

Model BV-EC

5.6 K-factor Quick Response Extended Coverage Light Hazard

Pendent, Recessed Pendent, Horizontal Sidewall & Recessed Horizontal Sidewall Glass Bulb Automatic Sprinkler

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General Description

The Central Model BV-EC, 5.6 K-factor Quick Response, Extended Coverage Light Hazard (ECLH) Pendent, Recessed Pendent, Horizontal Sidewall & Recessed Horizontal Sidewall Sprinklers are decorative glass bulb sprinklers designed for use in light hazard occupancies such as churches, hospitals, offices, and restaurants.

They are intended for use in automatic sprinkler systems designed in accordance with standard installation rules (e.g., NFPA 13) for the protection of light hazard occupancies. The pendent and recessed pendent sprinklers are listed as quick response sprinklers for a maximum coverage area of 400 ft² (37,2 m²), as compared to the maximum coverage area of 225 ft² (20,9 m²) for standard coverage sprinklers. The horizontal sidewall sprinklers are UL listed with a maximum ceiling to top of deflector distance of 18 inches (457,2 mm), the maximum allowed by NFPA.

The recessed version of the Central Model BV-EC, intended for use in areas with a finished ceiling/wall, uses a two-piece Model BV Res/QR Recessed Escutcheon (Vented or Unvented). The Model BV Res/QR Recessed Escutcheon provides up to 3/8 inch (9,5 mm) of total adjustment from the flush pendent or horizontal sidewall position.

These sprinklers are available with a polyester coating that may be utilized to extend the life of copper alloy sprinklers beyond that which would otherwise be obtained when exposed to corrosive atmospheres.

Although polyester coated sprinklers have passed the standard corrosion tests of the applicable approval agencies, the testing is not representative of all possible corrosive atmospheres. Consequently, it is recommended that the end user be consulted with respect to the suitability of

this corrosion resistant coating for any given corrosive environment. The effects of ambient temperature, concentration of chemicals, and gas/chemical velocity, should be considered, as a minimum, along with the corrosive nature of the chemical to which the sprinklers will be exposed.

Operation: The glass bulb contains a fluid which expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass bulb, which then allows the sprinkler to activate & flow water.

WARNING

The Model BV-EC Pendent, Rec. Pendent, Horizontal Sidewall and Rec. Horizontal Sidewall Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.



Technical Data

Sprinkler Identification Number

SIN C3232 - Pendent
SIN C3302 - Horizontal Sidewall

Approvals

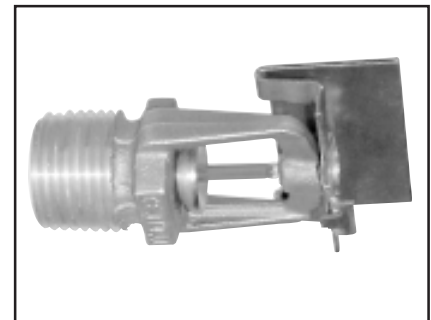
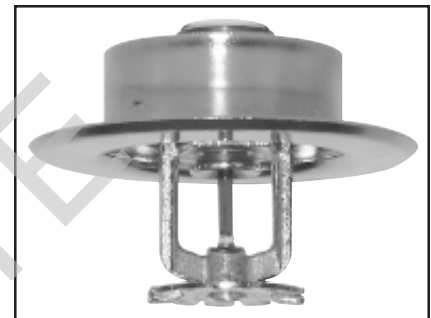
UL & C-UL Listed. FM & NYC Approved. (The approvals apply only to the service conditions indicated in the Design Criteria Section)

Maximum Working Pressure

175 psi (12,1 bar)

Pipe Thread Connection

1/2 inch NPT



Extended Coverage Light Hazard Pendent & Rec. Pendent Sprinklers

Discharge Coefficient

K = 5.6 GPM/psi^{1/2} (80,6 LPM/bar^{1/2})

Temperature Ratings

135°F/57°C, 155°F/68°C, 200°F/94°C

Finishes

Sprinkler: White Polyester, Chrome Plated, or Natural Brass

Rec. Escutcheon: White Coated, Chrome Plated, or Brass Plated

Corrosion Resistant Coatings

Sprinkler: White Polyester (UL only)

(Continued on page 2)

