



# Water-motor Alarm

## *Mechanical Alarm for Automatic Sprinkler Systems*

### PRODUCT DESCRIPTION

The PROTECTOR Model F-1 Water Motor Alarm is a weatherproof, hydraulically driven mechanical bell (gong) That automatically sounds a continuous alarm when the sprinkler system on an outside building wail. It is easily installed by a single installer and is usually mounted on an outside building wall, It is easily installed by a activated by water flowing though a piped connection from the alarm valve, dry pipe valve or deluge valve to the water motor alarm.

The Model F-1 Water Motor Alarm utilizes the latest technology in lightweight impeller design, which can deliver high sound pressure levels (he gong, shroud assembly and pump housing are manufactured from corrosion resistant alloys. The drive bearings do not require lubrication. The gong is closely fitted to the shroud assembly, eliminating the need for a gong cover or special guard.

An alarm is a recommended component of all sprinkler systems.

### OPERATION

When a sprinkler system is activated, Water flows from the alarm valve, dry pipe valve or deluge valve via the 3/4"alarm line into the pump housing , there it is forced through an internal 1/8" nozzle creating a high velocity Jet, which impinges on the water wheel causing the water wheel, drive shaft and alarm arm assembly to rotate. As the alarm arm assembly rotates, ii impacts against tile gong producing a from the pump housing.

As long as water is flowing through the sprinkler system, the alarm will continue to sound. It may be silenced by closing the alarm control valve located in the "trim" of the alarm valve, dry pipe valve or deluge valve.

The Model F-1 water Motor Alarm automatically resets after operation. However, if the alarm was silenced during operation, the alarm control valve must be reopened when the sprinkler system is restored to service.

### TECHNICAL SPECIFICATION

model:	F-1
Style:	Wall mount(weatherproof)
Thread Size:	inlet 3/4"N.P.T. drain 1" N.P.T.
support	3/4" N.P.T.
Approvals:	UL, ULC
Maximum Working Pressure:	(175 psi)
Factory Test:	100% at low flow (5 psi) and high flow (65 psi)
Standard Finishes:	Red Enamel
Gong Diameter;	9"
Depth:	4-1/6"
Weight:	8.5 Lbs/3.9kg



### DESIGN REQUIREMENTS (NFPA 13)

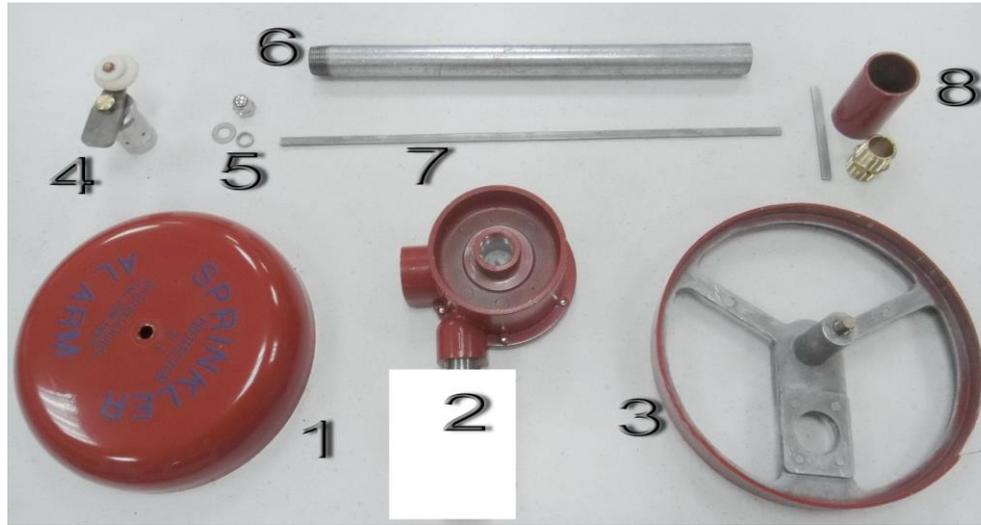
1. A local alarm is required for all sprinkler systems having more than 20 sprinklers.
2. A strainer is required in the water motor alarm line to protect the 1/8" nozzle in me pump housing from clogging, it should be installed near the alarm valve, dry pipe valve, deluge valve or retard chamber in a location that is readily accessible for periodic cleaning.
3. The alarm line must be 3/4" (minimum) of corrosion resistant piping (galvanized steel, brass, etc) Maximum length of tile alarm line should be 75 feet with minimal fittings. The maximum elevation difference between the water motor alarm and the alarm valve, dry pipe valve or deluge valve should be 20 feet. Alternatively, the alarm line may be calculated to provide a minimum of 7 psi at the pump housing( $Q=k* \sqrt{P}$ , where K is 0.5).



