The Model A PS021/PS022/PS023/PS024 (Glass Bulb Type)Standard Orifice Standard Upright, Pendent and Recessed Pendent Standard and Quick Response.

Description

The Model A PS021/PS022/PS023/PS024(Glass Bulb Type) Standard Orifice Standard Upright, Pendent and Recessed Pendent Standard and Quick Response. The Model A Pendent Sprinkler Identification Number (SIN) PS022 (standard) PS024(quick) Recessed Pendent. The Model A Upright Sprinkler Identification Number (SIN) PS021(standard) PS023(quick). All Protector sprinklers are manufactured by using time-proven Belleville seal to ensure long life and safe operation. The forged frame is stronger and more streamlined than traditional die cast and sand cast frames. The design provides a crescent-shaped water discharge pattern for installation along a wall or under a beam or ceiling. The state-of-the-art design incorporates highly thermal sensitive glass bulb actuating for prompt and precise operation. For easy tightening from different angles and reducing assembly effort, Protector standard tools (wrench and key) are highly recommended to be exerted in the installation of Protector sprinklers. This sprinkler is available in various temperature ratings (see chart on page 2) and finishes to meet many design requirements. The recessed pendent should be utilized with a Model A recessed escutcheon which provides up ¾" of adjustments.

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 special designed deflector enables to transform the discharging water into a more efficient and well-distributed spray pattern and effectively cool down the heat to suppress fire spread.

Warnings

The Protector Model A-Series must be installed and maintained in compliance with this document. Depressurize and drain the piping system before attempting to install, remove, or adjust any Protector 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.

Technical Specification

- **Model SIN**：Standard PS021、PS022 (bulb 5mm), Quick Response PS023、PS024 (bulb 3mm)
- **Style**：Upright Sprinkler PS021、PS023，Pendent Sprinkler PS022、PS024
- **K-Factor**：11.5 Imp. (164 S.I)
- **RTI**：Standard Response < 90 ($m/s^{1/2}$), Quick Response < 33 ($m/s^{1/2}$)
- **Nominal Working Thread**：3/4"PT (20mm)
- **Maximum Working Pressure**：175PSI (1200kPa)
- **Factory Hydrostatic Test**：100%@500PSI (3450 kPa)
- **Minimal Operating Pressure**：7 PSI (48 kPa)

Maximum Coverage

Standard spray coverage is up to: Light Hazard =230 square feet (21.2 sq.m); Ordinary Hazard = 153 square feet(13.8 sq.m) per NFPA 13. See page 4 for distribution patterns.

PS021

PS022

PS023

PS024

Finishes Available

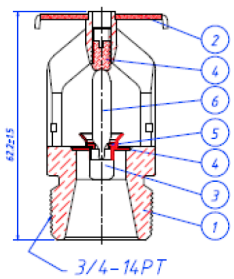
- **Chrome Plated**
- **White Coated - Polyester**
- **Custom Paint.**

Temperature Rating

SPRINKLRE 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

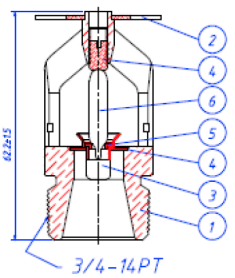
Components

PS021 SSU

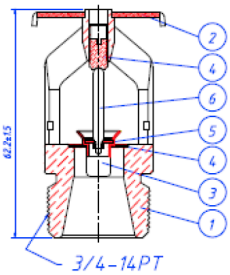


玻璃球 BULB	7	NORBULB N5-68°C-20mm
K14 彈片 SEAL	6	BERY. NICKEL SPRING TEFLON TAPE
螺絲 LOAD SCREW	5	ASTM C36000(CNS C3604)
內銅柱固定片 SR CAP SEAT	4	ASTM S30400(CNS 304)
內銅柱 CAP	3	ASTM C11000(CNS C1100)
SR 導水板 SSP DEFLECTOR 68°C	2	ASTM C26800(CNS C2680)
K11.5 本體 FRAME	1	ASTM C36000(CNS C3604)

