

BROEN-LAB EMERGENCY SHOWER SYSTEMS



reddot design award
winner 2013



EMERGENCY
SHOWER SYSTEMS

BROEN-LAB

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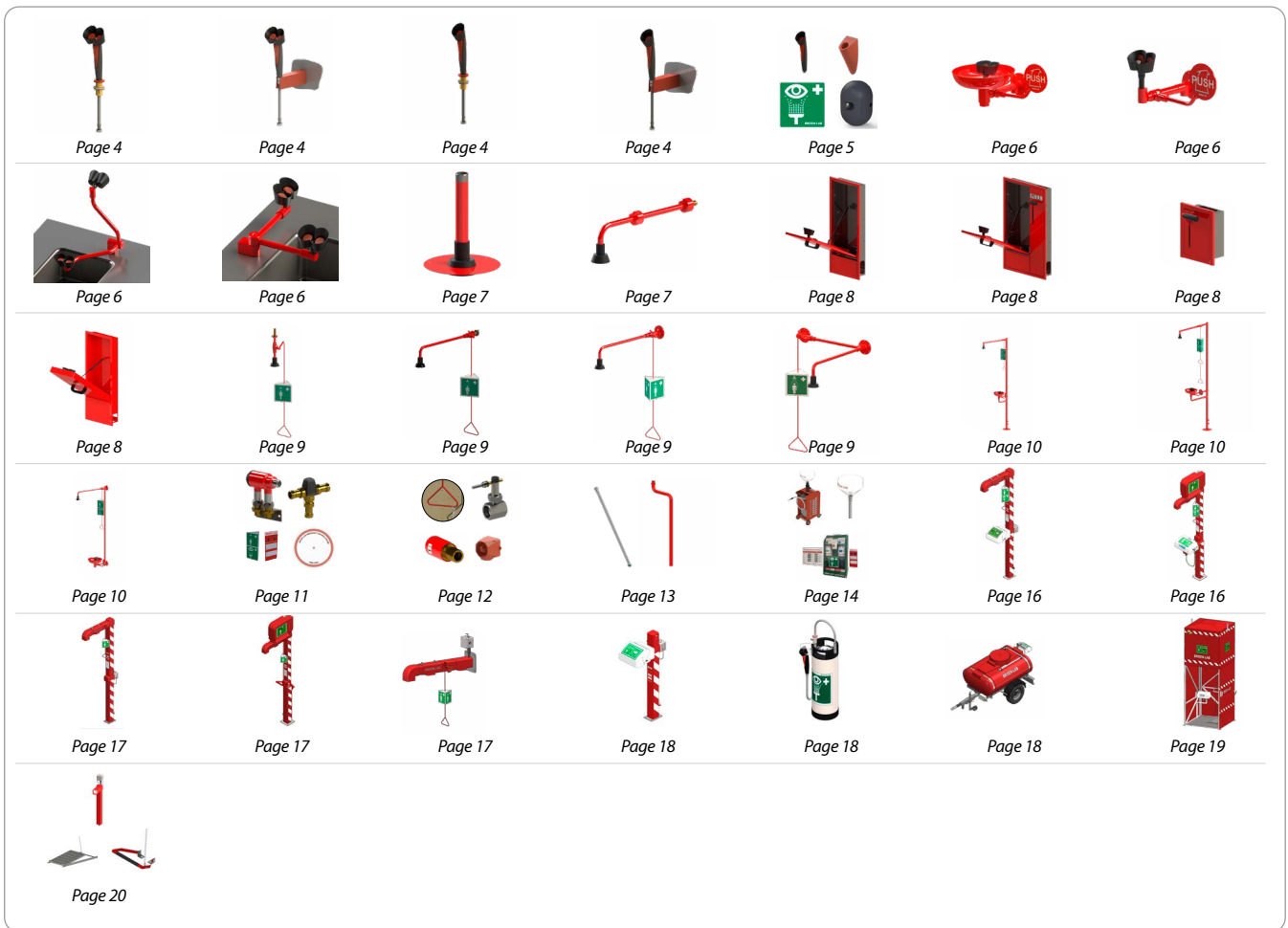
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Heated Emergency Showers & Eye Washes

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PRODUCT OVERVIEW

- Please refer to the actual page for product versions





Our extensive knowledge allows us to continually develop and optimize our products so that they meet our customer needs and specifications. Safety, functionality and quality are an integral part of our product design and flexibility.

