

Thresholds & Weatherstripping



General Information

PRODUCT PRESENTATION

Dimensions on bronze extrusions may differ slightly than those detailed. Questions regarding any dimensions should be directed to Hager Companies.

Drawings or illustrations used in the catalog are subject to change without notice. Questions on any dimensions should be obtained by contacting Hager Companies Customer Service.

ORDERING INFORMATION

When ordering, please specify by product number, length, quantity, finish and fasteners required. Thresholds and weatherstripping are fabricated in standard sizes with 1/2" (12.7 mm) extra on thresholds 50" (1270 mm) and under. Thresholds over 50" (1270 mm) are supplied with 1" (25 mm) extra length for fitting. Exact lengths are available upon request.

All lengths over 12 feet (3.66 m) must be purchased and are billed at 15 feet (4.57 m). All thresholds must be purchased and are billed at 4" (101.6 mm) increments except abrasive cast aluminum thresholds & auto door bottoms. Weatherstripping must be purchased and is billed at 4" (101.6 mm) increments, 42" (1066 mm) and 86" (2184 mm) sizes excluded.

Example: 891S V 36 x 84 MIL

Item #	Gasketing	Size	Finish
515S	W-pile	36" (914 mm)	MIL - mill finish aluminum
599S	V-vinyl	48" (1219 mm)	DBA - dark bronze anodized aluminum
750S	S-silicone	36" (914 mm)	32D - matte stainless steel
870S	N-neoprene	36" x 384" (914 mm x 2133 mm)	MIB - mill finish bronze
882S	B-nylon Brush	48" x 96" (1219 mm x 2438 mm)	CLR - clear anodized aluminum

FABRICATION OPTIONS

- Bevel One Edge Threshold
- Rip One Edge Width of Threshold
- L-Notch Both Ends of Threshold
- U-Notch Both Ends of Threshold
- Miter Single One End of Threshold
- Miter Single Both Ends of Threshold
- Miter Double One End of Threshold
- Miter Double Both Ends of Threshold
- Tack Weld One Line of Threshold
- Pan for Water Return Threshold
- Sure Step Anti-Skid Abrasive Finish – A rugged, durable coating that can be applied to all Hager Companies' metal thresholds. Ideal for thresholds being used in wet, oily or corrosive environments.

MATERIALS & FINISHES

Metals

All aluminum extrusions are of alloy 6063-T5. All bronze extrusions are of alloy CDA385 brass specified as Architectural Bronze in the industry.

For stock finishes, refer to the code listed below each individual item throughout the catalog. Please inquire for the availability on nonstock finishes.

- MIL** - mill finish aluminum
- LBA** - light bronze anodized aluminum
- US3** - polished bronze
- MIB** - mill finish bronze
- CAL** - cast aluminum
- GYP** - primed steel grey
- DBA** - dark bronze anodized aluminum
- BLA** - black anodized aluminum
- SCA** - Hager Sure Step on aluminum
- SS** - stainless steel (non-extruded)
- SCB** - Hager Sure Step on bronze
- WHP** - white paint on aluminum
- GLD** - gold anodized aluminum
- CLR** - clear anodized aluminum

Note: Threshold profiles shown refer to aluminum material only, dimensions may vary for mill finish bronze thresholds.

Gaskets

Gasketing is available in a wide variety of materials. Vinyl is an economical choice and remains flexible down to -40°F (-40°C). EPDM gasketing is supplied both as a solid (dense) and as a closed cell sponge with a tough outer skin. It remains flexible down to -50°F (-49°C). Silicone gasketing provides the best resistance to cold by remaining flexible down to -70°F (-57°C). Gasketing codes are listed below.

- B** - nylon brush
- N** - neoprene, solid EPDM, closed cell sponge EPDM, TPE
- S** - silicone
- V** - vinyl
- W** - pile (Thread may be removed to allow expansion)
- F** - vinyl with fins



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FASTENERS

Standard

All products are furnished with appropriate fasteners as listed, except where noted. Most thresholds are furnished with mounting holes and #10 x 1-1/2" flat head wood screws. Most weatherstripping products are furnished with slotted holes and #6 x 5/8" pan head sheet metal screws. Brass screws are furnished with bronze products.

