPEN MODEL				
8	GASKET	COPPER	*	1074252 (424-R)	1
		LEAD		1074263 (424-RL)	
32	SPRING		*	1074423 (426-S)	1
33	CENTERING WASHER	BRASS	*	1074436 (426-V)	1
		STN. STL.		1074437 (426-VS)	
	POSITION INDICATOR MODEL				
34	CAP	CAST IRON	*	1074468 (427-CF)	1
		CAST BRASS		1074469 (427-CFB)	
35	O-RING		*	1071692 (ORB-116)	1
36	SHAFT GUIDE BUSHING		*	1074121 (421-GF)	1
37	INDICATOR SHAFT		*	1074510 (427-PM)	1
38	O-RING		*	1071688 (ORB-108TC)	1
39	TOP NUT		*	1074332 (425-TB)	1
40	LOCKWASHER		*	1073590 (WAS-0007)	1

FORM NO. 1077617

CONVERSION KITS

DESCRIPTION	PART NO.
CONVERSION KIT (LIMIT STOP) CONSISTS OF STANDARD ITEM NO'S 20,21,22,23	1074502 (427-LSC)
CONVERSION KIT (SPRING ASSIST CLOSED) CONSISTS OF STANDARD ITEM NO'S 26 THRU 31	1074519 (427-SCC)
CONVERSION KIT (SPRING ASSIST OPEN) CONSISTS OF STANDARD ITEM NO'S 8,32,33	1074521 (427-SO)
CONVERSION KIT (POSITION INDICATOR) CONSISTS OF STANDARD ITEM NO'S 34 THRU 40	1074509 (427-PIC)

REPAIR PARTS KITS

DESCRIPTION	PART NO.
INT. PARTS KIT (LIMIT STOP) CONSISTS OF STANDARD ITEM NO'S 20,21,22	1074501 (427-LS)
INT. PARTS KIT (NORM. CLOSED) CONSISTS OF STANDARD ITEM NO'S 4,7,10,11(2),18,25	1070133 (427-RG)
INT. PARTS KIT (SPRING ASSIST CLOSED) CONSISTS OF STANDARD ITEM NO'S 26,29,30	1081565 (427-SC)
INT. PARTS KIT (SPRING ASSIST OPEN) CONSISTS OF STANDARD ITEM NO'S 8,32,33	1074521 (427-SO)
INT. PARTS KIT (POSITION INDICATOR) CONSISTS OF STD ITEM NO'S 35 THRU 40	1074508 (427-PI)

REV	DESCRIPTION	ECO	DWN	DATE	APVD
H	CHANGED SHAFT NUTS & UPDATED O-RING P/N'S	1635 1672	MSM	01Nov05	

GE Osmonics
ROCKFORD OPERATIONS
2412 GRANT AVENUE
ROCKFORD, IL 61103-3991
(815) 964-9421 WWW.GEWATER.COM

SERIES 427 DIAPHRAGM VALVE
3" PIPE SIZE

DRAWN	DATE	DRAWING NO.
JWB	02May01	1084022

PRINTED IN U.S.A.

NOTES

NOTES

MARLO INCORPORATED ®

2227 South Street
P.O. Box 044170
Racine, WI 53404-7003
Ph. (262) 681-1300
Fax (262) 681-1318
www.Marlo-Inc.com