Figure 1 - Model BV-EC ECLH, Pendent & Recessed Pendent Sprinklers

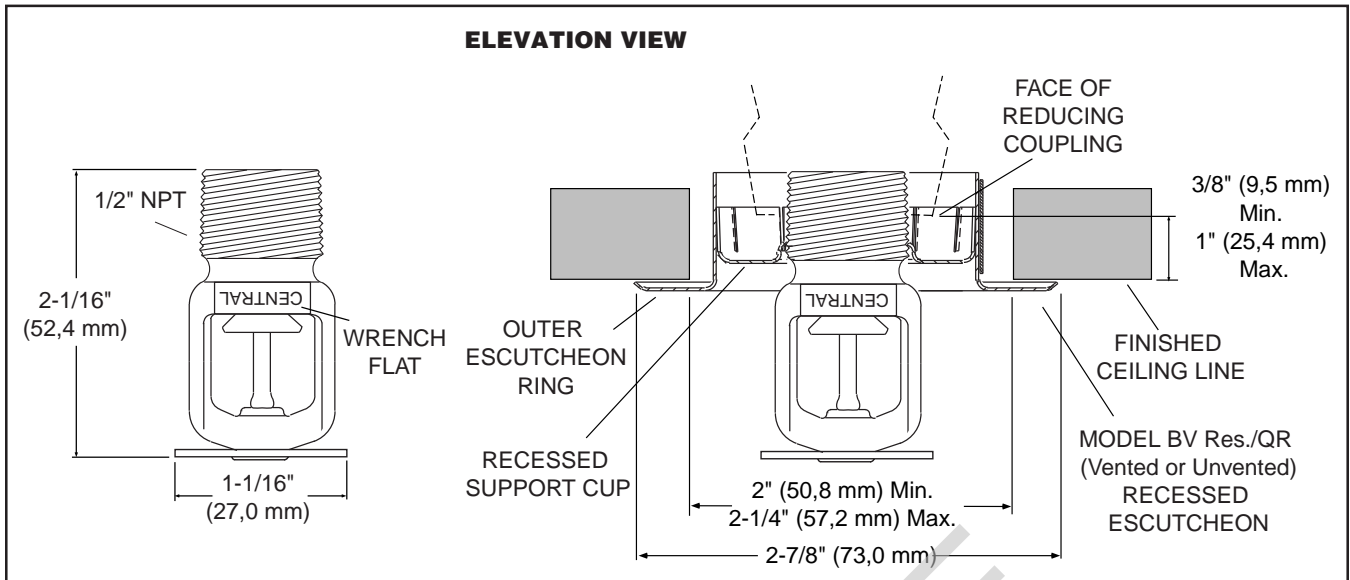


Figure 2 - Model BV-EC ECLH, Horizontal Sidewall & Recessed Horizontal Sidewall Sprinklers

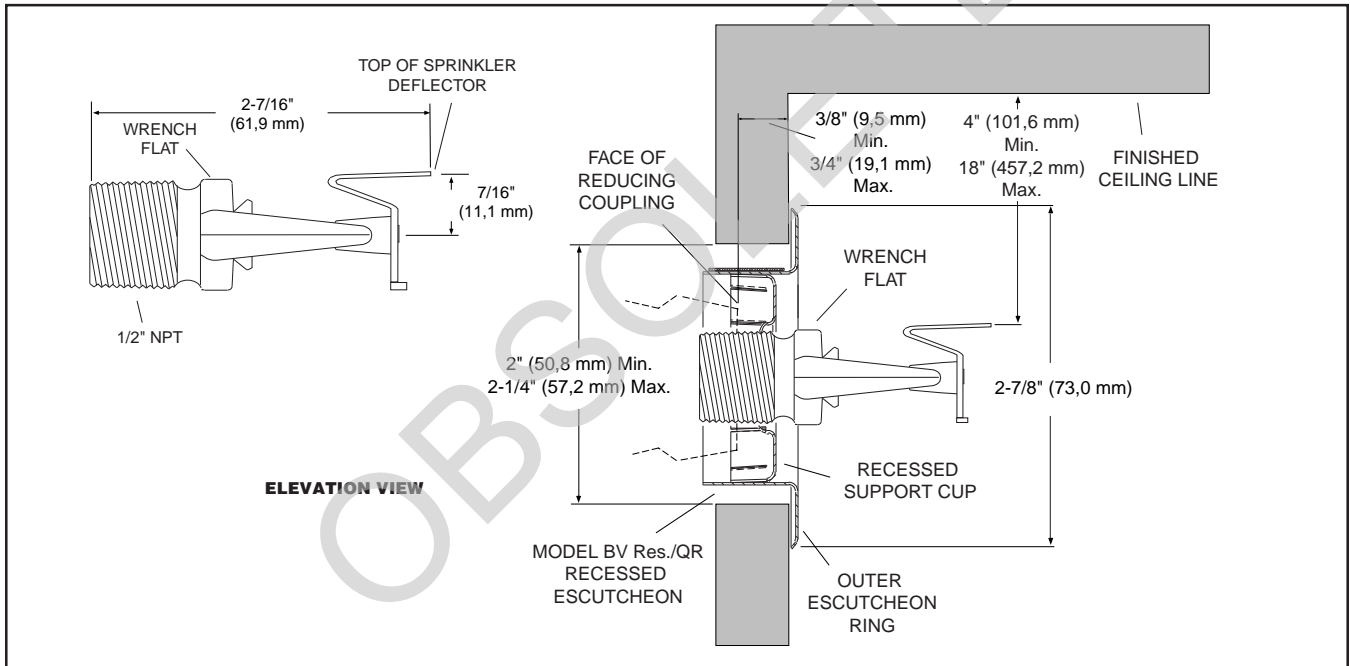
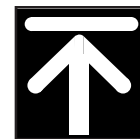