Optional

THRESHOLDS:

- #10 Wood Screws and Plastic Anchors
- #10 Wood Screws and Lead Anchors
- #10 Machine Screws and Lead Anchors
- 1/4-20 Machine Screws and Lead Anchors
- #10 S.S. Wood Screws
- #10 S.S. Wood Screws and Plastic Anchors
- #10 S.S. Wood Screws and Lead Anchors
- 1/4-20 S.S. Machine Screws and Lead Anchors
- 1/4-20 x 2" Flat Head Sleeve Anchor
- #10 x 1-1/4" Flat Torx Wood Screws
- #10 x 1-1/4" S.S. Flat Torx Wood Screws
- #10-24 x 1-1/2" Flat Torx Machine Screws
- #10-24 x 1-1/2" S.S. Flat Torx Machine Screws
- #10-24 x 1-1/2" S.S. Spanner Head Machine Screws
- #10-24 x 1-1/2" S.S. Spanner Head Wood Screws
- #10 x 1-3/4" Spanner Head Wood Screws
- Cast-On Anchors (Cast Products Only)
- Tap-Con Type (1/4" x 1-3/4")

WEATHERSTRIP:

- #6 x 5/8" Pan-head Stainless Steel Screws
- #6 x 5/8" Self-tapping (TEK) Screws
- #6 x 5/8" Pan-head Security Torx Sheet Metal Screws
- Sex Bolts
- Two-way Self-adhesive Tape

GENERAL INSTALLATION INSTRUCTIONS PRESS-ON PRODUCTS:

- Installation should take place after construction has been completed, and final cleaning has taken place
- The frame should be cleaned; isopropyl alcohol is recommended
- Not recommended for unsealed or porous applications
- Do not store these products in extreme heat/cold or for prolonged periods of time

CERTIFICATIONS

Handicap Accessibility

Products denoted by this symbol are designed for applications where handicap accessibility is specified. These products are no greater than 1/2" (12.7 mm) in height and have no more than 1/4" (6.3 mm) vertical rise or with slope proportions no greater than 1:2 slope. Offset floor conditions greater than 1/2" (12.7 mm) require a 1:12 slope.



Air Infiltration

Products denoted by this symbol have been tested with air/smoke infiltration, all within the 0.500 cfm/ft. maximum allowable leakage at a pressure of a 25 mph wind (1.56 psf). The tests were conducted in accordance with ASTM test procedures and meet ASTM: E283-91.



Sound Tested

Products denoted by this symbol have been sound tested and received the appropriate STC rating. The tests were conducted in accordance with ASTM test procedures and meet ASTM: E90-90 & ASTM: E413-87.



Products denoted by this symbol are classified and labeled by Underwriter's Laboratories, Inc.® as gasket material for use on listed steel frames and/or classified swinging type fire doors of the hollow metal or steel covered composite type rated up to 3 hours, or wood core fire doors rated up to 1 1/2 hours. Test results show these products do not adversely affect the fire resistance of the door or frame according to its UL rating. All products are regularly checked under a labeling and listing service. The clearance between the door and the frame and between the meeting edges of doors swinging in pairs shall be 1/8" ± 1/16" (3.18 mm ± 1.59 mm) for steel doors and shall not exceed 1/8" (3.2 mm) for wood doors.



Note: Ratings on some items may vary and are noted on the individual products. Classifications may be viewed at www.ul.com/database.

POSITIVE PRESSURE UBC 7-2 (1997) PART I & II CATEGORY AND SYMBOL EXPLANATION



UBC 7-2 (1997) tells you the product has been positive pressure tested to the new standard. Part I of this symbol designates the fire test. Since this symbol is used to designate the positive pressure fire test and does not differentiate between categories "G" and "J", additional information is needed. Products intended for use as edge sealing systems need to be labeled as such or list category "G" in their literature. Without this information, the product is category "J"; fire tested to the new standard of positive pressure.



UBC 7-2 (1997) Part I - Fire Test

Category & Symbol Explanation:

Category G – Gaskets that are Edge-Sealing Systems. Category “G” - Edge-Sealing Systems are for use with fire doors requiring an edge seal to meet positive pressure code requirements. These systems are surface-applied to either the perimeter of the door frame or meeting edges of door pairs. Category “G” gaskets are usually intumescent material; this material will swell many times its original size during a fire and help contain the spread of fire by sealing the edges of the door. A category “G” gasket can be used as a smoke control gasket if it passes the UBC 7-2 (1997) Part II test for smoke.

