

F76 Water Filters

and MV876 Automatic-Backwash Control Accessory (not included)

The F76 is a high flow capacity water filter used to remove sediment and debris from residential or commercial water systems. Used as a prefilter, the F76 protects elements of the water system, including specialized treatment devices or other common fixtures and appliances. The flow, filtering capacity, and ease of cleaning make the F76 the ideal filter for the most demanding applications.

The F76 uses a built-in backwash impeller for efficient cleaning with supply pressures as low as 21 psi. No shut-off or disassembly is required for cleaning and the design of the internal bypass eliminates the possibility of contamination from stagnant water. During backwashing, the F76 continues to supply filtered water without interruption through a secondary screen. Models are available for high temperature and high pressure applications.

The MV876 Automatic-Backwash Controls are available as an accessory; order separately.



Specifications

MODELS:

- F76A Standard Water Filter.
- F76G High Pressure and Temperature Water Filter.

MATERIALS OF CONSTRUCTION:

- Body: Brass
- Sump:
 - F76A: Engineered plastic
 - F76G: Bronze
- Screen: Stainless steel
- Internal Construction: Acetal copolymer
- Seals: NBR
- Ball Valve: Stainless steel with PTFE seals

INLET PRESSURE:

- Maximum:
 - F76A: 230 psi
 - F76G: 400 psi
- Minimum: 21 psi (with unrestricted backwash discharge)

DIFFERENTIAL (MAXIMUM RECOMMENDED):

- 42 psi
- OPERATING PRESSURE DROP (MAXIMUM RECOMMENDED): 3 psi (with clean screen)

TEMPERATURE (MAXIMUM):

- F76A: 104°F (40°C)
- F76G: 180°F (82°C)

PIPE SIZES AVAILABLE:

- 1/2, 3/4, 1, 1-1/4, 1-1/2, or 2 inches.

SCREEN SIZES:

- F76A, F76G: 100 microns—20, 50, 100 and 200 micron screen kits available

- NOTE: 20 microns = 900 mesh (approximate)
50 microns = 350 mesh (approximate)
100 microns = 175 mesh (approximate)
200 microns = 70 mesh (approximate)

CONNECTIONS:

- Union on Inlet and Outlet: NPT threaded or sweat

Size the F76 based on the required flow rate *and* the resulting pressure drop across the filter. As a guideline for most applications, size the F76 to avoid pressure drops exceeding 3 psi.

EXAMPLE: To determine the size F76 required to provide a flow rate of 30 gpm, read across the chart (on the next page); at a pressure drop of 3 psi, 31.3 gpm can be provided by a 1-1/4 in. filter without exceeding the 3 psi pressure drop.

An increased pressure drop across the filter results when higher velocities are maintained to increase the capacity through any given size filter. Severe pressure drops occur when capacity approaches the pipe size.

Capacity in gallons per minute (gpm):

Pressure Drop (psi)	Pipe Size					
	1/2 inch	3/4 inch	1 inch	1-1/4 inch	1-1/2 inch	2 inch
1	6.5	6.5	16.7	18.5	26.0	30.0
2	9.2	9.2	24.0	25.8	36.5	42.5
3	11.4	11.4	29.1	31.3	44.9	52.0
4	13.2	13.2	33.9	36.9	52.4	60.3
5	14.5	14.5	37.4	40.7	57.2	66.0
15	22.0	22.0	65.0	70.0	95.0	115.0
Capacity with backwash port open						
1	4.0	4.0	13.0	13.0	23.0	23.0

NOTE: C_v is equal to capacity at 1 psi pressure drop.

DIMENSIONS: Refer to Fig. 1.

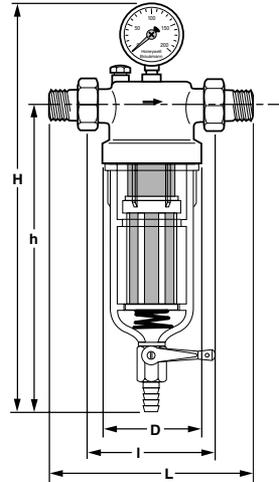
Fig. 1—F76 installation dimensions.

