

Technical Data Sheet: MX8490 Residential Concealed Horizontal Sidewall Sprinkler K5.8

1. DESCRIPTION

Minimax Residential Concealed Horizontal Sidewall Sprinkler MX8490 is a small high-sensitivity solder link and lever residential sprinkler designed for installation on concealed pipe systems, where the appearance of a smooth wall is desired. The sprinkler orifice design, with a K-Factor of 5.8 (83.6 metric*), allows the sprinkler's efficient use of available water supplies for the hydraulically designed fire-protection system. The operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

The sprinkler is hidden from view by a low profile, small diameter cover plate installed flush to the wall. The cover plate is available in several decorative finishes to meet design requirements. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. After the system has been tested and wall finish has been applied, the push-on design of the cover plate assembly allows easy installation of the cover plate with up to 1/4" (6.4 mm) adjustment. Sprinkler MX8490 is provided with a pipe guide to properly locate the sprinkler and allow the 1/4" adjustment of the cover plate.



2. LISTINGS AND APPROVALS

UL Listed (C-UL-US-EU): Category VKKW

Refer the Approval Charts and Design Criteria for cULus Listing requirements that must be followed.

WARNING: Cancer and Reproductive Harm-
www.P65Warnings.ca.gov

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 5.8 U.S. (83.6 metric*)

* Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Overall Length (Sprinkler body): 2" (51 mm)

Available Cover Plate Horizontal Adjustment: 1/4" (6 mm)

Overall Length (Sprinkler Body): 2" (50 mm)

Covered by the following US Patent Numbers: 7,854,269, 7,712,218 and 8,960,319

Material Standards:

Sprinkler Body: QM Brass and Brass UNS-C84400

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Polytetrafluoroethylene (PTFE) Tape

Seat: Brass UNS-C31400

Deflector Ring: Brass UNS-C23000

Deflector Pins: Stainless Steel UNS-S30200

Halo: Brass UNS-C31400 or Phosphor Bronze UNS-C51000

Flow Shaper: Phosphor Bronze UNS-C51000

Lever Bar Ring: Brass UNS-C31400 or Brass UNS-C84400

Compression Screw: 18-8 Stainless Steel

Fusible Link Assembly: Nickel Alloy and Eutectic Solder

Fusible Link Levers: Stainless Steel UNS-S31600

Guide Pin: Stainless Steel UNS-S43000

Shipping Cap: Polyethylene

Cover Assembly Materials:

Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800

Spring: Beryllium Nickel

Solder: Eutectic

Available Finishes and Temperature Ratings:

| | | |
|--------------------|-----------------------|-----------------------|
| Finish | Brass | -- |
| Suffix | A | -- |
| Temperature | 165 °F (74 °C) | 205 °F (96 °C) |
| Suffix | C | E |

Ordering Information: (Refer to Table 1.)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS, AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Model MX8490 Sprinkler is available through a network of domestic and international distributors. See the web site for the closest distributor or contact us.

8. GUARANTEE

For details of warranty, refer to the current list price schedule or contact us directly.

| TABLE 1: ORDERING INFORMATION THE SPRINKLER AND COVER PLATE MUST BE ORDERED SEPERATELY. Instructions: Using the sprinkler base part number, add the suffix for the desired Temperature Rating. | | | | | | |
|--|----------|--------|---------------------|----------------|--|--------|
| Sprinkler Base Part No. | Size | | Temperature Ratings | | | |
| | NPT Inch | BSP mm | Classification | Nominal Rating | Maximum Ambient Ceiling Temperature ² | Suffix |
| 61300A | 1/2 | -- | Ordinary | 165 °F (74 °C) | 100 °F (38 °C) | C |
| | | | Intermediate | 205 °F (96 °C) | 150 °F (65 °C) | E |
| Example: 61300AC = MX8490 with Brass Finish and 165 °F (74 °C) Nominal temperature rating. This sprinkler is to be installed into an area with a maximum ambient temperature of 100 °F (38 °C) meaning if the area will experience temperatures above the maximum ambient rating, you shall use a higher temperature-rated sprinkler. | | | | | | |
| Accessories | | | | | | |
| Sprinkler Wrenches: A. Standard (Heavy duty) Wrench: Part Number 16208WR ¹ . B. Head Cabinet Wrench: Part Number 16267 ¹ . C. Optional Large Concealed Cover Plate Installer Tool: Part Number 14867. | | | | | | |
| Sprinkler Cabinet: Part number 61414. | | | | | | |
| Footnotes | | | | | | |
| 1. Requires a 1/2" ratchet which is not available from Minimax Fire Products. 2. Based on NFPA 13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards. | | | | | | |

