



Member of the FM Global Group

Approval Standard for Water Motor Gong

Class Number 1055

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Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing shall ensure a consistently uniform and reliable product. Approval Standards strive to be performance-oriented. They are intended to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

- a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and
- b) must be readily identifiable.

Continuance of Approval and listing depends on compliance with the Approval Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on periodic follow-up audits of the manufacturing facility.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods, or procedures.

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INTRODUCTION

A water motor gong is used to give a locally audible alarm signal when a fire protection sprinkler system operates. Such a device should be highly reliable and durable.

FM Approval is based on examination and test of production samples, inspection of the manufacturing and/or quality control facilities, and use experience. Particularly considered are functional suitability, adequacy of design and workmanship, uniformity and dependability of production, effectiveness of quality control, and assurance of service and of replacement parts.

Minimum physical requirements given below are guides. Mere conformity does not assure Approval since other considerations may control. Nor is strict conformity necessary; devices having different characteristics may be considered and Approved, if shown to be essentially equivalent or superior in performance.

REQUIREMENTS

Durability

The water motor gong shall be designed to operate reliably without excessive maintenance. It will be subjected to a 60-hour continuous endurance run with an average operating pressure of 50 psi at the inlet to the device. No lubrication or adjustment will be made during this test. There shall be no evidence of any excessive wear at the completion of the test.

Audibility

The water motor gong shall produce an audible signal sufficient to alert a nearby plant employee during working hours or a guard or other person during idle hours. The sound should be loud enough and of such a pitch as to be clearly heard, above the average factory noise levels, at a distance of several hundred feet.

It shall generate sound waves having a minimum sound-pressure level of 90 decibels (referred to a 0.0002 microbar base) using the "C" weighting, when tested in a room having a background noise level within the approximate range of 50 to 55 decibels and using 30 lb operating pressure at the inlet to the gong. Sound pressure level measurements will be made at a point 10 ft in front of the gong with the protective cover in place.

Sensitivity

Operation shall commence at a maximum pressure of 5.0 psig measured at the inlet to the device, upstream of the strainer, when the pressure is increased from zero.

Port Sizes

Operating ports such as nozzles shall have a diameter of not less than $\frac{1}{8}$ in. and be protected by a suitable strainer of corrosion-resistant material. The total area of all openings in the strainer screen shall be at least ten times the port area.

The strainer, which shall be furnished by the gong manufacturer, may be located at the waterflow detecting device.

Inlet and Outlet

The inlet opening shall be suitable for connection to $\frac{3}{4}$ in. IPS supply piping.

The outlet opening shall be of ample size to facilitate the removal of waste water. A connecting pipe in the order of 1 to $1\frac{1}{2}$ in. IPS will be acceptable.

Moving Parts

Shafts and other moving parts shall be designed to prevent binding and protected against mechanical injury.

Bearings shall be self lubricating or have means for lubrication. The lubricant must be suitable for use over the range of temperatures between -60°F and 110°F .

Water Motor Housing

The water motor housing shall be able to withstand a hydrostatic pressure of 200 psig for 5 minutes.

Accessibility for Service

Design must permit disassembly for inspection, lubrication, adjustment or repair without removal from the supporting wall or structure.

Suitable means shall be provided so that nozzle and strainer can be readily cleaned.

Protective Cover

An outer shield or protective cover shall be provided to protect the gong from deteriorating effects of rain and snow and to prevent nesting of birds, vermin, etc.

A combination gong-cover shall be able to withstand six (6) blows from a $10\frac{1}{2}$ lb. steel ball, swinging as a $10\frac{1}{2}$ ft. long pendulum, hung directly over the gong from a height of five (5) feet. Point of contact between ball and gong-cover will be halfway between center of gong-cover and its periphery on a horizontal plane.

Following this test, the operating water motor gong shall still sound an audible alarm.

Materials

All materials used shall be suitable for the intended application.

Markings

The shield shall carry the words "SPRINKLER ALARM" having a minimum letter height of 1 in. The lettering may be cast on the shield or may be on a separate plate which shall be substantially fastened to the shield. Cast letters shall be raised approximately $\frac{3}{32}$ in.

The body of the device (motor housing) shall be marked with the manufacturer's name or trade mark, and a distinctive model or figure number.