Category J – Products that are positive pressure tested to determine that they do not contribute to flaming during a fire; they do not provide an edge-sealing system. Examples are gaskets used for sound, draft control or automatic door bottoms. A category “J” gasket can be used as a smoke control gasket only if it passes the UBC 7-2 (1997) Part II test for smoke control.



UBC 7-2 (1997) tells you the product has been positive pressure tested to the new standard. Part II of this symbol designates the test for smoke. Gaskets passing the smoke test receive a category “H” rating. This symbol includes the Part I designation since all smoke control gaskets are positive pressure fire tested. Should the gasket pass the Part I fire test with a category “G” rating it would be a combination edge-sealing system and smoke seal gasket. If the gasket passes Part I with a category “J” rating, it is simply a smoke seal, that has passed the new positive pressure fire test to prove that it does not contribute to flaming during a fire.

UBC 7-2 (1997) Part II - Smoke and Draft Control Test

Category & Symbol Explanation:

Category H – Assigned to gaskets that pass UBC 7-2 (1997) Part II. This is a separate second test that does not involve fire. All gaskets being tested for smoke must initially be fire tested under the requirements of UBC 7-2 (1997) Part I and receive a category “G” or “J” rating before being smoke tested. UBC 7-2 (1997) Part II tests the gasket for its ability to control smoke at an elevated temperature (400°F) (204°C). Smoke seals are used on the frames of doors that have an “S” on their fire-rating label to complete the installation instructions and satisfy the code requirements for a Smoke Control Door.

SOLUTIONS FOR FIRE SAFETY

Hager Companies is committed to life safety by providing sealing systems to contain fire and prevent the spread of smoke.

Gaps needed between a door and its frame for everyday operation create an area of vulnerability for the passage of flames and smoke during a fire. The rapid expansion of gases generated by a fire in a closed room creates an area of positive pressure that forces flames and smoke through these gaps. Hager Companies' Edge Sealing Systems and Smoke Seals create a barrier and aid in securing these areas during a fire.

Hager Seals and Gaskets Stop the Spread of Fire and Smoke.

Benefits of Hager Companies' Products:

- Hager Companies' products have extensive approvals and listings from both ITS/Warnock Hersey and Underwriters Laboratories
- Choice of bulb seals or batwing smoke systems for smoke control doors requiring the addition of a smoke seal to validate their “S” label
- Option of co-extruded combination fire and smoke seals offer a superior alternative to separate application of a bulb seal and intumescent edge seal
- Cost-effective, easy retrofit installation solution for positive pressure code compliance
- Unique coordinated designs provide protection against fire and smoke
- Comprehensive range of sizes including customized requirements to suit all applications

In 1997, the International Council for Building Officials (ICBO) approved a change to the Uniform Building Code (UBC) regarding fire-testing methods.

This code change requires fire doors to be fire tested under positive pressure instead of neutral pressure. The main difference between tests performed under positive pressure and neutral pressure is the location of the neutral plane and the introduction of positive pressure as part of the test. Under the new code, everything above 40" (1016 mm) is subject to testing under positive pressure conditions.

The change in the test method has led to a generation of gaskets that incorporate intumescent material to address the demands of positive pressure. Along with these new products are new terminology and new code requirements.



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Below are some key phrases that indicate positive pressure requirements:

- UBC 7-2 (1997) - UBC Fire Test
- IBC 2003 - International Building Code
- UL 10-C - Positive Pressure Fire Test
- ASTM E-2074-00 - Fire Test of Door Assemblies
- Shall meet positive pressure requirements
- Intumescent seals - imply positive pressure

Over 35 states have adopted the new positive pressure requirements. The www.iccsafe.org web site of the International Code Council (ICC) has a map of code adoption by state. This site is frequently updated and by clicking on a state, you can see what states have adopted the new positive pressure requirements. The www.iccsafe.org site also provides information on all other building codes and where available, lists enforcement at the local level.

THERE ARE SOME BASIC REQUIREMENTS FOR AN OPENING BEFORE IT CAN BE CLASSIFIED AS FIRE RATED.

The wall, frame, and door all have to be fire rated. This is self-explanatory, as it would not make much sense to put a labeled door in a non-rated wall just as you cannot put a non-labeled door in a rated wall and call the opening fire rated. The purpose of a fire rated opening is to retard fire for a specific length of time. All components of the opening have to be rated. When an opening is also required to be "S" (smoke) labeled then additional gasketing items will be required to comply with the code.