PS022 SSP

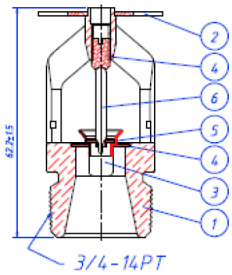


PS023 SSU

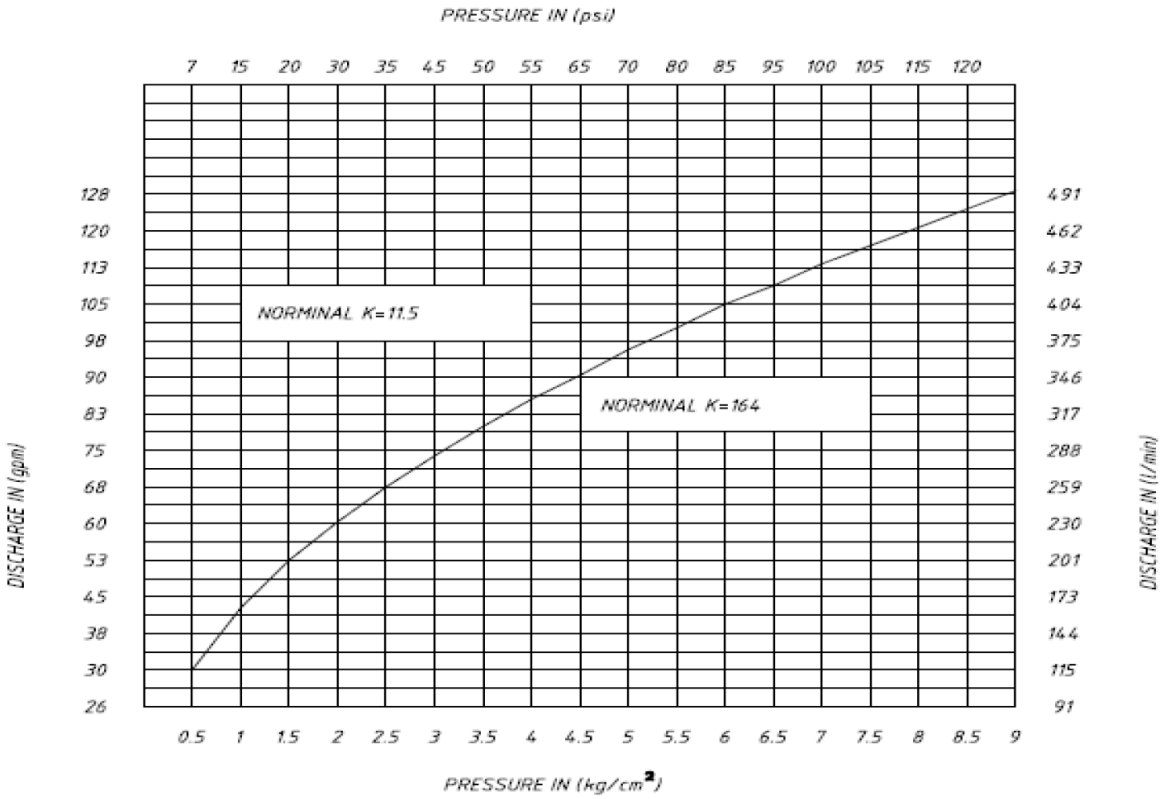


玻璃球 BULB	7	NORBULB N3-68°C-20mm
K14 彈片 SEAL	6	BERY. NICKEL SPRING TEFLON TAPE
螺絲 LOAD SCREW	5	ASTM C36000(CNS C3604)
內銅柱固定片 QR CAP SEAT	4	ASTM S30400(CNS 304)
內銅柱 CAP	3	ASTM C11000(CNS C1100)
QR 導水板 DEFLECTOR 68°C	2	ASTM C26800(CNS C2680)
K11.5 本體 FRAME	1	ASTM C36000(CNS C3604)

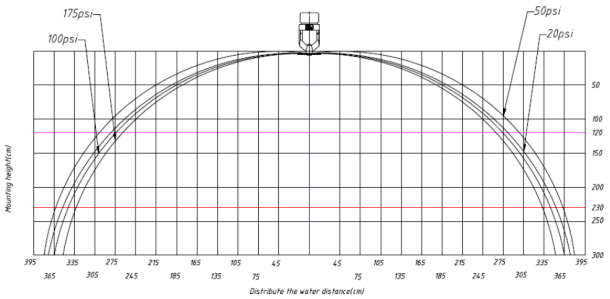
PS024 SSP



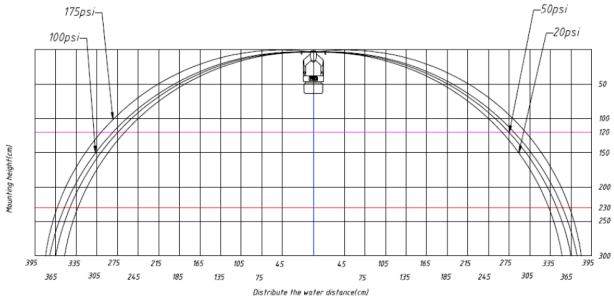
Discharge Curve



Distribution Patterns



K11.5 PENDENT SPRINKLER
DISTRIBUTION PATTERNS - TRAJECTORY



K11.5 UPRIGHT SPRINKLER
DISTRIBUTION PATTERNS - TRAJECTORY

Installation

All Protector 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 Protector Safety Company. In addition, installation must follow local government provisions, codes and standards as applicable. The system piping must be properly sized to ensure 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.

