VIKING®

TECHNICAL DATA SHEET

F-2 Water Motor Alarm

1. PRODUCT IDENTIFICATION

This document covers the following product:

Viking F-2 Water Motor Alarm

2. INTENDED USE

The Water Motor Alarm is intended to be used as a required component of every sprinkler system having more than 20 sprinklers. Every alarm must be used in accordance with:

1. the provided Listings, Approvals, and associated design requirements.
2. the recognized design and installation standards issued. For example NFPA, FM, EN, VdS, or LPCB.
3. the latest revisions of all applicable manufacturer documentation.

Governmental codes, ordinances, and standards may apply and may differ from one another.

⚠ WARNING

Cancer and Reproductive Harm www.P65Warning.ca.gov

3. LISTING AND APPROVALS

cULus Listed - VPLX

LPCB Approved -
Standard EN 12259-4:2000; certified number 096u/01

FM Approved - Class 1055

CE -
Standard EN 12259-4:2000 +A1:2001;
Declaration of Performance DOP_F0001 (WMA)

4. TECHNICAL SPECIFICATIONS

4.1 Specifications

Description	Value
Shipping weight (Model F-2)	11 lbs (5.0 kg)
Water working pressure (wwp) (for LPCB & CE)	175 PSI (12 bar)
Water working pressure (wwp) (for FM & UL)	300 PSI (20.7 bar)
E-Coat	SPF02 W01

4.2 Features

- 3/4” NPT on the inlet and 1” NPT on the drain outlet.
- Includes a drive shaft that is 16-3/4” (425 mm) long for walls 14” (356 mm) thick or less. A special extension shaft is available for walls up to 30-1/4” (768 mm) thick.
- The package also includes the required 3/4” (20 mm) NPT strainer for installation on the alarm line.

4.3 Markings and Dimensions

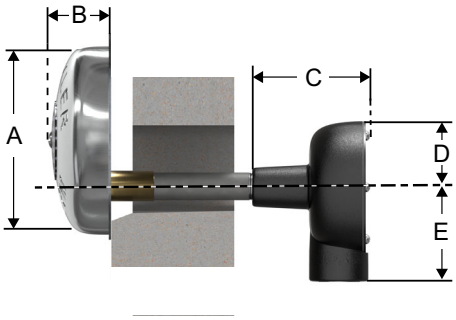

Figure – 1: Water Motor Alarm Dimensions

Figure – 2: Gong Markings

Figure – 3: Back Cover Markings

Ref	Dimensions
A	8-1/16” (205 mm)
B	2” (50.3 mm)
C	3-11/16” (93.66 mm)
D	2-1/2” (63.5 mm)
E	3-1/2” (88.9 mm)
Ref	**Marking**
G	Gong label (“Sprinkler Alarm”)
H	Identification plate
I	Model F-2 Water Motor Alarm
J	Viking Corp Hasting address
K	CE approval sticker
L	Engraved Water Motor Alarm approvals (cULus, FM, LPCB)

