VENTILATED FIRE BARRIERS

FOR EXTERNAL WALL SYSTEMS
TENMAT is a leading manufacturer of unique, high performance intumescent materials and solutions with over 30 years of passive fire protection experience. TENMAT manufacture innovative life safety products and we are committed to meeting our customers’ needs and exceeding the latest quality standards worldwide. TENMAT are proud to be members of the Association for Specialist Fire Protection.

A Leading Manufacturer for the Construction Industry

TENMAT’s advanced passive fire protection materials are widely recognised as the industry standard for demanding applications within the construction industry.

Commitment to Quality

TENMAT operates an ISO 9001:2008 Quality Management System for the design, development and manufacture of specialised high performance engineering materials and components.
TENMAT’s range of Ventilated Fire Barriers maintain a ventilated cavity in external wall systems. In the event of fire, the intumescent Ventilated Fire Barriers quickly expand to seal off the cavity to prevent hidden fire spread, both vertically and horizontally behind the external facade.

**VFB Plus**
Bespoke Ventilated Fire Barrier for 50-500mm cavities
Up to 120 minutes fire rating

More Information on Page 3-4

**NVFB Non-Ventilated Fire Barrier**
Full fill vertical fire barrier for use in addition to VFB Plus
Up to 120 minutes fire rating

More Information on Page 5-6

**FF102/50**
Fully Intumescent Ventilated Fire Barrier for up to 50mm cavities
Up to 120 minutes fire rating

More Information on Page 7-8

**Cavity Fire Barrier on a Roll**
Ventilated Fire Barrier for up to 50mm cavities with timber frame or blockwork inner substrates
Up to 30 minutes fire rating

More Information on Page 9-10

**Other Products**
FF102/25—Ventilated Fire Barrier for up to 25mm cavities
FF109/125—Ventilated Fire Barrier for up to 125mm cavities

More Information on Page 11

**Linear Gap Seals**
Fully intumescent linear firestop seals
Up to 240 minutes fire rating

More Information on Page 12

**Examples of Projects & Test Data**
All of our VFBs are third party fire tested
Widely accepted by Building Control and NHBC

More Information on Page 13-14

Image courtesy of Hotel Football
TENMAT’s VFB Plus Ventilated Fire Barrier is an ‘Open State’ cavity fire barrier system for ventilated cavities of up to 450mm which employs a high expansion intumescent seal fixed to TENMAT High Density Mineral Wool. The product has undergone extensive fire testing to BS 476: Parts 20 and 22: 1987, EN1363-1: 1999, and ASFP TGD19 (Fire Resistance Test for ‘Open-State’ Cavity Barriers). It is suitable for use within the majority of construction types, enabling the versatile system to be specified with confidence and provide the installer with a simple, time saving and site friendly solution.

The VFB Plus can be mechanically fixed both horizontally and vertically within ventilated cavities behind external wall systems to act as a cavity fire barrier.

**Product Dimensions**

Thickness (Total Cavity less 44mm Air Gap) x 75mm x 1000mm

**Examples of Approved Applications**

<table>
<thead>
<tr>
<th>VFB Ref.</th>
<th>Assessed Construction Type</th>
<th>Fire Rating Horizontal</th>
<th>Fire Rating Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>VFB Plus</td>
<td>Brick, Block, Masonry</td>
<td>30, 60, 90</td>
<td>30, 60, 90</td>
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<tr>
<td>VFB Plus</td>
<td>Aerated Concrete Block</td>
<td>30, 60, 90</td>
<td>30, 60, 90</td>
</tr>
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</table>

**VFB Plus Fixed to Non-Combustible Constructions**

With or Without Mineral Wool Insulation Approved

Max 44mm

<table>
<thead>
<tr>
<th>VFB Ref.</th>
<th>Assessed Construction Type</th>
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<th>Fire Rating Vertical</th>
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</thead>
<tbody>
<tr>
<td>VFB Plus</td>
<td>Min. Fibre on Concrete</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>VFB Plus</td>
<td>Min. Fibre on Timber Frame</td>
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<td>60</td>
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</table>

Cavity size restrictions apply. Check with TENMAT prior to specifying.