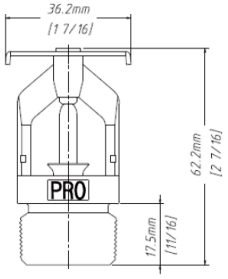
Protector Standard Tools

Protector Sprinklers can be installed only by using Protector standard tools, either wrench or key. The standard wrench or key provides the proper leverage when tightening the sprinkler and minimizes slippage during installation. Any other wrench or key may damage the sprinkler.

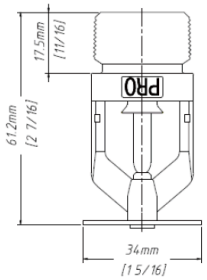
Protector Sprinkler Wrench

Protector Sprinkler Key

Dimensions



Upright Sprinkler



Pendent Sprinkler

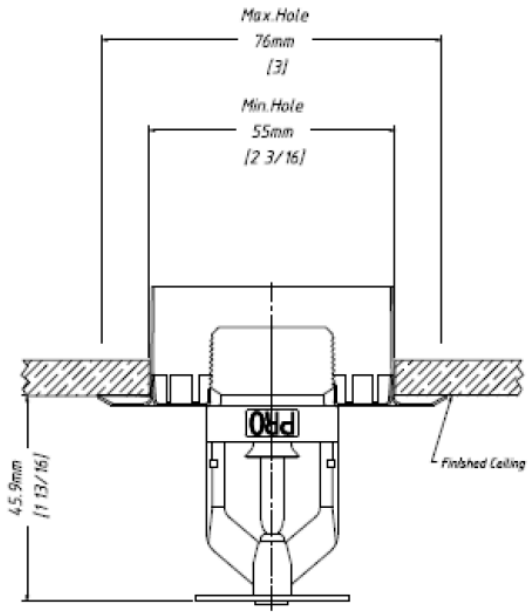
Installation Sequence

- **Step 1.** The unit must be installed in the horizontal position for the Hori. Sidewall Sprinkler and the Recessed Hori. Sidewall Sprinkler.
- **Step 2.** Use only a non-hardening pipe joint compound or tape seal. Apply only to the male-threads.
- **Step 3.** Hand tighten the sprinkler into fitting.
- **Step 4.** For Hori. Sidewall Sprinklers, use a standard wrench. Tighten the unit into the fitting. A lead-tight joint requires only 150 to 200 kgf-cm (14.7 to 19.6 N-m) of torque. Once torque level reach over 300 kgf-cm (29.4 N-m) it may distort the orifice seal, resulting in leakage. For exposed piping systems, the sprinkler should be oriented so the frame is paralleled with the branch line pipe.

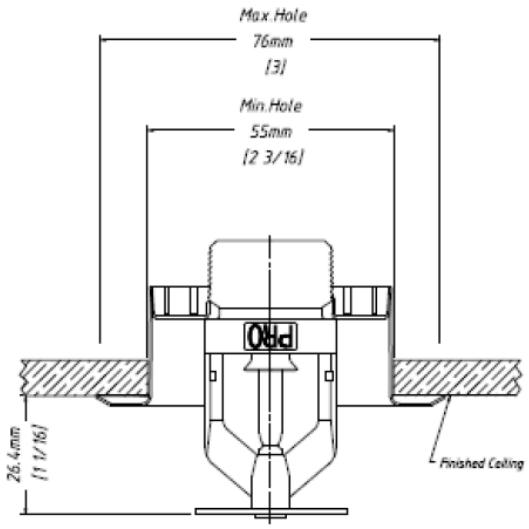
Escutcheon Installation

Use Protector escutcheon plate to ensure proper sprinkler distribution and coverage. To install the escutcheon plate on recessed sprinklers, align with it and push or thread over the sprinkler body into the upper support piece, until the outer edge of the escutcheon meets the mounting surface.

Recessed Pendent Sprinkler



Maximum Extension



Maximum Recess

Caution

Do not over- or under-tighten the sprinkler to compensate for the insufficient adjustment in the escutcheon plate. Re-adjust the position of the sprinkler fitting to match. 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 malfunction. Sprinkler in contact with corrosive products should be replaced if they cannot be cleaned completely. Visual inspection are recommended after installation. After installation, an annual close-up inspection will be sufficient. 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.