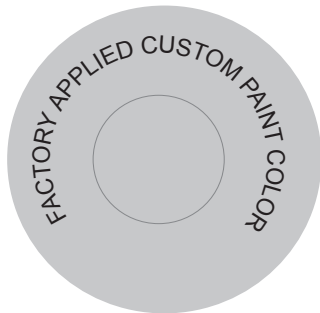
TABLE 2: COVER PLATE ORDERING INFORMATION

Instructions: Using the cover plate base part number,
 (1) add the suffix for the desired Finish
 (2) add the suffix for the required Cover Plate Nominal Rating.

| Cover Plate Base Part Number ⁴ | Size Inch (mm) | Style | 1: Finishes | | Temperature Rating Matrix ^{1,2} | | | |
|---|----------------|-------|-----------------|---------------------|--|--------------------------|---|--------|
| | | | Description | Suffix ⁶ | Cover Plate Nominal Rating (Required) | Sprinkler Nominal Rating | Sprinkler Max. Ambient Ceiling Temperature ^{2,3} | Suffix |
| 61369 | 3-5/16 (84) | Round | Polished Chrome | F | 135 °F (57 °C) | 165 °F (74 °C) | 100 °F (38 °C) | A |
| | | | Brushed Chrome | F-B | 135 °F (74 °C) | 205 °F (96 °C) | 150 °F (65 °C) | C |
| | | | Bright Brass | B | 165 °F (74 °C) | 205 °F (96 °C) | 150 °F (65 °C) | C |
| | | | Antique Brass | B-A | | | | |
| | | | Brushed Brass | B-B | | | | |
| | | | Brushed Copper | E-B | | | | |
| | | | Painted White | M-W | | | | |
| | | | Painted Ivory | M-I | | | | |
| | | | Painted Black | M-B | | | | |

Footnotes

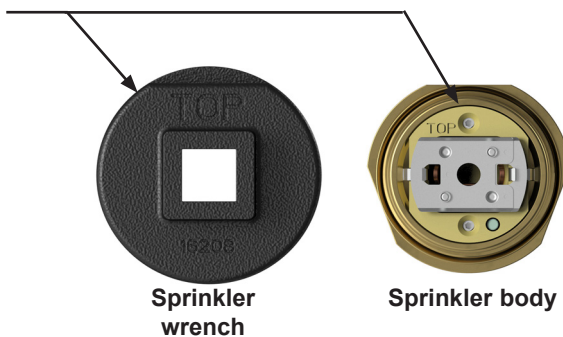
1. The sprinkler temperature rating is stamped on the deflector.
2. Based on NFPA-13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
3. Maximum ambient temperature for cover assembly is 100 °F (38 °C).
4. Part number shown is the base part number. For complete part number, refer to current our price list schedule.
5. The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway. For ENT coated sprinklers, the Belleville spring is exposed.
6. Where a dash (-) is shown in the Finish suffix designation, insert the desired Temperature Rating suffix. See example above.



All custom color painted cover plates will have an identifying label affixed to the inside of the cover that indicates the custom color and will have a representative sample (a paint dot) of the paint on the label.

Figure 1: Identification of Custom Paint for Concealed Covers

The internal design of the sprinkler wrench is shaped to fit over the sprinkler and protective cap to ensure that the top of the wrench will be oriented in the same direction as the top of the sprinkler deflector.



Orient the sprinkler and wrench as shown then slide the wrench over the sprinkler body and the protective cap.




Figure 2: Sprinkler Installation and Correct Use of Wrench

Approval Chart

Minimax MX8490, 5.8 K-Factor Residential Concealed HSW Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria below. For ceiling types refer to the most current Edition of NFPA 13, 13R or 13D