**VFB Plus Fixed between Kingspan K15 Rigid Insulation**

Max 44mm

<table>
<thead>
<tr>
<th>VFB Ref.</th>
<th>Assessed Construction Type</th>
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<tr>
<td>VFB Plus</td>
<td>Fitted within Kingspan K15</td>
<td>30, 60, 90, 120</td>
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**VFB Plus Fixed into Mineral Fibre Insulation**

Max 44mm

<table>
<thead>
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<th>VFB Ref.</th>
<th>Assessed Construction Type</th>
<th>Fire Rating Horizontal</th>
<th>Fire Rating Vertical</th>
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<tbody>
<tr>
<td>VFB Plus</td>
<td>Timber Frame</td>
<td>30</td>
<td>60</td>
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<table>
<thead>
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<th>Fire Rating Horizontal</th>
<th>Fire Rating Vertical</th>
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<tbody>
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<td>Min. Fibre on Concrete</td>
<td>90</td>
<td>90</td>
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<tr>
<td>VFB Plus</td>
<td>Min. Fibre on Timber Frame</td>
<td>30</td>
<td>60</td>
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</tbody>
</table>
**General Fitting Instructions**

For detailed fitting instructions for various applications please contact **TENMAT**.

**TENMAT**’s VFB Plus is a particularly versatile and extensively fire tested Ventilated Fire Barrier which can be installed in a wide range of construction types. The product is simply mechanically fixed in position to leave up to a maximum 44mm* air gap.

### General Fitting Instructions

- In cavities <120mm, directly screw fix VFB Plus. **
- In cavities >120mm, fix VFB Plus with steel fixing brackets using suitable non-combustible fixings.
- Product must be fixed at max. 500mm centres.
- The brackets should impale the VFB Plus at mid barrier depth.
- Cut the bracket down to size if required.
- Cut the barrier down to length if required.
- Each section of VFB Plus greater than 250mm, must be mechanically fixed with 2no. Brackets; if VFB Plus section is 250mm or less than, only 1no. Bracket is required.
- The bracket should not protrude through the rigid intumescent element, but should penetrate the barrier to approx. three quarters of the width of the product.
- Ensure label side is facing out so that the intumescent element faces into cavity in case of fire.
- Adjacent lengths must be tightly butted together.
- Ensure the product is pushed back to be fully in contact with supporting wall.
- Maximum remaining air gap to the back of the external face is 44mm*.
- Ensure Fire Barrier is free to expand in a fire situation.

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**Total Cavity Size** | **Brackets Supplied (per metre length)**
---|---
Up to 120mm | None (screw fixed)
120-259mm | 2No. Multipurpose Brackets
260-300mm | 3No. Multipurpose Brackets
300-450mm | 2No. HP Brackets

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*Max 44mm air gap (54mm air gap possible in limited applications only, please check with **TENMAT**).

**Fix with non-combustible stainless steel screws. Maximum screw head diameter is 11.5mm (trumpet/ countersunk type head only). Product must be fixed at maximum 250mm centres.*
NVFB Non-Ventilated Fire Barrier

Key Features:
- Simple installation
- Up to 120 minutes fire rating
- Maintenance free
- Unaffected by humidity and moisture
- Good acoustic insulation
- Cold smoke seal
- Thermal Performance

Tested in accordance with BS 476:Part 20, TENMAT NVFB Non-Ventilated Fire Barriers provide up to 2 hours fire protection for vertical rainscreen/cladding cavities. The NVFB Non-Ventilated Fire Barrier is used for preventing fire penetration to adjoining compartments within external cavities in a vertical situation for specified periods of up to 2 hours. They are manufactured to suit cavity widths and are held in place by a combination of compression and multi purpose brackets.

Availability
Thickness (Total Cavity plus 10mm for Compression Fit) x 100mm x 1000mm. (80mm deep in cavities ≤100mm)
Can be supplied as Plain Fibre or Shrink-wrapped.

2No. Multipurpose Brackets are supplied per metre. The Barriers must be fitted using these brackets as per installation instruction (For cavities ≤100mm, NVFB is friction fit into position and is not supplied with brackets).

Examples of Approved Applications

NVFB Fixed to Non-Combustible Constructions

NVFB Fixed between Mineral Fibre Insulation

NVFB Fixed between Kingspan K15 Rigid Insulation

NVFB Fixed to Combustible Timber Constructions

Please contact TENMAT for timber constructions before specifying the product.
General Fitting Instructions

1. Bend the multi-purpose brackets into an ‘L’ shape and fix min. 2 per length of NVFB to the inner substrate using self tapping non-corrosive steel masonry anchors (minimum 55mm long) embedding a minimum of 50mm into the substrate.