5. WATER MOTOR ALARM COMPONENTS

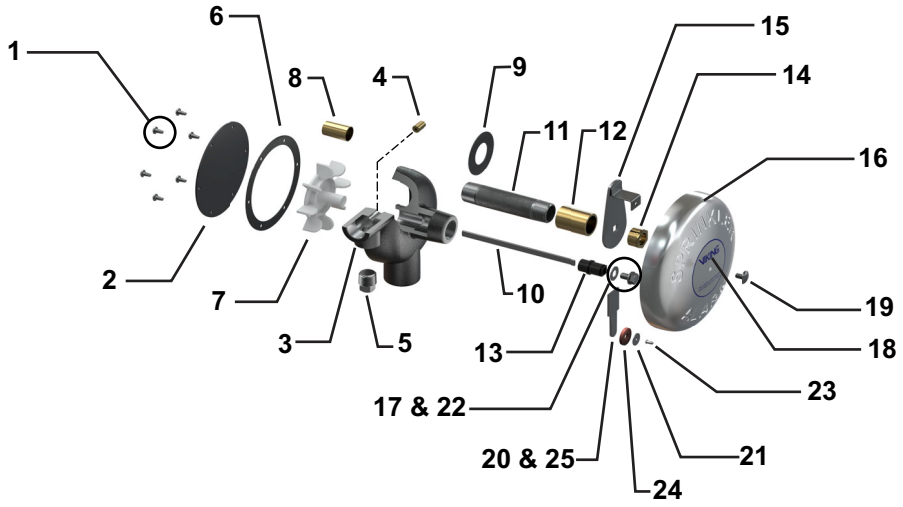

Figure – 4 Water Motor Alarm Components

Ref.	Part Number	Description	Material	Qty.
1	*	Screw, R.H. self-tap #10-24 x 3/8" lg.	Zinc-plated steel	6
2	07867	Back cover	Steel	1
3	*	Housing	Cast iron	1
4	*	Nozzle	Brass	1
5	01925S	1/2" pipe plug	Cast iron	1
6	02550B	Cover gasket	Cellulose/nitrile/glass blend	1
7	02547C	Impeller	Delrin	1
8	*	Bearing	Brass: sintered bronze	1
9	05603A	Wall plate	Galvanized steel	1
10	05604B	Drive shaft	Stainless steel	1
11	--	3/4" pipe (C.O.J.) not furnished	Galvanized steel	1
12	*	Coupling	Brass	1
13	02556B	Striker arm shaft	Celcon glass filled	1
14	*	Bearing	Brass	1
15	*	Gong support	Stainless steel	1
16	05821C	Gong	Aluminum	1
17	02766A	Flat washer, 11/32" ID x 11/16" OD x 1/16"	Stainless steel	1
18	05768A	Gong identification plate	Aluminum (F-2)	1
19	--	Screw, B. H. slotted, 5/16-18 x 1/2" lg.	Stainless steel	1
20	*	Striker arm	Stainless steel	1
21	--	Flat washer, 11/32" ID x 11/16" OD x 1/16"	Stainless steel	1
22	--	Screw, H. H. self-tap, 5/16-18 x 1/2" lg.	Zinc-plated steel	1
23	*	Striker pin	Stainless steel	1
24	*	Striker arm washer	Stainless steel	1
25	*	Striker	Canvas phenolic	1

Footnotes

* Replacement part is only available in a sub-assembly, listed below.
-- No available replacement part.

Sub-Assemblies		
1-8	07863	Motor assembly
20, 23-25	02558B	Striker arm assembly
12-15, 20-25	05606C	Support assembly

6. INSTALLATION PROCEDURE

6.1 Preliminary Actions (Pre-Installation)

Refer to Figure 4 for Water Motor Alarm components.

The system must be designed and the location considered before the Water Motor Alarm can be installed.

- Place the Water Motor Alarm on the closest exterior wall to the valve being monitored.
- A 3/4" (20 mm) strainer (included) is required on the Water Motor Alarm line and must be as close as possible to the alarm outlet on the monitored valve (or to the retard chamber's outlet).
- The location must be easily accessible for cleaning.
- Cut a hole in the building wall so that it is 1-7/16" (36.5 mm) minimum to 1-5/8" (41.3 mm) maximum. Keep the hole level or pitched slightly downward toward the alarm.

NOTE: Water Motor Alarm drain lines that have too many fittings, a short pipe length between the 1" (25 mm) outlet and the water drain pipe's first elbow, and/or a long pipe length will result in slow draining and reduced alarm speed. To fix this, increase the drain pipe diameter or the pipe length to the first elbow, or pitch the pipe toward the discharge location. Spacer pipe is NOT included in the alarm package.

6.2 Installation

Once the location has been determined and the preliminary cuts completed, proceed to the following installation steps.

1. Measure the wall thickness.
2. Cut and thread the spacer pipe to a length equal to the wall's thickness, minus 1" (25.4 mm).
   - If the extension mounting cup is used, add an additional 3" (76 mm) to the spacer pipe.
3. Cut the drive shaft (10) to a length equal to the total wall thickness, plus 2-3/4" (70 mm). If the extension mounting cup is used, add an additional 3" (76 mm).
4. File the drive shaft to provide a 3/32" (2.4 mm) x 45° chamfer on both corners of both ends.
5. File off all burrs and insert the drive shaft into the hole of the striker arm shaft.
6. Slide the spacer pipe over the shaft and thread the end of the spacer pipe into the gong support assembly coupling (12).
7. Slide the closure plate over the spacer pipe's free end and up to the back of the gong.
8. Slide the spacer pipe's free threaded end into the hole from outside the building to position the support assembly on the exterior wall.
9. Inside the wall, slide the wall plate (9) over the spacer pipe's free threaded end.
   - If an extension mounting cup is used, place it over the end of the spacer pipe with the flared end toward the wall before sliding the wall plate into position).
10. In the Water Motor Alarm body, remove the plastic thread protectors from the threaded openings.
11. Attach the Water Motor Alarm assembly by threading the housing (3) onto the spacer pipe's free threaded end.

NOTE: When the assembly is properly tightened, the water motor should be positioned with the 1" (25 mm) NPT drain outlet facing downward and the 3/4" (20 mm) NPT Water Motor Alarm line inlet horizontal.

Procedure continues on next page.

12. Attach the gong (16), the flat washer (17), and the gong identification plate (18) to the gong support installed on the exterior wall with the 5/16-18 x 12” (13 mm) screw (19).

NOTE: The flat washer must be installed between the gong and the gong support (15).