BROEN-LAB – A SAFE CHOICE

- Premium quality since 1948
- Complete product range
- Compliant with international standards
- Proven functionality world-wide
- Spare parts available for a guaranteed 10-year period

CUSTOMER STATEMENTS



Falck

IN THE SERVICE INDUSTRIES



"For more than four years Falck has had an excellent cooperation with BROEN-LAB. Our customers must be able to rely on Falck to guarantee the best solutions and consequently we only provide service for emergency showers that comply with the requirements of Danish Standard 15154 Parts I and II.

BROEN-LAB products are extremely easy to install and they are also clearly marked and easily serviced. Quite simply, they provide a better and safer solution for all parties."

Michael Hansen, Product Manager Falck



IN INDUSTRY



"At Carlsberg we do not accept a compromise with regard to quality. We have therefore replaced all our emergency shower systems by products from BROEN-LAB so that they comply with the EU norm EN 15154.

We want to look well after the people working for us and it is our distinct opinion that our workplace must be a place where you feel well and safe."

Jens Hansen, Coordinating Work Environment Representative Carlsberg Denmark



IN THE LABORATORY



"For quite some time our company has been in charge of the maintenance and service of installations at Akademiska Hus at Medicinberget in Gothenburg. This includes a number of laboratories which again means a considerable number of emergency shower systems supplied by BROEN-LAB.

We check the emergency showers regularly and are very content with BROEN-LAB's reliable design and construction which make them easy to inspect and test."

Anders Bergvall, Project Manager VVS-Teknik Mölndal



IN THE EDUCATIONAL SECTOR



"At DTU we teach more than 7,000 students within very different fields – from the metal industry to microbiology – and within each specific field unique safety aspects must be considered. Therefore it is essential for us that we have a cooperation partner who supplies a quality product and who can also advice and guide us on the specific risk profile of each classroom."

Bjarne Andersen, HVAC Manager at DTU Campus Service



IN THE MEDICAL INDUSTRY



"As an international advisor it is important for us to have a partner that complies with both national and international norms and standards – and who can document this by an independent third party certification. At the same it is important to have a partner that can offer customized solutions supporting the architectonic expression of the project instead of colliding with it. Even though we are talking about emergency equipment, beautiful design is a plus."

Henrik Als Nielsen, Engineer, Ventilation & Building Utilities, NNE Pharmaplan

EMERGENCY SHOWER SYSTEMS

HAND-HELD EYE SHOWERS

BROEN-LAB has developed hand-held eye showers, which comply to EN15154-2 and ANSI Z358.1 norms and also offer many improved features.



MATERIALS WITH MEDIA CONTACT

Plastics: PA, POM, TPE
Metals: SS, AISI 316
Rubber: EPDM

SAFETY

- Improved trigger lock
- Improved shower activation
- BROEN-LAB recommends the installation of a Thermostatic Mixing Valve (TMV) with shower equipment for safer operation. See page 11 for more information.

OPERATION

- Stay-open dust cap
- Light weight
- Well-balanced construction
- Spray pattern

RELIABILITY

- Easy-to-clean spray head
- Anti-limescale design and material
- Improved functionality
- Long lifetime



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EMERGENCY SHOWER SYSTEMS

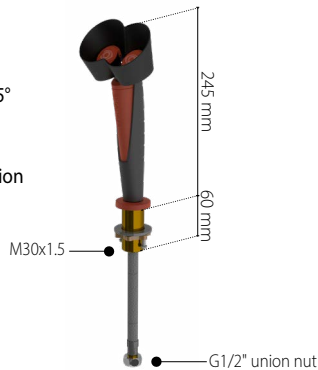
Eye Shower with Two 45° Heads



No. 27 10 009 10 05 011

Weight: Approx. 0.5 kg

Table mounted eye shower with two 45° angled heads, incl. 1.5m inlet hose. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (14 l/min).
Min. working pressure: 1,5 bar.