2. Brackets to be fitted 250mm in from ends of the barrier. For sections of NVFB over 300mm in length, 2 brackets are still required.

3. Push the NVFB onto the leg of the bracket so it is spiked into the centre of each length, and compress into the cavity, ensuring that the seal is fitted under a minimum of 5mm/10mm* compression.

4. Where the gap deviates significantly from the product supplied, trim the thickness of the NVFB with a knife or fine tooth saw to allow a minimum of 5mm/10mm* compression.

5. Ensure that adjacent pieces of NVFB have all of their joints tightly abutted together, and are aligned flush with each other.

6. Point in any small gaps (up to 5mm) with Intumescent Sealant if required.

* Brickwork/blockwork: Min. 5mm compression.
* Cladding/curtain walling: Min. 10mm compression.

Fibre Migration

Fibre migration will be prevented by the use of shrink-wrapping, or foil encapsulation.

Smoke Seal

**TENMAT** NVFB Non-Ventilated Fire Barriers will inhibit smoke spread within the cavity.

Thermal Performance

The mineral wool from which **TENMAT** NVFB Non-Ventilated Fire Barrier is made has a thermal conductivity of 0.035 W/Mk.

**Fire Rating**

<table>
<thead>
<tr>
<th>CAVITY SIZE</th>
<th>INTEGRITY</th>
<th>INSULATION</th>
<th>DEPTH</th>
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<tbody>
<tr>
<td>10-100 mm</td>
<td>120 mins</td>
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<td>80 mm</td>
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<td>101-450 mm</td>
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</tr>
<tr>
<td>451-600mm</td>
<td>120 mins</td>
<td>30 mins</td>
<td>100 mm</td>
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</tbody>
</table>

**TENMAT** NVFB Non-Ventilated Fire Barriers will inhibit smoke spread within the cavity.

**Fibre Migration**

Fibre migration will be prevented by the use of shrink-wrapping, or foil encapsulation.

**Smoke Seal**

**TENMAT** NVFB Non-Ventilated Fire Barriers will inhibit smoke spread within the cavity.

**Thermal Performance**

The mineral wool from which **TENMAT** NVFB Non-Ventilated Fire Barrier is made has a thermal conductivity of 0.035 W/Mk.

**General Fitting Instructions**

1. Bend the multi-purpose brackets into an ‘L’ shape and fix min. 2 per length of NVFB to the inner substrate using self tapping non-corrosive steel masonry anchors (minimum 55mm long) embedding a minimum of 50mm into the substrate.

2. Brackets to be fitted 250mm in from ends of the barrier. For sections of NVFB over 300mm in length, 2 brackets are still required.

3. Push the NVFB onto the leg of the bracket so it is spiked into the centre of each length, and compress into the cavity, ensuring that the seal is fitted under a minimum of 5mm/10mm* compression.

4. Where the gap deviates significantly from the product supplied, trim the thickness of the NVFB with a knife or fine tooth saw to allow a minimum of 5mm/10mm* compression.

5. Ensure that adjacent pieces of NVFB have all of their joints tightly abutted together, and are aligned flush with each other.

6. Point in any small gaps (up to 5mm) with Intumescent Sealant if required.

* Brickwork/blockwork: Min. 5mm compression.
* Cladding/curtain walling: Min. 10mm compression.
**Key Features:**
- For use in up to 50mm cavities
- Weather Proof
- Age Tested
- Up to 120 minutes Fire Rated
- Simple to install

**TENMAT's FF102/50 Ventilated Fire Barrier** is a high expansion intumescent seal offering industry leading performance as a ventilated cavity fire barrier. The product has undergone extensive fire testing and is suitable for use within the majority of construction types, enabling the versatile system to be specified with confidence and provide the installer with a simple, time saving and site friendly solution.

The FF102/50 Ventilated Fire Barrier is a rigid, high expansion intumescent strip encased in aluminium foil. The FF102/50 can be mechanically fixed both horizontally and vertically within ventilated cavities behind rainscreen or cladding systems to act as a cavity fire barrier.