Every swinging fire door must have a listed and labeled self-latching latching device to engage the strike to be fire rated. Push and pull plates cannot be used on a fire rated door. The door has to latch into the frame when closed so it stays closed. The latch prevents the door from opening during a fire if something falls against it. This means you must use at least a passage lock set on the door. Deadbolts cannot be used in place of a latching device because they are not self-latching.

Steel ball bearings and steel based hinges must be used on fire rated doors. Brass, bronze and other base materials cannot be used, unless tested as an assembly. Continuous hinges are allowed as tested. Plain bearing hinges cannot be used. Bearing hinges minimize wear from everyday operation and help prevent door sag. During a fire, the door needs to operate smoothly so closers and latching devices work properly. Some manufacturers may provide doors with non-bearing type hinges only when they are part of the listed assembly.

The door must be self-closing to be fire rated. A properly sized, listed and labeled closing device is part of basic fire door hardware requirements. If the door is left open during a fire, then that opening cannot retard the fire as it was meant to do; the door needs to close after somebody passes through it. This is usually done by a door closer or, in some cases, spring hinges.

Fire rated and listed louvers can be installed on fire doors but they have to be a fusible link type. This means that once the heat from the fire reaches a certain temperature (usually 105°F) (41° C), the fusible link will melt which causes the louver blades to close. This will help prevent the spread of fire. The maximum size for these louvers is 24" x 24" (610 x 610 mm). There is no glass allowed in a fire rated door if it has a louver and no louvers at all can be installed in a 3-hour rated door.

Basic fire door frames do not have hourly ratings. The exception being frames specially labeled for less than 3 hours. Frames bearing a recognized fire label may support a 3-hour, 1½-hour, ¾-hour or a ⅓-hour door. Frames used in masonry walls can be used with a maximum 3-hour fire door. While frames in drywall are intended for use with fire doors rated up to 1½-hour, some manufacturers have tested for a 3-hour frame in drywall. Verify with your manufacturer for individual listing.

Remember: These are basic requirements; codes differ from area to area and are enforced by the Authority Having Jurisdiction (AHJ)



The purpose of a fire rated opening is to retard fire for a specific period of time.

The hourly designation indicates the duration for the fire test exposure and is known as the fire protection rating.

A label: 3-hour rating (for a 4-hour wall): These doors are used for openings in walls separating buildings that are joined together. They are metal doors and glass is allowed as tested. "A" label doors might not require additional seals applied to the frame, check with your individual manufacturer's procedure. Typically, a hollow metal door needs no added seals. Metal and some composite doors expand when heated. The door itself effectively seals the opening and often does not require the addition of an edge sealing system for the fire label. However, this door would still need a smoke gasket if it were functioning as a smoke control door.

B label: 1 $\frac{1}{2}$ -hour rating (for a 2-hour wall): These doors are usually used for stairwell doors but are sometimes used at all the rated walls in a building (i.e., mechanical or electrical rooms). One-hundred square inches of exposed glass per door leaf is allowed. These are mostly wood composite and hollow metal doors. A "B" label 1-hour rating (1-hour wall) exists for use in buildings less than four stories tall; this rating currently only applies to wood doors. "B" label fire doors require the addition of an edge-sealing system (category "G" gasket) to the frame to comply with the new positive pressure test method. Some wood doors do not require the additional category "G" gasket; check with your manufacturer for availability.

C label: $\frac{3}{4}$ -hour rating (for a 1-hour wall): These doors are used for openings from a corridor into another room in the same building. 1,296 square inches of exposed glass is allowed per vision light. These are mostly wood composite doors. "C" label fire doors require the addition of an edge-sealing system (category "G" gasket) to the frame to comply with the new positive pressure test method. Some wood doors do not require the additional category "G" gasket, check with your manufacturer for availability.

D label: 1 $\frac{1}{2}$ -hour rating (for a 2-hour wall): These are hollow metal doors used in exterior walls subject to severe fire exposure from outside the building. One-hundred square inches of exposed glass per door leaf is allowed. Check with your manufacturer's listing for the addition of a category "G" gasket to meet positive pressure requirements.

E label: $\frac{3}{4}$ -hour rating (for a 1-hour wall): These are hollow metal doors used in exterior walls subject to moderate to light fire exposure from the outside of the building. 1,296 square inches of exposed glass is allowed per vision light. Check with your manufacturers listing for the addition of a category "G" gasket to meet positive pressure requirements.