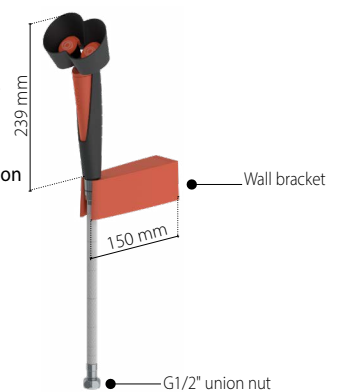
Eye Shower with Two 45° Heads



No. 27 10 009 10 03 011

Weight: Approx. 0.5 kg

Wall mounted eye shower with two 45° angled heads, incl. 1.5m inlet hose. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (14 l/min).
Min. working pressure: 1,5 bar.



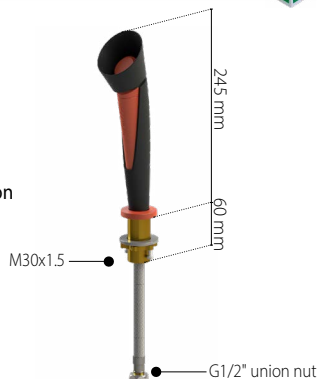
Eye Shower with a Single 45° Head



No. 27 10 003 10 05 011

Weight: Approx. 0.5 kg

Table mounted eye shower with a single 45° head, incl. 1.5m inlet hose. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (7 l/min).
Min. working pressure: 1,5 bar.



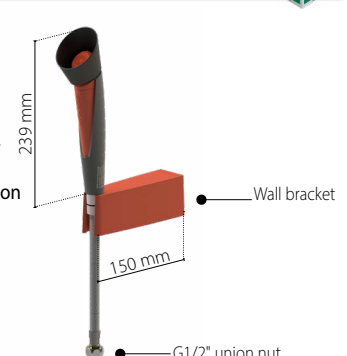
Eye Shower with a Single 45° Head



No. 27 10 003 10 03 011

Weight: Approx. 0.5 kg

Wall mounted eye shower with a single 45° head, incl. 1.5m inlet hose. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (7 l/min).
Min. working pressure: 1,5 bar.



Other configurations are possible - please refer to ordering information on page 5.

HAND-HELD EYE SHOWERS AND ACCESSORIES

Eye Shower with a Single 45° Head

No. 27 10 003 10 00 001

Weight: Approx. 0.2 kg

Eye shower with a single head. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (7 l/min).

Also available as straight model.



Eye Shower with Two 45° Heads

No. 27 10 009 10 00 001

Weight: Approx. 0.2 kg

Eye shower with two angled heads. Trigger operated including a built-in check valve and FLOWFIX for regulation of water flow (14 l/min).

Also available as straight model.



ACCESSORIES FOR HAND-HELD EYE SHOWERS

Mounting Accessories (YY):

No. 17 760 300

Table base (M30x1.5, 60mm)



No. 17 760 310

30° Wall base



No. 17 760 320

Wall bracket



No. 17 760 330

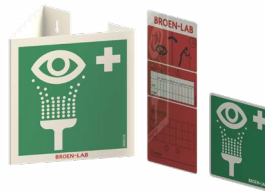
Bracket for modular body shower



Signs and Instructions (YY):

No. 17 001 970

Complete set with signs and instructions for eye shower



No. 96M0339

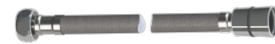
Sign for eye shower (sticker)



Hoses and hose accessories (ZZ):

No. 93H40561500

1.5m Silicone hose with a Stainless Steel braiding and Swivel Joint for hand-held eye showers.



(other lengths on request).

No. 17701760

Counter weight/stop for hose



ORDERING INFORMATION

For ordering a complete hand-held eye shower including accessories, please follow the following structure:

27 10 XXX 10 YY ZZ 1

Serial number

- 001 - Rinsing model, 45° *
- 003 - Eye Shower, single, 45°
- 004 - Rinsing model, straight
- 006 - Eye shower, single, straight
- 009 - Eye shower, double, 45°
- 012 - Eye shower, double, straight

Country code

- 10 - International

* Accessories

- 00 - None *
- 01 - 17 001 970
- 02 - 96M0339
- 03 - 17 001 970 + Wall bracket
- 04 - 17 001 970 + 30° Wall Base
- 05 - 17 001 970 + Table base
- 06 - 96M0339
- 07 - 96M0339 + 30° Wall Base
- 08 - 96M0339 + Table base
- 09 - 96M0339 + Bracket for modular body shower
- 10 - 1776032 - Wall bracket *

* Hose length + Hose accessory

- 00 - None
- 01 - 1.5m with G1/2 union nut
- 02 - 1.5m with G1/2 union nut + stop
- 03 - 2m with G1/2 union nut
- 04 - 2m with G1/2 union nut + stop

* Please request document No. 99G0045 for a complete list of available hoses and accessories.

