# SPRINKLER HEAD

## CONCEALED SPRINKLER

## MODEL: SD1050, SD1055

### DESCRIPTION

The SHIELD Sprinklers, SD1050, SD1055 (Glass Bulb Type) Standard and Quick Response Concealed Sprinkler, design incorporates state-of-the-art, heat responsive, frangible glass bulb design for prompt, precise operation. The forged frame is more streamlined and attractive than traditional sand cast frames.

It is cast with a hex-shaped wrench boss to allow easy tightening from different angles. This sprinkler is available in various temperature ratings and finishes to meet many design requirements. The concealed pendent should be utilized with a concealed cover plate which provides up 6mm of adjustments. All sprinklers are manufactured using the time proven Belleville seal used exclusively by all major manufactures to ensure long life and safe operation.

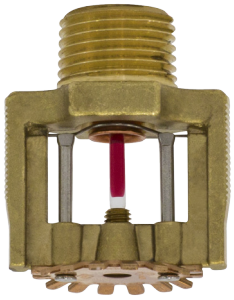
### SPRINKLER OPERATION

The operating mechanism is a frangible glass bulb which contains a heat responsive liquid. During a fire, the ambient temperature rises causing the liquid in the bulb to expand. When the ambient temperature reaches the rated temperature of the sprinkler, the bulb shatters.

As a result, the waterway is cleared of all sealing parts and water is discharged towards the deflector. The deflector is designed to distribute the water in a pattern that is most effective in controlling the fire.

### MAXIMUM COVERAGE

Standard spray coverage is up to: Light Hazard = 225 sq.ft (20.9 sq.m); Ordinary Hazard = 130 sq.ft (12.1 sq.m) per NFPA 13.



### TECHNICAL SPECIFICATION

| | |
|---|---|
| Sprinkler Identification Number | Standard SD1050 (bulb 5mm), Quick Response SD1055 (bulb 3mm) |
| Style | Concealed Pendent Sprinkler |
| Finish | Sprinkler-Natural<br>Cover Plate*-Natural/Chrome |
| K Factor | 5.6gpm/psi½. (80lpm/bar½) |
| Response Time Index (RTI) | Standard 50<br>Quick Response 30 |
| Nominal Thread Size | ½"NPT(15mm) |
| Orifice Size | 13mm |
| Max. Working Pressure | 175PSI(1200kPa) |
| Factory Hydrostatic Test | 100%@500PSI(3450 kPa) |
| Min. Operation Pressure | 7 PSI(48 kPa) |

*Other plate colors available upon request.

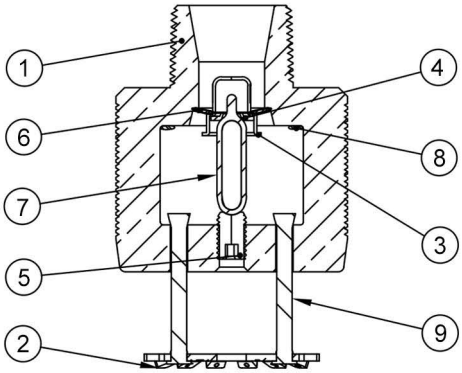
Note: SHIELD SD1055 (3-mm bulb) is FM Approved as standard response only. Factory Mutual do not approve any concealed sprinklers for quick response.

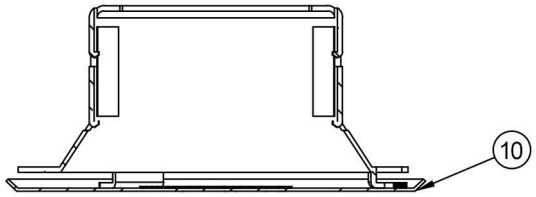
### TEMPERATURE RATINGS

| Sprinkler Temperature Classification | Norminal Sprinkler Temperature Rating | N.F.P.A Maximum Ambient (Ceiling) Temp.(Allowed) | Glass Bulb Color |
|---|---|---|---|
| Ordinary | 155°F/68°C | 100°F/38°C | Red |
| Intermediate | 175°F/79°C | 150°F/65°C | Yellow |
| Intermediate | 200°F/93°C | 150°F/65°C | Green |
| High* | 286°F/141°C | 225°F/107°C | Blue |
| Extra High* | 360°F/182°C | 300°F/149°C | Mauve |
| Open* | Open | - | No Bulb |