| Sprinkler Base Part Number ¹ | SIN | NPT Thread Size | | Nominal K-Factor | | Maximum Water Working Pressure | |
|---|----------------------------|-------------------------------------|---------------------------------------|--|---|--|----------------------------------|
| | | Inches | mm | U.S. | metric ² | | |
| 61300 | MX8490 | 1/2 | 15 | 5.8 | 83.6 | 175 psi (12 bar) | |
| Max. Coverage Area ⁵ Width X Length Ft. X Ft. (m X m) | Max. Spacing Ft. (m) | All Temperatures | | Centerline of Sprinkler to Ceiling | Installation Type | Listings and Approvals ³ | Minimum Spacing Ft. (m) |
| | | Flow ⁵ GPM (L/min) | Pressure ⁵ PSI (bar) | | |  ⁴ | |
| 12 X 12 (3.7 X 3.7) | 12 (3.7) | 16 (60.6) | 7.6 (0.52) | 4-3/8 to 6-3/8 inches | Concealed with Cover Plate Assembly | See Footnotes 6 and 7 | 8 (2.4) |
| 14 X 14 (4.3 X 4.3) | 14 (4.3) | 17 (64.4) | 8.6 (0.59) | | | | |
| 16 X 16 (4.9 X 4.9) | 16 (4.9) | 18 (68.1) | 9.6 (0.66) | | | | |
| 16 X 18 (4.9 X 5.5) | 16 (4.9) | 21 (79.5) | 13.1 (0.90) | | | | |
| 16 X 20 (4.9 X 6.1) | 16 (4.9) | 23 (87.1) | 15.7 (1.08) | | | | |
| 16 X 22 (4.9 X 6.7) | 16 (4.9) | 31 (117.3) | 28.6 (1.97) | | | | |
| 18 X 20 (5.5 X 6.1) | 18 (5.5) | 28 (106.0) | 23.3 (1.61) | | | | |
| 12 X 12 (3.7 X 3.7) | 12 (3.7) | 17 (64.4) | 8.6 (0.59) | 6-3/8 to 12-3/8 inches | Concealed with Cover Plate Assembly | See Footnotes 6 and 7 | 8 (2.4) |
| 14 X 14 (4.3 X 4.3) | 14 (4.3) | 17 (64.4) | 8.6 (0.59) | | | | |
| 16 X 16 (4.9 X 4.9) | 16 (4.9) | 19 (71.9) | 10.7 (0.74) | | | | |
| 16 X 18 (4.9 X 5.5) | 16 (4.9) | 21 (79.5) | 13.1 (0.90) | | | | |
| 16 X 20 (4.9 X 6.1) | 16 (4.9) | 26 (98.4) | 20.1 (1.39) | | | | |
| 16 X 22 (4.9 X 6.7) | 16 (4.9) | 31 (117.3) | 28.6 (1.97) | | | | |
| 18 X 20 (5.5 X 6.1) | 18 (5.5) | 28 (106.0) | 23.3 (1.61) | | | | |

Footnotes

1. For complete part number, also refer to current our price list schedule.
2. Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
3. This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. Refer also to Design Criteria listed below.
4. Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.
5. For areas of coverage smaller than shown, use the "Flow" and "Pressure" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum "Flow" and "Pressure" used.
6. Cover Temperature Ratings are 135 °F (57 °C) and 165 F (74 °C). Cover Part No. 61369 ¹.
7. Accepted Cover Plate Finishes are: White Polyester and Chrome. Other paint colors are available on request with the same listings as the standard finish colors. Listings and approvals apply for any paint manufacturer. Contact Minimax Fire Protection for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 1.

DESIGN CRITERIA

(Also refer to the Approval Chart.)

UL Listing Requirements (C-UL-US-EU):

When using Minimax Residential Concealed Horizontal Sidewall Sprinkler MX8490 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart above for NFPA 13D and NFPA 13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- **THE TOP OF THE SPRINKLER BODY AND THE TOP OF THE INSTALLATION WRENCH ARE MARKED "TOP"**. Orient the top of the sprinkler element parallel with the ceiling as shown in Figure 3.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

NOTE: Concealed sprinklers must be installed in neutral or negative pressure plenums only.

IMPORTANT: Always refer to Bulletin Form No. FX_091699 - Care and Handling of Sprinklers. Also refer to Form No.s FX_080190, FX_080814, and FX_080415 for general care, installation, and maintenance information. Minimax sprinklers are to be installed in accordance with the latest edition of Minimax technical data, the appropriate standards of NFPA and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.