For more information and technical datasheets please contact your BROEN-LAB sales representative.

EYE/FACE SHOWERS

BROEN-LAB has developed the Eye/Face showers, which comply to EN15154-2 and ANSI Z358.1 norms and also offer many improved features.



MATERIALS WITH MEDIA CONTACT

Plastics: TPE
Metals: Brass
Rubber: EPDM

SAFETY

- Flow rate in according to EN15154-2
- BROEN-LAB recommends the installation of a Thermostatic Mixing Valve (TMV) with shower equipment for safer operation. See page 11 for more information.
- Sign according to ISO 3864-1

OPERATION

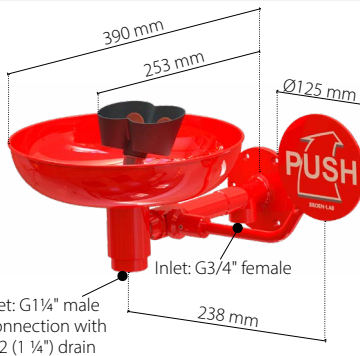
- Stay-open dust cap
- Plug and play assembly
- Spray pattern according to EN15154-2
- Stronger wall flange with 6 holes for wall mounted models

RELIABILITY

- Easy-to-clean spray head
- Anti-limescale design and material
- Improved functionality
- Long lifetime

EMERGENCY SHOWER SYSTEMS

Eye/Face Shower with Bowl, Wall Mounted



No. 17 528 009

No. 17 528 009E
Includes a 700 mm connection hose with union nut 1/2" inlet.
More information, see page 13

Other Models

No. 17 533 009
Inlet: G1/2" male (60mm)

Anti-corrosive

No. 17 528 004

Inlet: G3/4" female

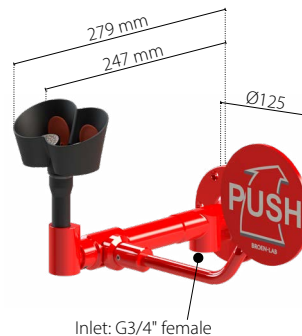
No. 17 533 004
Inlet: G1/2" male (60mm)

Outlet: G1 1/4" male or connection with OD32 (1 1/4") drain

Weight: Approx. 5.5 kg

Eye/Face shower with two heads in brass with chemical resistant BROEN-LAB Polycoat and Stainless Steel bowl. Wall mounted for exposed pipe work. The water amount is regulated by a built-in FLOWFIX (16 l/min).
Min. working pressure: 1,5 bar.

Eye Shower, Wall Mounted



No. 17 550 009

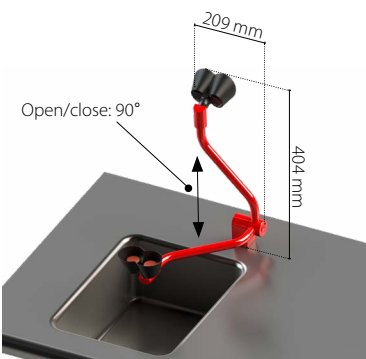
No. 17 550 009E
Includes a 700 mm connection hose with union nut 1/2" inlet.
More information, see page 13

Inlet: G3/4" female

Weight: Approx. 2.5 kg

Eye shower, wall mounted in brass with chemical resistant BROEN-LAB Polycoat. The water is regulated with a built-in FLOWFIX (16 l/min).
Min. working pressure: 1,5 bar.