* Non-Approved

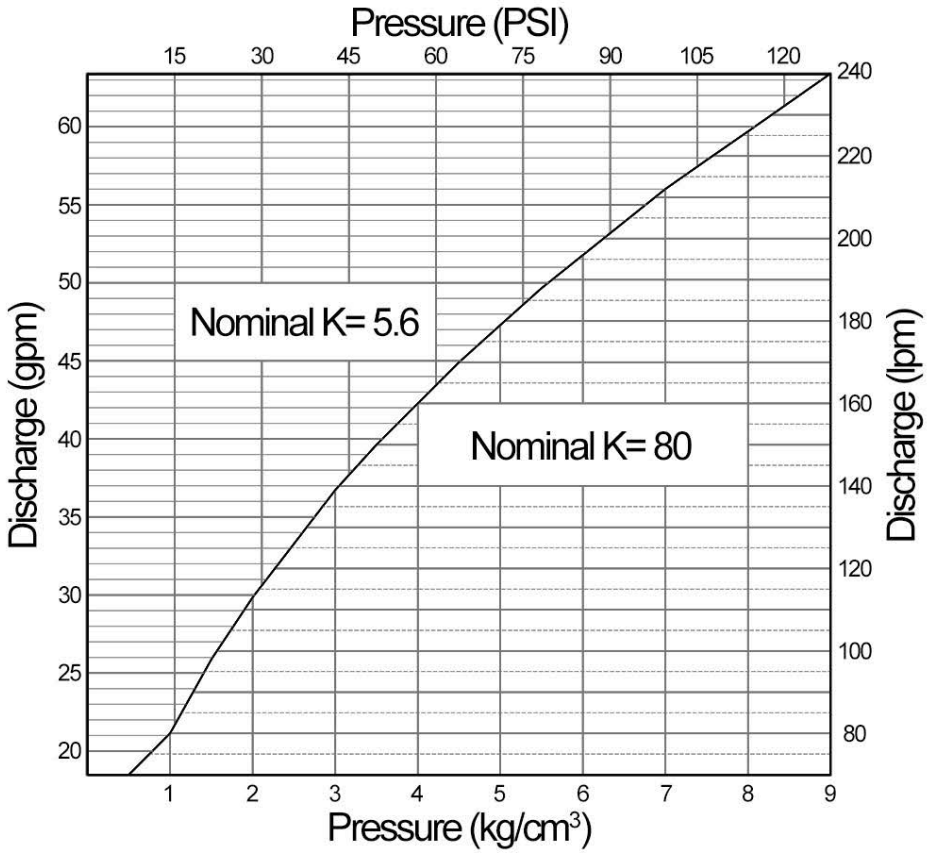
## PART LIST




| Part No. | Part Name | Material |
|---|---|---|
| 1 | Frame | Brass |
| 2 | Deflector | Brass |
| 3 | Cap | Brass |
| 4 | Cap Seat | Stainless Steel |
| 5 | Load Screw | Brass |
| 6 | Seal | Bery Nickel Spring Teflon Tape |
| 7 | Bulb | Norbulb N5/N3 |
| 8 | Spring | Stainless Steel |
| 9 | Guide Pins | Stainless Steel |
| 10 | Cover Plate | Brass |

## DISCHARGE CURVE



## WARNINGS

The SHIELD Sprinklers must be installed and maintained in compliance with this document. Depressurize and drain the piping system before attempting to install, remove, or adjust any Sprinklers. Failure to do so may impair the performance of these sprinklers. The owner is responsible for maintaining the fire protection system and devices in operation.

## INSTALLATION

All SHIELD Sprinklers must be installed according to NFPA 13 Standards. Deviations from these requirements and standards or any alteration to the sprinkler itself will void any warranty made by manufacturer. In addition, installation must also meet local government provisions, codes and standards as applicable.

The system piping must be properly sized to insure the minimum required flow rate at the sprinkler. Check for the proper model, style, orifice size and temperature rating prior to installation. Install sprinklers after the piping is in place to avoid mechanical damage, replace any damaged units. Wet pipe systems must be protected from freezing.

Upon completion of the installation, the system must be tested per recognized standards. In the event of a thread task, remove the unit, apply new pipe joint compound or tape, and reinstall.

Concealed Sprinkler Wrench

## TOOL DESCRIPTION

All SHIELD sprinklers must be installed according to the following. The Sprinkler Key is a tool specifically designed for installing SHIELD Sprinklers. These special wrenches must be used to provide the proper leverage when tightening the sprinkler and to minimize slippage during installation. Any other wrench may damage the sprinkler.

## COVER PLATE INSTALLATION

Use SHIELD cover plates to ensure proper sprinkler distribution and coverage. Approvals are only applicable when concealed sprinklers are in use with the matching cover plates.

To install clip-on cover plates, align the cover plate with the concealed sprinkler and gently push the cover plate upwards until the cover reaches the mount ceiling, clicking sound should be heard. The cover plate should be locked in place with the concealed sprinkler, there are sufficient space between the cover plate and concealed sprinkler for adjustment.
The cover plates can be disassembled by gently unscrewing then for the screw-on types and gently pulling them off for the clip-on types. The cover plates can be reassembled by the same method of installation. Never paint or repaint over the cover plates.

## INSTALLATION SEQUENCE

1. The unit must be installed in the Pendent position for the Concealed Sprinkler.
2. Use only a non-hardening pipe joint compound or tape seal. Apply only to the male threads.
3. Hand tighten the sprinkler into fitting.
4. For Concealed Sprinklers, use a standard key. Tighten the unit into the fitting. A lead-tight joint requires only 150 to 200 kg.cm (14.7 to 19.6 Nm) of torque. Once torque level reach over 300 kg.cm (29.4 Nm) it may distort the orifice seal, resulting in leakage. For exposed piping systems, the sprinkler should be oriented so the frame arms are parallel with the branch line pipe.