$\frac{1}{3}$ -hour door: 20-minute rating (for a 1-hour wall): These doors do not have a letter designation for their rating and can be a wood or particle core door. 1,296 square inches of exposed glass is allowed per vision light. They are tested with or without hose stream. Doors tested without hose stream are specially labeled: "Twenty Minute-Rating Without Hose Stream". These doors are used on condo/apartment entrances, offices of a 1-hour rated corridor wall and other applications where smoke and draft control is the primary concern.

The addition of an "S" to a door label

S Label: The letter "S" is the designation on a door's fire label indicating it can be used as a Smoke Control Door. Door manufactures are allowed to put an "S" on a fire label when the door opening has passed the air infiltration test. The door opening does not become approved for a Smoke and Draft Control unit until an approved category "H" gasket system has been installed on the frame. The federal government, many owners and some states require at least some openings to be labeled for smoke as well as fire. This is not limited to 20-minutes but includes all fire labeled doors that are rated 20-minutes and above. The addition of an approved category "H" smoke control gasket completes the installation instructions necessary to validate the labeled door to become a Smoke Control Door.

All of the labels listed above have the capability of being both fire and smoke barrier openings, however, not all openings require smoke labels under UBC 7-2 (1997). Openings requiring smoke labels are detailed either by the fire authority having jurisdiction, local code, NFPA 101 or NFPA 5000.



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New and existing fire doors are classified/labeled by one of the following designation systems:

- Hourly rating designation
- Alphabetical letter designation
- A combination of both

Common Applications for Hager Positive Pressure Edge Sealing & Smoke Seal Systems



Wall Rating	Door and Frame Rating	Door Application and Use	Door Types		Fire Doors Edge Sealing System	Smoke Doors "S" Label Smoke Seal	Fire & Smoke Doors Combination Seal
4 Hr.	3 Hour (A Label) 180 Minute	Openings in fire walls and walls that divide a single building into fire areas	Hollow Metal	Pairs	—	721, 726, 736	—
			Hollow Metal	Singles	—	721, 726, 736	—



2 Hr.	1½ Hour (B Label) 90 minute	Openings to stairwells and elevator shafts; vertical communication or egress through a building, including 2-hr. rated partitions providing horizontal fire separations	Wood Composite	Pairs	724, 729	721, 726, 736	719, 720, 722, 734
			Hollow Metal	Pairs	—	721, 726, 736	—
			Wood Composite	Singles	724, 729	721, 726, 736	719, 720, 722, 734
			Hollow Metal	Singles	—	721, 726, 736	—



2 Hr.	1½ Hour (D Label) 90 minute	Opening where there is a chance of severe fire exposure from the exterior of the building	Hollow Metal	Pairs	—	721, 726, 736	—
			Hollow Metal	Singles	—	721, 726, 736	—



1 Hr.	*1 Hour (B Label) 60 Minutes	Doors that divide occupancies in a building (building less than 4 stories tall)	Wood	Pairs	724, 729	721, 726, 736	719, 720, 722, 734
			Wood	Singles	724, 729	721, 726, 736	719, 720, 722, 734

*Currently rating only applies to wood doors.



1 Hr.	¾ Hour (E Label) 45 Minute	Opening in an exterior wall with the potential to be exposed to moderate to light fire from the outside of the building	Hollow Metal	Pairs	—	721, 726, 736	—
			Hollow Metal	Singles	—	721, 726, 736	—



1 Hr.	¾ Hour (C Label) 45 Minute	Openings in walls or partitions between rooms and corridors	Wood Composite	Pairs	724, 729	721, 726, 736	719, 720, 722, 734
			Wood Composite	Singles	724, 729	721, 726, 736	719, 720, 722, 734



1 Hr.	*⅓ Hour 20 Minute	Openings in corridors where smoke and draft control is required *Does not have letter designation	Wood/Particle Core	Pairs	724, 729	721, 726, 736	719, 720, 722, 734
			Wood/Particle Core	Singles	724, 729	721, 726, 736	719, 720, 722, 734

*All of the labels listed above have the capability of being both fire and smoke barrier openings. However, not all openings require a smoke label under UBC 7-2 (1997). Openings requiring smoke labels are detailed either by the fire authority having jurisdiction, local code, NFPA 101 or NFPA 5000.