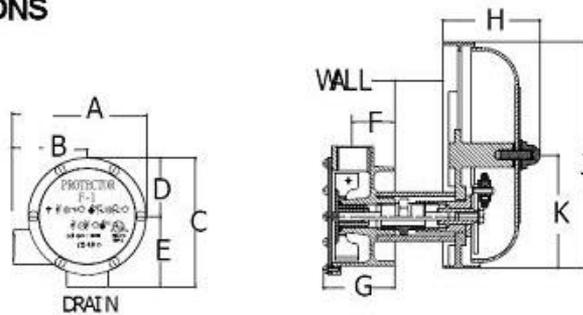
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Item	Description	STD. DESIGNATION	Qty
1	shell	ASTM 6061	1
2	Alarm motor-housing	ASTM 356.0	1
3	Bracket	ASTM 356.0	1
4	Striker assembly	ASTM S30400	1
5	Lock washer, flat washer, and fastener.	ASTM S30400	1 each
6	Connecting nipple (3/4-inch/19.1-mm diameter)	ASTM Type F	1
7	Flat drive shaft	ASTM S30400	1
8	(Part for an assembly that does not penetrate through a wall ) Jain nut, spacer and drive shaft(3.1inch/88.9mm length)	ASTM S30400 ASTM Type F ASTM C36000	1 each



### DIMENSIONS



Nominal Size Inches mm	Dimensions inches/mm										Aprx Weight Each Lbs./kg
	A	B	C	D	E	F	G	H	J	K	
One size fits all	5.11 130	2.32 59	5.11 130	2.32 59	2.80 71	1.73 44	2.83 72	3.82 97	9.02 229	4.49 114	8.5 3.9

## INSTALLATION INSTRUCTION

The water Motor Alarm must be installed in accordance with the requirements of the applicable NFPA standards and any other authority having jurisdiction. The total length of 3/4" supply piping from the alarm valve, dry pipe valve or deluge valve to the water motor alarm should not exceed 75 ft and the number of fittings should be kept to a minimum. If the length must exceed 75 ft, the diameter of the supply piping should be increased to 1" or 1-1/4" to reduce hydraulic friction losses.

Additionally, the water Motor Alarm should not be located more than 20 ft above the alarm valve, dry pipe valve or deluge valve to which it is connected.

## INSTALLATION SEQUENCE

1. Locate and cut a 1-1/2" dia. Hole through the building wall (to accommodate a 3/4" dia. support pipe).
2. Cut and thread both ends of 3/4" dia, steel support pipe. Length of the support pipe should be equal to the wall thickness plus 3/18". The pipe is to be provided by the installer.



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3. The support pipe should be "made into" the 3/4" N.P.T. threaded opening in the face of the pump housing. Then position this assembly against the inside of the building wall with the support pipe extending through the wall.
4. Install the 3/4" corrosion resistant supply piping (galvanized, brass, etc.) from the alarm valve, dry pipe valve or deluge valve to the inlet of the pump housing and support pipe assembly, providing proper support for the piping so that it, in turn, provides support for the pump housing and support pipe.
5. Moving to the outside of the building wall, insert the wall bracket holder through the hole in the wall. Channel of the shroud and hand turn it onto the end of the support pipe extending through the wall. Then use the Central water motor Gong Wrench to tighten and draw the shroud firmly up against the wall.
6. Insert the drive shaft through the wall bracket holder and through the support pipe into the hub of the water wheel. Wiggle and rotate the drive shaft to make certain it is fully seated into the water wheel hub.
7. With the drive shaft fully inserted into the hub of the water wheel, scribe a line across the drive shaft, even with the end of the wall bracket holder to mark the proper cut-off length for the drive shaft.
8. Remove the drive shaft cut off the excess at the scribe line and reinsert the drive shaft through the wall bracket holder and support pipe into the water wheel hub. Make sure the drive shaft is fully seated in the water wheel hub.
9. Place the square hole in the alarm arm assembly over the square end of the wall bracket holder and hand tighten them together with the arm retaining screw and washer. Then wrench tighten with the Central Water Motor Gong Wrench.
10. At this point the installer should manually rotate the alarm arm assembly to make certain that it rotates freely, without any binding. If binding is present, repeat Step 9, after placing a shim between the wall channel and the exterior surface of the wall.
11. Place one gong washer over the threaded stud on the gong post followed by the gong, another gong washer, a flat washer and the cap nut (or regular hex nut). Rotate the cap nut building wall, insert the gong until the identification sign lettering is oriented horizontally. Tighten the cap nut as required.
12. Moving to the inside of the building wall, connect the 1" N.P.T. threaded drain outlet on the pump housing to an open drain using 1" piping. Corrosion resistant piping (galvanized, brass, etc) should be used, if wall-staining is a consideration.
13. Test the Water Motor Alarm for proper operation. The alarm sound should be clear steady, if not, make the necessary adjustments.

## TESTING

The water Motor Alarm may be tested for proper operation by opening the alarm test valve located in the trim piping of the alarm valve or in the piping line from the dry pipe valve or deluge valve. Refer to the appropriate alarm valve, dry pipe valve or deluge valve bulletin for details. The Water Motor Alarm may also be tested by opening the inspector's test connection, usually located in a remote section of the sprinkler system piping. This will activate the system which will, in turn, activate the Water Motor Alarm. After test-activation, dry pipe or deluge systems must be properly drained prior to placing the system back in service.

## CARE & MAINTENANCE

The Water Motor Alarm must be maintained in accordance with the requirements of the applicable NFPA standards and any other authorities having jurisdiction. The Water Motor Alarm should be inspected quarterly or more frequently in areas subject to vandalism. The inspection should include the following:

Activate the Water Motor Alarm to verify that generates a clear and steady sound. Any impairments should be corrected immediately. wall bracket Clean the 3/4" strainer in the alarm line. Remove the 3/8" sump plug in the pump housing and clean out any accumulated debris. Remove the gong and clear out any foreign material or debris.

Reinstall the gong with the washers in the proper sequence.

## Guarantee:

Protector sprinkler Company will repair and/or replace any product found to be defective in material or workmanship within a period of one year from date of shipment. Please refer to the current price list for further details of the warranty.

**VIC ENGINEERING SDN. BHD.**

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