Table 1 - Laboratory Listings and Approvals, Model BV-EC

| Temperature Rating | Bulb Color Code | SPRINKLER FINISH & STYLE | | | |
|--------------------|-----------------|--------------------------|---------------|------------------|----------|
| | | Natural Brass | Chrome Plated | Polyester Coated | Recessed |
| 135°F/57°C | Orange | 1,2 | 1,2 | 1,2 | 1,2 |
| 155°F/68°C | Red | 1,2,3,4 | 1,2,3,4 | 1,2,3,4 | 1,2,3,4 |
| 200°F/79°C | Green | 1,2,4 | 1,2,4 | 1,2,4 | 1,2,4 |

1. Listed by Underwriters Laboratories, Inc.
2. Listed by Underwriters Laboratories for use in Canada (C-UL).
3. Approved by Factory Mutual Research Corporation.
4. Approved by the City of New York under MEA 466-92-E Vol. III



Technical Data (Cont.)

Physical Characteristics

The Model BV-EC Pendent, Recessed Pendent, Horizontal Sidewall & Recessed Horizontal Sidewall Sprinklers utilize a dezincification resistant (DZR) bronze frame and a 3 mm bulb. The two-piece button assembly is brass and copper. The sprinkler frame orifice is sealed with a gasketed spring plate (Belleville Seal) consisting of a beryllium nickel disc spring that is sealed on both its inside and outside edges with a Teflon™ gasket. The compression screw is bronze, & the deflector is brass.

Design Criteria

The Model BV-EC, Pendent, Recessed Pendent, Horizontal Sidewall & Recessed Horizontal Sidewall Sprinklers (Ref. Table 1) are UL and C-UL listed & NYC Approved for use in light hazard occupancies using the design criteria in Table 2 & 3 as well as any additional requirements specified in current NFPA 13 Standards for Extended Coverage Sprinklers. The Recessed Sprinklers are only listed with the Series BV Res/QR (vented or unvented) Recessed Escutcheon Assemblies. The minimum lateral spacing between the BV-EC Pendent and Recessed Pendent Sprinklers to prevent cold soldering, is 8 feet (2,4 m). The Horizontal Sidewall and Recessed Horizontal Sidewall Sprinklers must be installed in such a manner, that no other sprinkler is located within the maximum protection area of any other sprinkler.

The Model BV-EC, Pendent, Recessed Pendent, Horizontal Sidewall & Recessed Horizontal Sidewall Sprinklers (Ref. Table 1) are FM Approved for use in light hazard occupancies in accordance with the FM Loss Prevention Data Sheets. The Recessed Sprinklers are only FM Approved when the Series BV Res/QR (vented) Recessed Escutcheon Assemblies. The Horizontal Sidewall and Recessed Horizontal Sidewall Sprinklers are FM approved with a maximum ceiling to top of deflector distance of 4" - 12" (101,6 mm - 304,8 mm) and up to a maximum spacing (W x L) of 16' x 20' (4,6 m x 6,1 m).