## CAUTION

Do not over-tighten or under-tighten the sprinkler to compensate for inaccurate escutcheon plate adjustment. Protection clips are used to protect its bulb. Please have clip on at all times during transportation.

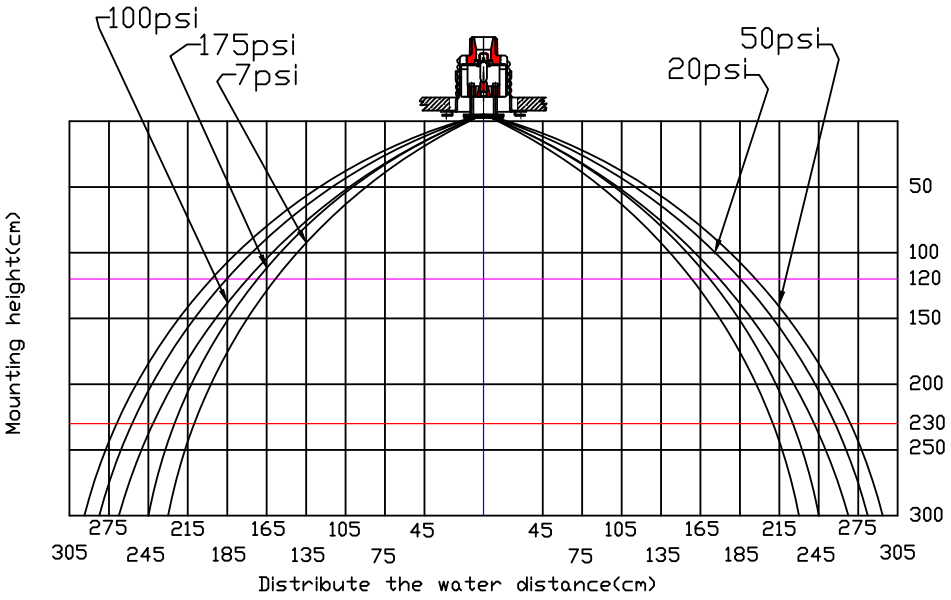
## MAINTENANCE

Sprinklers must never be altered after manufacture. Any alteration such as painting and coating will directly harm the sprinkler and cause malfunctions. Sprinkler in contact with corrosive products should be replaced if they cannot be cleaned completely.

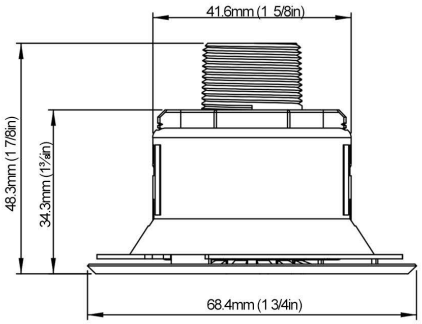
Visual inspections are recommended after installation. After installation, a close-up inspection annually will suffice. Inspection and maintenance of fire protection system is the responsibility of the owner. It is recommended that automatic sprinkler system be inspected and tested according to local and/or national regulations.

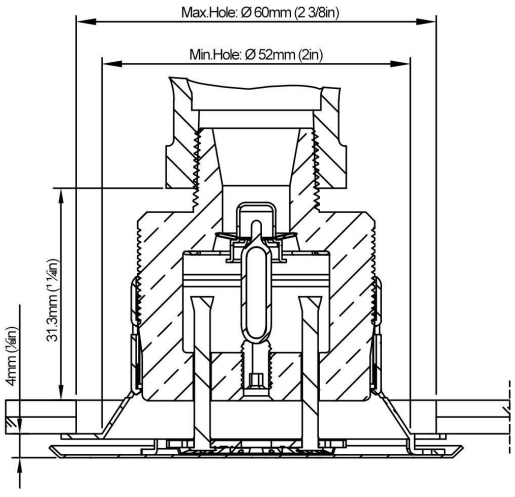
## DISTRIBUTION PATTERNS

K5.6 PENDENT SPRINKLER
DISTRIBUTION PATTERNS - TRAJECTORY

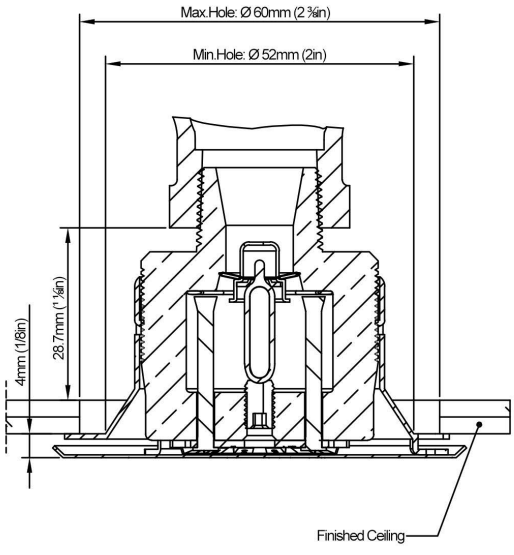



## DIMENSIONS




**Maximum Extension**




**Maximum Recessed**