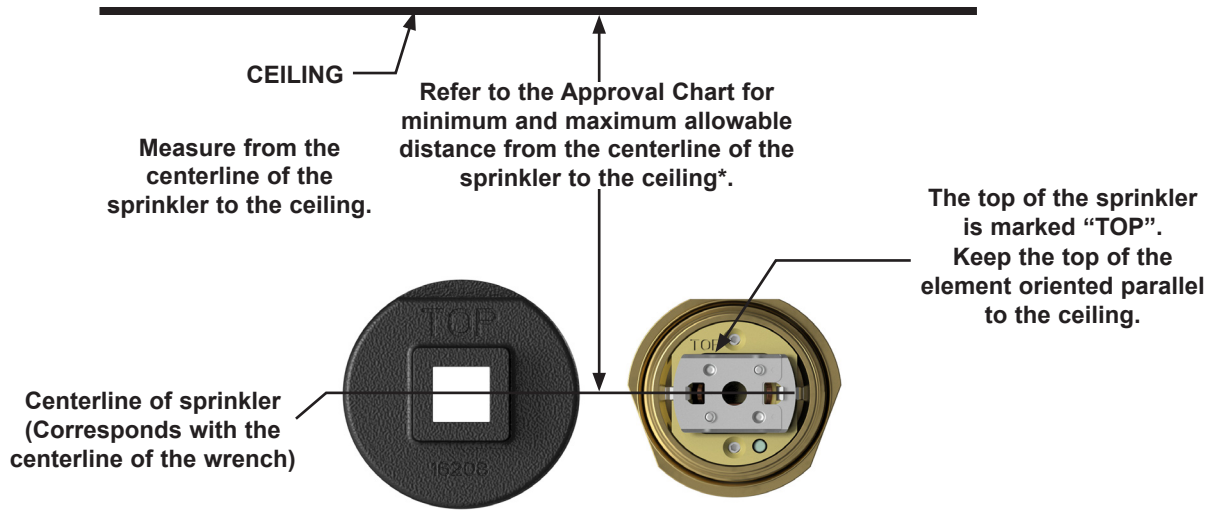


Figure 3: Correct Sprinkler Deflector Orientation

*Distance from the ceiling affects water supply requirements. Refer to the Approval Chart.

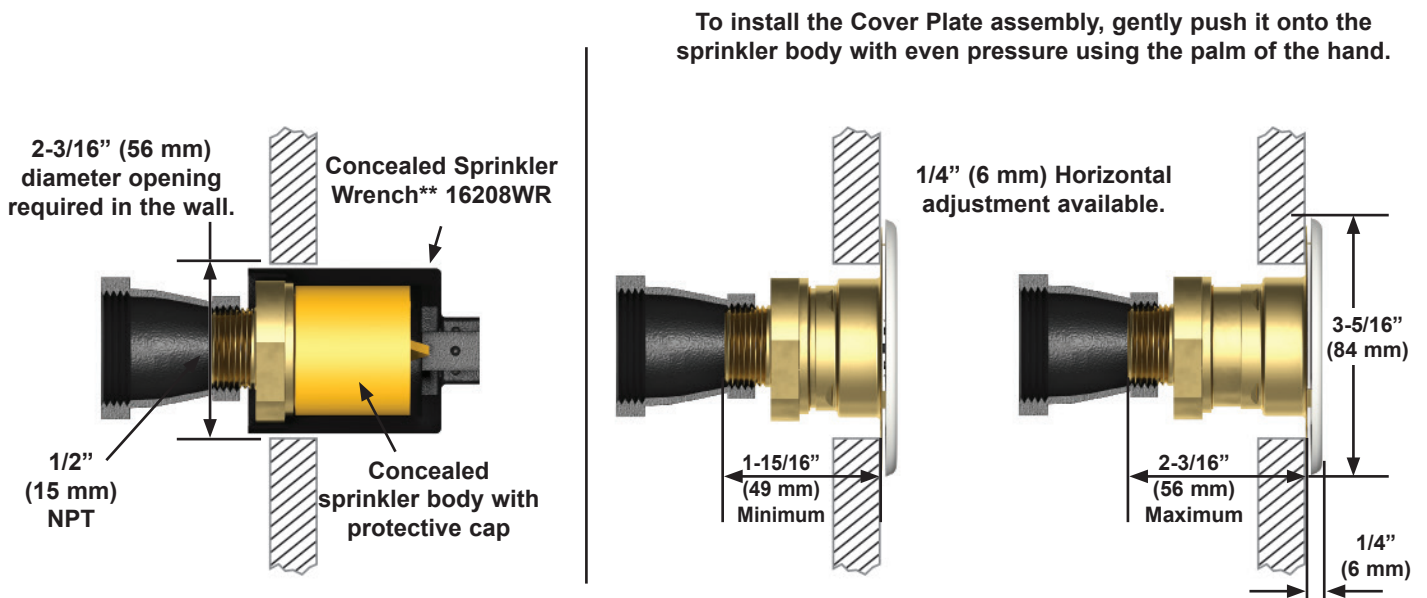
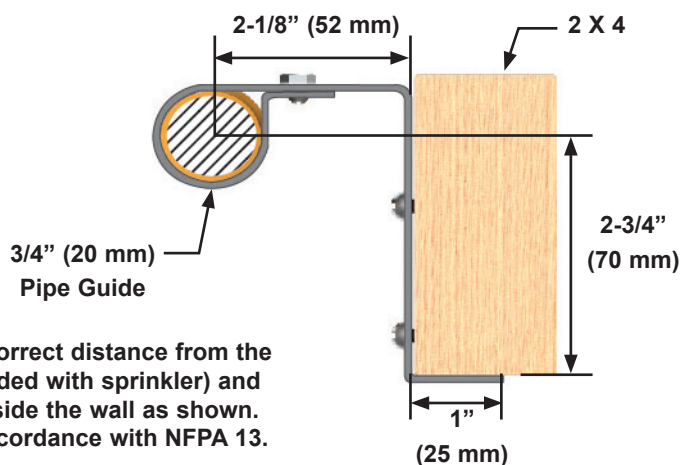
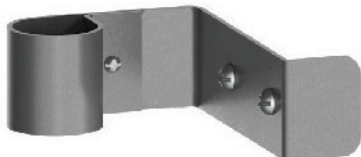