NOTE

Inquiries concerning the appropriateness of polyester coated sprinklers for a given corrosive environment should be submitted to the attention of the Technical Services Department. Polyester coated sprinklers are not suitable for use in open sprinkler applications.

Installation

The Model BV-EC Sprinklers must be installed in accordance with the following instructions:

NOTES

Do not install any bulb type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 135°F/57°C to 3/32 inch (2,4 mm) for the 200°F/93°C rating.

(Continued on page 4)

Figure 3 - BV Sprinkler Wrench (Part #1099)

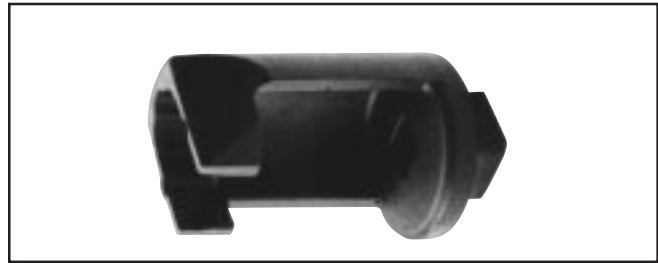


Figure 4 - Cross Section Model BV-EC, Horizontal Sidewall Sprinkler

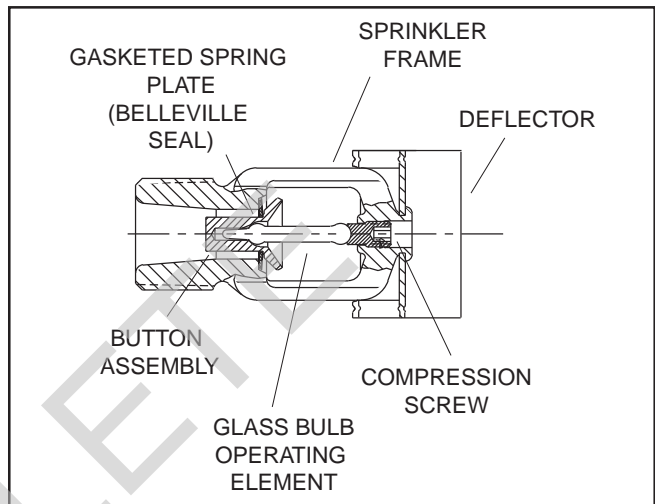


Table 2 - UL & C-UL Flow/Pressure Requirements Model BV-EC, 135°F & 155°F Pendent & Rec. Pendent

| Spacing | Flow/Pressure | Pendent Sensitivity | | Recessed Pendent Sensitivity | |
|--------------------------|--------------------------------------------|---------------------|--------------|------------------------------|--------------|
| | | 135°F (57°C) | 155°F (68°C) | 135°F (57°C) | 155°F (68°C) |
| 16' X 16' (4,9 x 4,9) | 25.6 gpm/20.9 psi (97,0 Lpm / 1,4 bar) | QR | QR | QR | QR |
| 18'x18' (5,5 x 5,5) | 32.4 gpm/33.5 psi (122,8 Lpm / 2,3 bar) | QR | QR | QR** | QR** |
| 20'x20' (6,1 x 6,1) | 40.0 gpm/51.0 psi (151,6 Lpm / 3,5 bar) | QR | --- | QR** | --- |

** Use BV Res/QR (vented) Escutcheon (#3072 brass & #3071 chrome)

Table 3 - UL & C-UL Flow/Pressure Requirements Modle BV-EC 135°F, 155°F & 200°F Horizontal Sidewall & Recessed Horizontal Sidewall

| Spacing W x L | Flow/Pressure | Sidewall Sensitivity | | | Recessed Sidewall Sensitivity | | | Deflector Distance |
|----------------------------|--------------------------------------------|----------------------|--------------|--------------|-------------------------------|--------------|--------------|---------------------------|
| | | 135°F (57°C) | 155°F (68°C) | 200°F (93°C) | 135°F (57°C) | 155°F (68°C) | 200°F (93°C) | |
| 16' X 16' (4,9m X 4,9m) | 25.6 gpm / 20.9 psi (97 Lpm / 1,4 bar) | QR | QR | --- | QR | QR | --- | 4"-18"(101,6mm - 457,2mm) |
| | | --- | --- | QR | --- | --- | QR | |
| 16' X 18' (4,9m X 5,5m) | 28.8 gpm / 26.4 psi (109 Lpm / 1,8 bar) | QR | QR | --- | QR | QR | --- | 4"-18"(101,6mm - 457,2mm) |
| 16' X 20' (4,9m X 6,1m) | 32 gpm / 32.6 psi (121 Lpm / 2,2 bar) | QR | --- | --- | QR | --- | --- | 4"-18"(101,6mm - 457,2mm) |
| 16' X 22' (4,9m X 6,7m) | 35.2 gpm / 39.5 psi (133 Lpm / 2,7 bar) | QR | --- | --- | --- | --- | --- | 4"-18"(101,6mm - 457,2mm) |
| 16' X 24' (4,9m X 6,1m) | 38.4 gpm / 47 psi (145 Lpm / 3,2 bar) | QR | --- | --- | --- | --- | --- | 4"-18"(101,6mm - 457,2mm) |