**Product Dimensions**
6 mm x 75 mm x 1000 mm

**Approved Applications**

<table>
<thead>
<tr>
<th>VFB Ref.</th>
<th>Assessed Construction Type</th>
<th>Fire Rating Horizontal</th>
<th>Fire Rating Vertical</th>
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<tr>
<td>FF102/50</td>
<td>Aerated Concrete Block</td>
<td>120</td>
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<table>
<thead>
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<th>Assessed Construction Type</th>
<th>Fire Rating Horizontal</th>
<th>Fire Rating Vertical</th>
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<tbody>
<tr>
<td>FF102/50</td>
<td>Min. Fibre on Concrete</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>FF102/50</td>
<td>Min. Fibre on Timber Frame</td>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>

For details on approved Mineral Fibre Insulation types, please consult **TENMAT**.

Cavity size restrictions apply. Check with **TENMAT** prior to specifying.

Cavities greater than 50mm can be reduced to 50mm by the installation of a suitable OSB, Timber or Non-Combustible packer (consult **TENMAT** for details).
TENMAT’s FF102/50 Ventilated Fire Barrier is a particularly versatile and extensively fire tested Ventilated Fire Barrier which can be installed in a wide range of construction types. The product is simply mechanically fixed in position to leave up to a maximum 44mm air gap. Check with TENMAT if a greater air gap is required.

**Fitting Instructions**

- Fix FF102/50 with non-combustible stainless steel nails or screws.
- Maximum screw head diameter is 11.5mm (trumpet/countersunk type head only).
- FF102/50 can be cut to length if required.
- Product must be fixed at maximum 250mm centres.
- Fixings must be along centre line of the Fire Barrier.
- Ensure label side is facing out into cavity.
- Adjacent lengths must be tightly butted.
- Maximum remaining air gap to the back of the cladding panel is 44mm.
- Ensure Fire Barrier is free to expand in a fire situation.

When fixing FF102/50 through existing cavity insulation, ensure fixing embeds into solid substrate.

**Recommended Fixing Type:**

- EJOT FPS-E 8.0 for aerated block
- EJOT FBS-E 6.3 for concrete

Other fixing types can be used. Contact your fixings supplier or alternatively contact TENMAT.
TENMAT’s Cavity Fire Barrier on a Roll is a low profile intumescent which provides material and labour cost savings compared to the traditional method of using Cavity Trays, Cavity Socks & Weep Holes.

TENMAT’s Cavity Fire Barrier on a Roll is designed for Timber and Masonry cavities. The product maintains the ventilated cavity to prevent thermal and moisture bridging and resultant damp problems, but in the event of a fire it expands to fill the cavity and prevent the spread of fire and smoke.

**Product Dimensions**

4 mm x 75 mm x 6.3 m roll

**Key Features:**

- No unsightly weep holes needed
- Improves aesthetics of building
- 30 minutes fire rating
- For cavities up to 50mm
- Compact 6.3m roll
- Simply stapled into position

**Traditional Method**

1. Cavity Trays
   - Cavity is bridged = thermal & moisture bridging
   - Can cause damp problems

2. Cavity Socks
   - Creates unwanted sealed compartments
   - Can often push brickwork away
   - Susceptible to misalignment

3. Weep Holes
   - Unsightly
   - Discolouration of wall below
   - Only allows limited air movement
   - Risk of blockage
   - Wind driven water issues

**TENMAT Method**

1. **TENMAT Cavity Barrier on a Roll**
   - No Weep Holes needed = clean wall finish & no wind driven water issues
   - No Cavity Trays needed
   - Material & labour cost savings
   - Product is 4mm thick and therefore maintains air gap
   - Expands to fill cavity in event of fire
   - Takes up imperfections and misalignments
   - Restricts fire & smoke spread
**Fitting Instructions**

Particularly suited for Timber Frame Construction, TENMAT’s Cavity Fire Barrier on a Roll is supplied in 6.3 metre lengths improving installation time and reducing storage requirements over traditional cavity socks.

- **Staple Cavity Fire Barrier on a Roll** along centre line using 14mm long corrosion resistant staples at 250mm centres.
- All joints should be tightly butted together so that the intumescent material is continuous throughout the cavity.