Size	L Δ	I Δ	D Δ	H Δ	h Δ	Weight Δ	
						Plastic	Bronze
1/2 inch	6.7 (170)	4.3 (109)	3.4 (86)	14.5 (368)	10.5 (267)	2.6 (1.2)	3.6 (1.6)
3/4 inch	7.0 (178)	4.3 (109)	3.4 (86)	14.5 (368)	10.5 (267)	2.6 (1.2)	3.6 (1.6)
1 inch	8.2 (208)	5.1 (130)	3.8 (97)	16.7 (424)	12.6 (320)	4.6 (2.1)	8.0 (3.6)
1-1/4 inch	8.7 (221)	5.1 (130)	3.8 (97)	16.7 (424)	12.6 (320)	4.6 (2.1)	8.0 (3.6)
1-1/2 inch	9.7 (246)	5.9 (150)	4.7 (119)	20.8 (528)	16.5 (419)	8.8 (4.0)	14.0 (6.4)
2 inch	10.5 (267)	5.9 (150)	4.7 (119)	20.8 (528)	16.5 (419)	8.8 (4.0)	14.0 (6.4)

Δ DIMENSIONS IN INCHES AND (MILLIMETERS).

Δ WEIGHT IN POUNDS AND (KILOGRAMS).

M755A



MV876 SPECIFICATIONS:

MV876 Automatic Backwash Controls

Valve with 24 Vac motor and timer replaces ball valve drain port for automatic backwashing at preprogrammed intervals. Intervals are one backwash cycle every day or one backwash cycle every eight days. If more frequent backwashing is required, use an electromechanical timer (S4006B1008, ordered separately). 24V transformer is not included.

POWER: 4 VA

CURRENT: 170 mA

VOLTAGE: 24 Vac

CYCLE TIME: 20 seconds (approximate)

TIMER: Variable. One cycle per day or one cycle per eight days.

Planning the Installation

To ensure the backwash cycle operates properly and cleaning action is not reduced, follow all recommendations in Fig. 2. Refer to Fig. 2a for an ideal installation.

All filter installations are different. The size, type, and amount of dirt and debris and the flow rate must always be considered when choosing a screen and deciding to install F76 in parallel.

COMMERCIAL AND INDUSTRIAL INSTALLATIONS

Commercial and industrial installations have high flow requirements. For proper operation, limit the flow across the F76 screen. For example, a 2 inch pipe may have a flow of 120 gallons per minute at 12 feet per second linear velocity across a clean screen. This high linear velocity

impacts dirt very deeply into the screen, making it difficult to backwash and causing the screen to plug up very quickly. In these situations, install multiple F76 in parallel. Refer to Fig. 3.

When installing three F76 in parallel, a restriction must be installed in the outlet of the center F76 to maintain even flow through all three F76. Refer to Fig. 3.

Advantages of installing F76 in parallel:

- The cleaning capacity is increased. Screens will not require backwashing as often.

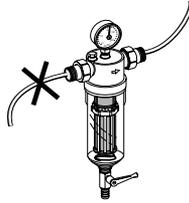
- One F76 can be backwashed while the others maintain required downstream flows.

Another consideration in commercial and industrial installations is the backwashing frequency. Because of the high flow requirements, screens need cleaning on a regular basis. An MV876 Automatic-Backwash Control can be installed to backwash the F76 automatically either once every day or once every eight days. An optional S4006B1008 Electromechanical Timer can be installed with the MV876 to automatically backwash the F76 as often as once every hour.

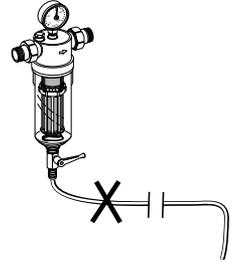
Fig. 2—Installation recommendations.



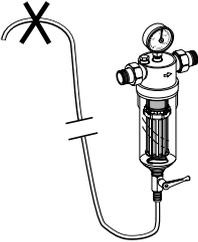
2a. Ideal F76 installation. A funnel mounted directly under the backwash port is the best installation layout.



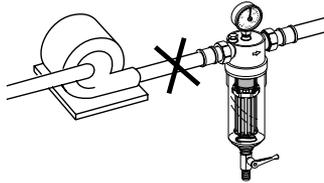
2b. Ensure the inlet pipe is not downsized. Do not use 1/4 or 3/8 inch tubing on 1/2 or 3/4 inch models.