Installation (Cont.)

A leak tight 1/2 inch NPT sprinkler joint should be obtained with a torque of 7 to 14 ft.lbs. (9,5 to 19,0 Nm). A maximum of 21 ft.lbs. (28,5 Nm) of torque is to be used to install 1/2 inch NPT sprinklers. Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

Do not attempt to compensate for insufficient adjustment in an Escutcheon Plate by under- or over-tightening the Sprinkler. Readjust the position of the sprinkler fitting to suit.

Step 1. Pendent sprinklers must be installed only in the pendent position. The deflector is to be parallel to the ceiling, roof, or mounting surface, as applicable. Horizontal sidewall sprinklers must be installed only in the sidewall position with the centerline of the sprinkler parallel to the ceiling and perpendicular to the wall. The top of the deflector is to be positioned toward the ceiling.

Step 2. After installing the BV Res/QR support cup (or other escutcheon, as applicable) over the sprinkler pipe threads & with pipe thread sealant applied to the pipe threads, hand tighten the sprinkler into the sprinkler fitting.

Step 3. Tighten the sprinkler into the sprinkler fitting using only the BV Sprinkler Wrench (Ref. Figure 3). The BV Sprinkler Wrench is to be applied to the wrench flats only.

Step 4. For applications using the BV-EC Rec. Pendent or Recessed Horizontal Sidewall Sprinklers, a Protective Cap is available which helps to prevent damage to the sprinkler during ceiling/wall installation or during application of the finish coating of the ceiling/wall. Place the Protective Cap over the Recessed Support Cup and push it until it bottoms out against the sprinkler deflector.

NOTE

As long as the Protective Cap remains in place, the system is considered "Out of Service."

Step 5. After the ceiling/wall has been completed, remove and discard the Protective Cap. If the sprinkler has been damaged, replace the entire sprinkler assembly. Do not attempt to modify or repair a damaged sprinkler.

Step 6. Push the outer ring of the Recessed Escutcheon over the Recessed Support Cup. Do not continue to push on the Recessed Escutcheon such that it lifts a ceiling panel out of its normal position. If the Outer Recessed Escutcheon Ring cannot be engaged with the Recessed Support Cup or the Outer Recessed Escutcheon Ring cannot be engaged sufficiently to contact the ceiling/wall, the sprinkler fitting must be repositioned.



Care & Maintenance

The Model BV-EC Sprinklers must be maintained & serviced in accordance with the following instructions.

NOTES

Absence of an escutcheon which is used to cover a clearance hole, may delay the time to operation in a fire situation.

Before closing a fire protection system main control valve for maintenance work on the fire protection system it controls, permission to shut down the affected fire protection systems must be obtained from the proper authorities. All personnel who may be affected by this action must be notified.

Sprinklers which are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be shipped or stored where their temperatures will exceed 100°F/38°C & they must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage - before, during & after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb (Ref. Installation Section).

Frequent visual inspections are recommended to be initially performed for polyester coated sprinklers installed in corrosive environments, after the installation has been completed, to verify the integrity of the polyester coating. Thereafter, annual inspections per NFPA 25 should suffice; however, instead of inspecting from the floor level, a random sampling of close-up visual inspections should be made, so as to better determine the exact sprinkler condition and the long term integrity of the polyester coating, as it may be affected by the corrosive conditions present.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested & maintained by a qualified Inspection Service.



Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Ordering Information

Ordering Information: When placing an order, indicate the full product name. Please specify the quantity, model, style, orifice size, temperature rating, type of finish or coating, and sprinkler wrench. Refer to price list for complete listing of Part Numbers.

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