- **The TENMAT Cavity Fire Barrier** should be installed in such a way to ensure the cavity is left open to allow it to expand freely in a fire situation.

- In a fire situation, the Cavity Fire Barrier on a Roll will expand across the cavity to restrict the spread of fire & smoke in the cavity.

If the TENMAT Cavity Fire Barrier on a Roll is cut, then the polythene sleeve should be folded around the exposed end to maintain weather protection. This should then be stapled to the sheathing board.
**TENMAT’s FF102/25 Ventilated Fire Barrier**

- For use in up to 25mm cavities
- Weather Proof/Age Tested
- 120 min Fire Rated in non-combustible constructions
- 30 min Fire Rated in Timber Frame

**Product Dimensions**

4 mm x 35 mm x 1000 mm

TENMAT’s FF102/25 Ventilated Fire Barrier is a high expansion intumescent seal offering the same industry leading performance as a ventilated cavity fire barrier as FF102/50 (see pages 7-8) but for up to 25mm cavities.

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**FF109/125**

- For use in up to 125mm cavities
- Weather Proof
- Age Tested
- Up to 30 minutes Fire Rated
- Simple to install

**Product Dimensions**

50 mm x 50 mm x 1000 mm

TENMAT’s FF109/125 Ventilated Fire Barrier is a cavity fire barrier system for ventilated cavities of up to 125mm which is a fully intumescent component. The product is fire rated for up to 30 minutes and is suitable for use within timber and masonry construction types, enabling the versatile system to be specified with confidence.

For approved applications/fire ratings, and fitting instructions for the above products, please contact TENMAT.
TENMAT’s FF108 Linear Gap Seals are fully intumescent linear firestop seals tested to the latest EN Standards. The durable seals are installed under compression and can accept up to 50% movement. They are equally suited to both vertical and horizontal joints. The seals offer up to 4 hour (EI240) fire rating for joints in fire rated walls and floors.

**Key Features:**
- Up to EI240 Fire Rating
- Compressible up to 50%
- Available to suit all common gap sizes
- Accepts joint movement
- No additional sealants required

**Availability and Fire Rating**

1 Seal Required

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<td>E240/EI30</td>
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<td>E240/EI45</td>
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2 Seals Required

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<td>22</td>
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<td>35</td>
<td>E240/EI180</td>
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<tr>
<td>60x40mm</td>
<td>35</td>
<td>50</td>
<td>E240/EI180</td>
<td>E240/EI120</td>
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<tr>
<td>85x40mm</td>
<td>50</td>
<td>70</td>
<td>E240/EI180</td>
<td>E240/EI120</td>
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<td>120x50mm</td>
<td>70</td>
<td>100</td>
<td>E240/EI180</td>
<td>E240/EI180</td>
</tr>
</tbody>
</table>

Where 2no. Seals are required, they should be spaced 50mm apart.
Examples of Projects

Student Accommodation
- Student Castle, Manchester
- Downing Plaza, Newcastle
- Holyrood, Edinburgh
- Eastern Boulevard, Leicester
- College Lane, Hatfield
- Wallscourt Park, UWE

Hotels/Commercial
- Hotel Football, Old Trafford
- BBC Media City, Salford
- Premier Inn, Multiple Locations

Residential
- Berkshire House, Maidenhead
- Commonwealth Games, Glasgow
- One Tower Bridge, London
- Anglican Retirement Village, Castle Hill, Sydney

Medical and Healthcare
- RLUH — Royal Liverpool University Hospital
- Oncology Hospital, Palermo, Italy

Image courtesy of Hotel Football

Hotel Football, Old Trafford
**Test Data**

**TENMAT**’s range of Ventilated Fire Barriers are all independently fire tested to the relevant British/European standards, on a comprehensive range of construction types, fitted both horizontally and vertically. The products are up to 2 hour fire tested to standards including: BS476: Parts 20 and 22, EN1363-1: 1999, EOTA TR31 and assessed to TGD19 ’open state cavity barriers’ to ASFP standards for ventilated facades.

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<thead>
<tr>
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<th>Construction</th>
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<td>243-505</td>
<td>Timber Frame</td>
<td>30</td>
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<td>A06037</td>
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<tr>
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</tbody>
</table>
TENMAT is committed to the highest standards in customer service and our international staff is looking forward to assist you.

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