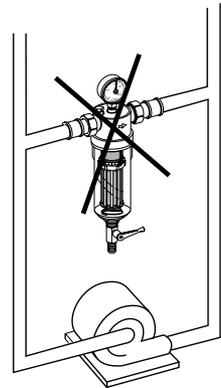
2c. Ensure the backwash outlet pipe is not downsized, long, or crimped. Instead, install a short oversized pipe on the backwash outlet. Do not use a low capacity solenoid valve to automate the backwash cycle.



2d. Ensure the backwash outlet is not raised above the F76. If the backwash outlet must be raised above the F76, increase inlet pressure 5 psi for every 10 feet it is raised.



2e. Ensure the F76 is not used with an undersize pump. An undersized pump may not provide proper pressure or flow.



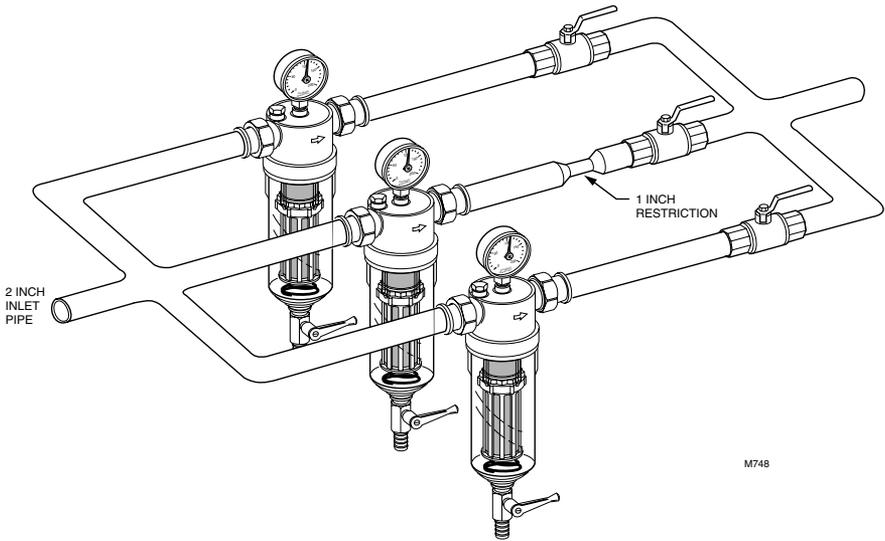
2f. Ensure the F76 is not installed in a bypass across a pump.



1 INSUFFICIENT INLET PRESSURE WILL NOT SPIN THE IMPELLER, REDUCING CLEANING ACTION.

M749A

Fig. 3—Installing three F76 in parallel.



M748

Installation

INSTALL THE F76 (Refer to Fig. 4)

1. Shut off the water supply by closing the water supply valve.
2. Install the F76 in the water line with the arrow pointing in the direction of water flow.
 - For F76A models, ensure the water temperature does not exceed 104° F and the water pressure does not exceed 230 psi.
 - Before sweating, separate the tailpieces and nuts from the filter body. Excessive heating may damage the F76 internal parts.
3. Install the pressure gauge in center port of the F76.
4. Install the backwash outlet handle on the F76 backwash outlet. Installation screw is provided in place on the backwash outlet. If installing an MV876, follow the instructions provided below.
5. Install the backwash outlet. For best installation, refer to Fig. 2a.
6. Close the backwash outlet. With the F76 air vent open, slowly open the water supply valve. When the F76 sump is full of water, close the air vent and fully open the supply valve.

SET THE F76 PRESSURE GAUGE NEEDLES

The black needle on the pressure gauge measures the F76 outlet pressure. When the F76 is running with clean screens, there is no pressure drop across the F76 (outlet pressure equals the inlet pressure).

The red needle is a stationary needle that helps monitor backwashing frequency.