13. Connect the Water Motor Alarm inlet to the waterflow detecting device’s alarm outlet by using galvanized, brass, or other approved corrosion-resistant piping.

NOTE: The piping should be no less than 3/4” (20 mm) diameter. The alarm line’s 3/4” (20 mm) strainer (included) must be as close to the waterflow detecting device’s alarm outlet (or to the retard chamber’s outlet) as possible.

NOTE: The impeller housing’s drain outlet must discharge to an open drain. Ensure the drain line is clean at all times.

7. WATER MOTOR ALARM OPERATION

Refer to Figure 4 for Water Motor Alarm components.

When a sprinkler system is activated, water flows from the valve’s alarm outlet, through the 3/4” (20 mm) strainer and alarm line piping, and into the Water Motor Alarm’s inlet. From the 1/8” inlet orifice, the water flows through a nozzle (4), which restricts the flow so that it becomes a pressurized stream that goes onto the impeller (7).

Force from the water stream turns the impeller and drive shaft (10), causing the striker arm (20) to rotate. The striker (25) hits the gong (16), producing a continuous alarm sound. When properly installed, the Water Motor Alarm produces the required 90 decibel output.

NOTE: A minimum of 5 PSI (0.34 bar) is required at the nozzle to have a continuous alarm sound.

After passing through the Water Motor Alarm, the water is discharged through a 1” (25 mm) drain outlet at the bottom of the impeller housing. The discharged water must be piped through the wall to the outside or to a suitable open drain.

8. INSPECTIONS, TESTS, AND MAINTENANCE

8.1 Requirements

Refer to NFPA 25 for all inspection, test, and maintenance requirements. Also refer to the Authority Having Jurisdiction (AHJ) for additional requirements.

8.2 Inspections

Regularly examine the Water Motor Alarm to ensure the nozzle and drain line are clean and that the alarm functions properly. It is also important to regularly clean and inspect the alarm line strainer (located at the waterflow detection device’s alarm outlet) or the retard chamber’s outlet, if used. These areas must be cleaned and inspected before the Water Motor Alarm is disassembled.

8.3 Disassembling the Water Motor Alarm

Refer to Figure 4 for Water Motor Alarm components.

Prior to disassembling the Water Motor Alarm, notify the AHJ and all occupants located in the alarm’s covered area. To disassemble the alarm:

1. Close the alarm line valve in the water-flow detection device’s trim. This isolates the Water Motor Alarm.
2. Remove the pipe plug (5).
3. Remove all round head machine screws (1) from the Water Motor Alarm.
4. Separate the cover (2) and the gasket (6) from the housing (3).
5. Remove the impeller (7).
6. Inspect and, if necessary, carefully clean the nozzle (4) with a wire or pipe cleaner brush.
7. Flush the nozzle way and drain line with water or compressed air.

8.4 Re-Assembling the Water Motor Alarm

1. Re-install the pipe plug (5).
2. Re-install the impeller (7).
3. Replace cover gasket (6) and attach cover (2) by using round head machine screws (1).
4. Open the alarm line valve.
5. Test the Water Motor Alarm.
6. When the test is completed and the alarm operation satisfactory, place the alarm line valve in the proper “alarm” position. Reset and return the affected systems to service.

9. ORDERING

9.1 Ordering Information

Viking part number 07862.

9.2 Alarm Accessories

Figure – 5 Alarm Access

Item Nos.	Part Nos.	Description	Material
1	05957B	Extension mounting cup	14-gauge cold rolled steel, UNS-G10080, coated with black E-coat
2	05820B	Closure plate	16-gauge galvanized steel, UNS-G10080
3	03312B	33-inch drive shaft extension (not shown)	Stainless steel, UNS-S30400

10. CONTACT

The Water Motor Alarm and associated accessories are available through Viking distributors only. For assistance, contact your local Viking sales office. Sales office information can be found on our website:

Americas and Asia: www.vikinggroupinc.com/locations OR Europe, Middle East, Africa (EMEA): www.viking-emea.com/contact

Manufacturer:

The Viking Corporation
5150 Beltway SE
Caledonia, MI 49316
Tel.: (800) 968–9501
Fax: 269–818–1680
Technical Services: 1–877–384–5464
techsvcs@vikingcorp.com

Importer EU:

Viking S.A.
21, Z.I, Haneboesch
L–4562 Differdange / Niederkorn
Tel.: +352 58 37 37 – 1
Fax: +352 58 37 36
vikinglux@viking–emea.com

Asia Pacific (APAC) Main Office:

The Viking Corporation (Far East) Pte. Ltd.
69 Tuas View Square
Westlink Techpark, Singapore 637621
Tel: (+65) 6 278 4061
Fax: (+65) 6 278 4609
vikingAPAC@vikingcorp.com