Figure 4: Sprinkler Dimensions and Cover Installation

** A 1/2" ratchet is required (not available from Minimax Fire Protection).

3/4" (20 mm) Pipe Guide
(Hardware included)



NOTE: To ensure that the sprinkler is located the correct distance from the face of the finished wall, use the pipe guide (included with sprinkler) and attached it to the 3/4" CPVC pipe and the 2 X 4 inside the wall as shown. All piping, hangers/bracing must be installed in accordance with NFPA 13.

Figure 5: Sprinkler Pipe Guide

6" (152 mm) Max. from centerline of sprinkler to centerline of pipe guide for proper cover plate installation.

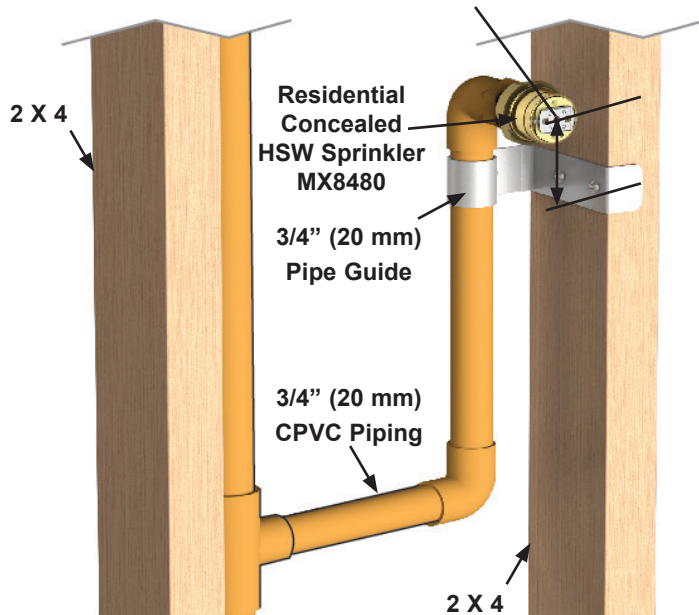
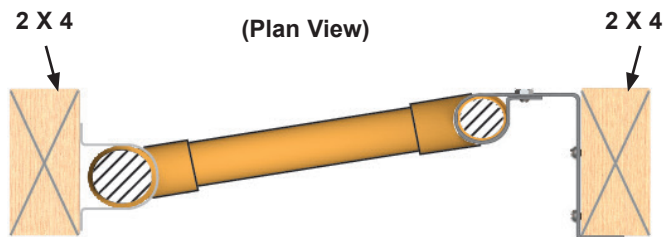


Figure 6: Sprinkler Pipe Guide Installation Instructions