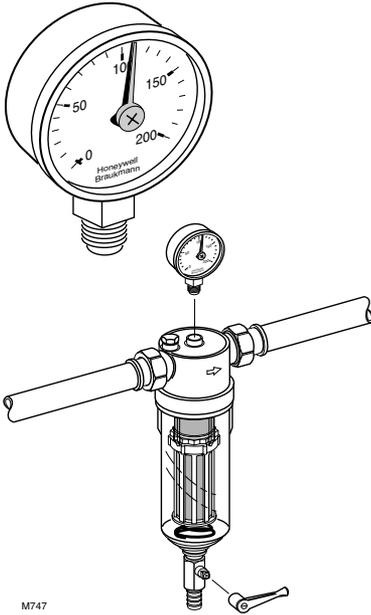
1. Backwash the F76 once to ensure the screens are clean.
2. With the F76 in operation, use a screwdriver to set the red needle to the same position as the black needle.

As the F76 operates, the screens become plugged. As a general rule, the F76 should be backwashed when the black needle measures about 5 psi lower than the red needle. However, each installation is different. In residential applications, the F76 may need backwashing once every few weeks or months. In industrial applications, the F76 may need backwashing several times a day.

INSTALL THE MV876

1. If the MV876 is being added to an existing F76, shut off the water supply by closing the water supply valve. Drain all water from the F76 by opening a fixture downstream, opening the backwash outlet, and loosening the air vent on top of the F76.
2. Remove the backwash outlet from the F76 sump by turning the outlet counterclockwise (as viewed from the bottom looking up).
3. Install the backwash outlet included with the MV876. Ensure the plastic washer (two washers for MV876A1022) is placed between the filter sump and the backwash outlet. When the correct number of washers are not installed, the backwash outlet and the MV876 will not align properly.
4. Close the backwash outlet on the MV876 with a screwdriver.
5. Fit the MV876 brass housing onto the F76. Align the backwash stem with the opening in the housing.
6. Insert the actuator bushing into the housing opening. Turn until finger tight. Ensure the bushing is in the correct position over the backwash stem as shown in Fig. 5.
7. Push the driver insert adapter into the bushing as shown. The driver head of the insert must engage the slot in the backwash stem. The correct position of the components is shown in Fig. 6.
8. Tighten the actuator bushing.

Fig. 4—Installing the F76.



9. Fit the timer actuator shaft into the driver insert. Ensure the pins in the shaft engage the slots in the driver insert. Fasten the actuator to the brass housing using the screws provided.

! CAUTION

- Disconnect power supply before wiring to prevent electrical shock or equipment damage.
- All wiring must comply with applicable codes and ordinances.

10. Mount the AT140A1034 Transformer and wire as shown in Fig. 7.

11. With the F76 air vent open, slowly open the water supply valve. When the F76 sump is full of water, close the air vent and fully open the supply valve.

12. Reconnect power to the system. When the system is powered, the MV876 runs through one backwash cycle (approximately 20 seconds).

13. Set the backwash frequency for the MV876 to the desired setting (one backwash every day or one backwash every eight days). If a greater backwash frequency is required, install an S4006B1008 Electromechanical Timer. Follow the instructions provided below.

14. Check the operation of the MV876 by interrupting primary power to the transformer. When power is switched back on, the MV876 backwashes the F76 once.

Fig. 5—Installing the MV876.

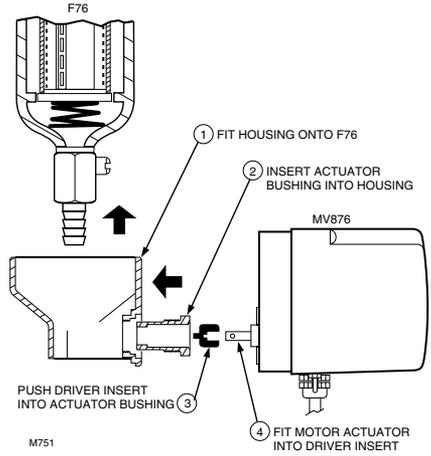


Fig. 6—Final position of MV876 and F76 components.

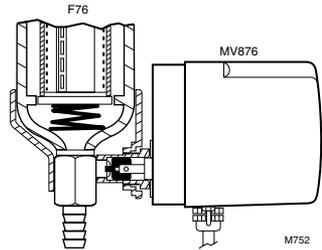
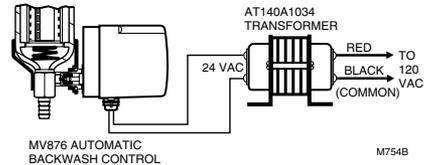


Fig. 7—Wiring diagram for F76 with MV876.



INSTALLING THE MV876 WITH S4006B1008 ELECTROMECHANICAL TIMER

! CAUTION

- Disconnect power supply before wiring to prevent electrical shock or equipment damage.
- All wiring must comply with applicable codes and ordinances.

1. Install the MV876 and F76 using the instructions above.

2. Wire the S4006B1008 Electromechanical Timer, AT140A1034 Transformer, and MV876 Automatic-Backwash Control as shown in Fig. 8.

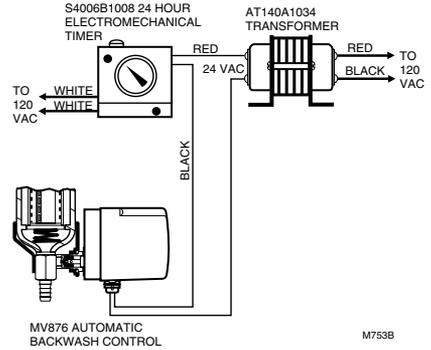
3. Set the timer to the correct time using the S4006B1008 instructions.

4. To backwash at a selected time, raise the appropriate tripper on the timer. A raised tripper supplies power to the MV876 for one-half hour. The MV876 completes one backwash cycle each time a tripper switches power on.

5. Ensure the trippers adjacent to a raised tripper are in the down position to remove power at the end of 30 minutes.

6. To backwash once every hour (24 times every day), set the trippers alternately up and down around the dial. This is the maximum number of times per day that the F76 can be backwashed using the S4006B1008 and MV876.

Fig. 8—Wiring diagram for F76 with MV876 and S4006B1008.



Replacement Parts

Description	1/2 inch	3/4 inch	1 inch	1-1/4 inch	1-1/2 inch	2 inch
(A) Pressure Gauge Clear Plastic (F76A) Bronze (F76B)	0901537 5267400	0901537 5267400	0901537 5267400	0901537 5267400	0901537 5267400	0901537 5267400
(B) Tailpieces Sweat Threaded (shown)	U76S5007 U76T1006	U76S5015 U76T1014	U76S5023 U76T1022	U76S5031 U76T1030	U76S5039 U76T1038	U76S5047 U76T1046
(C) Union Nut	N/A	N/A	N/A	N/A	N/A	N/A
(D) Tailpiece Gasket	N/A	N/A	N/A	N/A	N/A	N/A
(E) Ring (Brass or Plastic)	N/A	N/A	N/A	N/A	N/A	N/A
Screen Kit						
20 Micron	QF76Q2007	QF76Q2007	QF76Q2015	QF76Q2015	QF76Q2023	QF76Q2023
50 Micron	QF76R2030	QF76R2030	QF76R2038	QF76R2038	QF76R2046	QF76R2046
100 Micron	QF76S2051	QF76S2051	QF76S2059	QF76S2059	QF76S2067	QF76S2067
200 Micron	QF76T2074	QF76T2074	QF76T2082	QF76T2082	QF76T2090	QF76T2090
Includes:						
(F) Upper Screen						
(H) Barrel O-Ring						
(L) Lower Screen						

continued

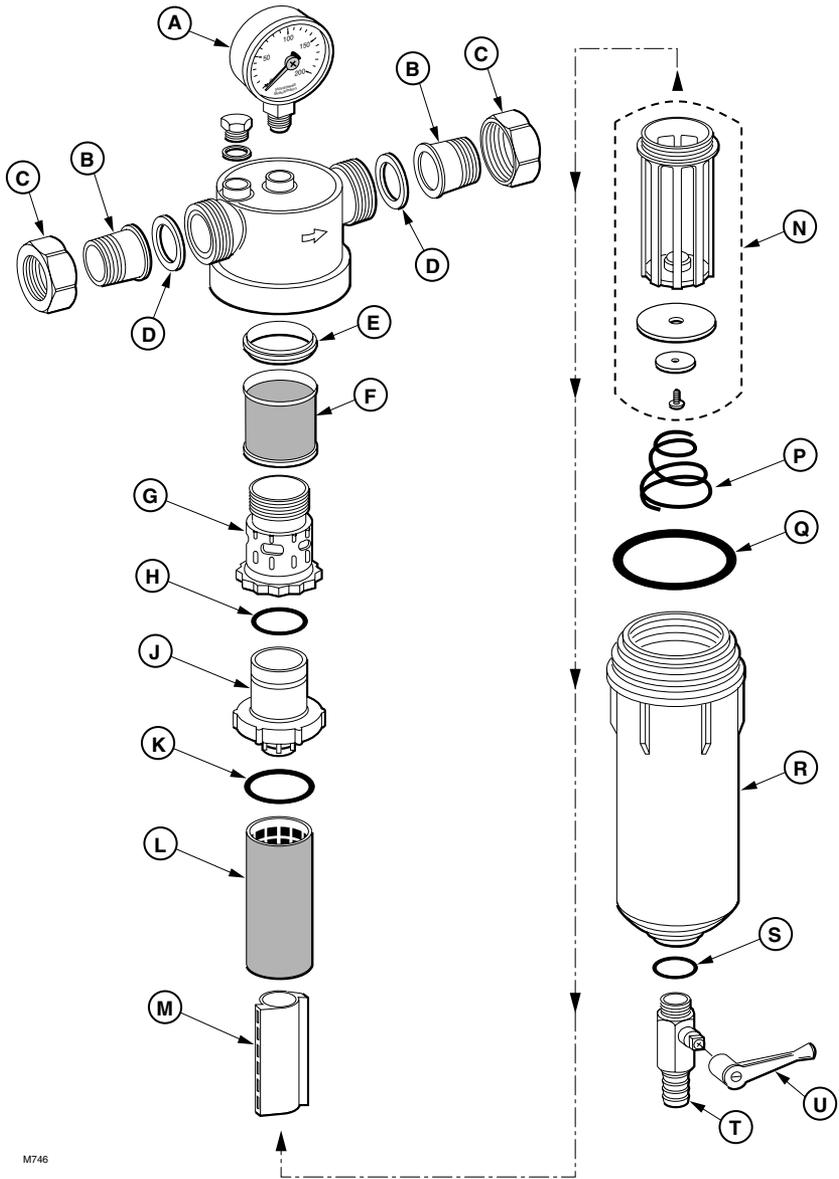
Description	1/2 inch	3/4 inch	1 inch	1-1/4 inch	1-1/2 inch	2 inch
Internal Seal Kit Includes: (H) Barrel O-Ring (K) Screen Seal (Q) Chamber O-Ring (S) Joint Ring Seal	N/A	N/A	N/A	N/A	N/A	N/A
Filter Insert Kit Includes: (F) Upper Screen (G) Upper Guide Barrel (H) Barrel O-Ring (J) Lower Guide Barrel (K) Screen Seal (L) Lower Screen (M) Impeller (N) Lower Screen Support (P) Conical Base Spring (Q) Chamber O-Ring	QF76G2053	QF76G2053	QF76G2061	QF76G2061	QF76G2069	QF76G2069
Filter Sump Kit Clear Plastic Bronze Includes: (Q) Chamber O-Ring (R) Sump (S) Joint Ring Seal (T) Drain Tap (Backwash Outlet) (U) Red Handle and Screw	PF76C1007 202913	PF76C1007 202913	PF76C1015 202914	PF76C1015 202914	PF76C1023 202915	PF76C1023 202915
Drain Tap Assembly Includes: (S) Joint Ring Seal (T) Drain Tap (Backwash outlet) (U) Red Handle and Screw	2341300	2341300	2341300	2341300	2341400	2341400
(U) Red Handle and Screw	N/A	N/A	N/A	N/A	N/A	N/A
Sump Wrench	N/A	N/A	N/A	N/A	N/A	N/A

N/A = Part number not available at time of printing.

^a Models F76A and F76B are clear plastic.

^b Models F76G and F76H are bronze.

Fig. 9—F76 Exploded View.



M746

Honeywell Braukmann
1985 Douglas Drive North
Golden Valley, Minnesota 55422

Printed in U.S.A.

Honeywell
Braukmann
Helping You Control Your World

www.honeywell.ca/braukmann
www.sparco-inc.com