Eye Shower, Table Mounted, Swing Down



No. 17 527 009

Other Models

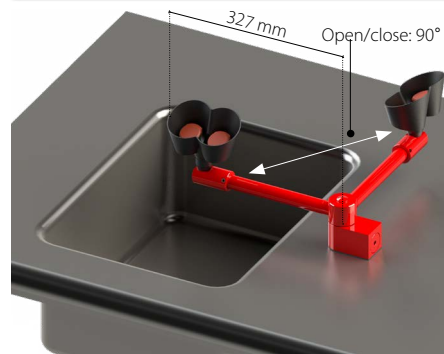
No. 17 526 009
Mounting on left side of sink

No. 17 542 009
Swing down wall mounted version

Weight: Approx. 2.5 kg

Eye shower, table mounted on right side of sink, swing down in brass with chemical resistant BROEN-LAB Polycoat for mounting on back side of the sink. The water amount is regulated with built-in FLOWFIX (16 l/min).
Min. working pressure: 2 bar.

Eye Shower, Table Mounted, Swivel Joint



No. 17 531 009

Other Models

No. 17 530 009
For mounting to the left of sink

Weight: Approx. 2.5 kg

Eye shower, table mounted, swivel joint in brass with chemical resistant BROEN-LAB Polycoat for mounting on the right side of sink. The water amount is regulated with the built-in FLOWFIX (16 l/min).
Min. working pressure: 2 bar.

RECESSED EMERGENCY SHOWERS

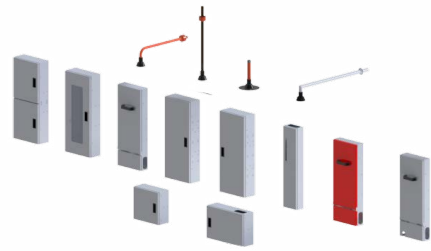
SPECIAL FEATURES

GENERAL:

- Several modules available based on modules shown to the right.
- Choose between BROEN-LAB Polycoated surface or Anti Corrosive.
- Cabinet and cabinet door in Stainless Steel AISI 316L.
- Disability-Friendly models comply with ANSI A117.1-2003.
- Easy to mount and install.
- Cabinet can also be surface mounted with exposed piping. Separate frame unit can be ordered.

Choose among different body shower outlets by ordering recessed units and outlets separately to fit your exact needs of installation and application.

E.g. : 17 157 009 + 17 110 009



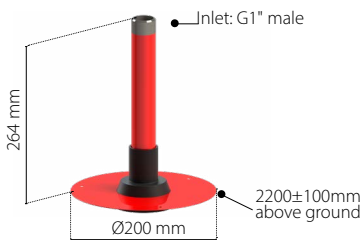
EYE WASH:

- Cabinet and cabinet door in Stainless Steel AISI 316L.
- Integrated drain.
- Cabinet door catches the water and prevents it from splashing on the floor.

BODY SHOWER:

- Strong integrated handle for operating body shower.
- Free choice of combination between ceiling or wall mounted body shower outlet.
- Premounted valve for body shower.

Body Shower Outlet, Ceiling Mounted, Concealed



No. 17 100 009

Other Models

Anti-corrosive

No. 17 100 004

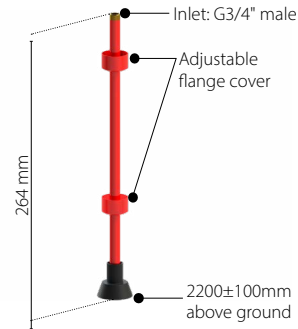


Weight: Approx. 1 kg

Body shower outlet, ceiling mounted, concealed in Stainless Steel with self-draining shower head.

Working pressure is given on pre-assembled valve for body shower.

Body Shower Outlet, Ceiling Mounted



No. 17 110 009

Other Models

No. 17 089 009

Male inlet and fixed flange

Inlet: G3/4" male



Anti-corrosive

Same as ill. Polycoat but anti-corrosive.

No. 17 110 004

Male inlet and fixed flange

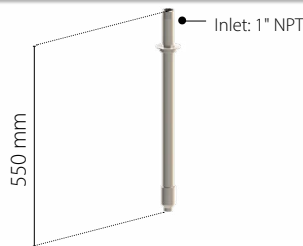
No. 17 089 004

Weight: Approx. 1.5 kg

Body shower outlet, ceiling mounted, in brass with chemical resistant BROEN-LAB Polycoat with self-draining shower head. Fits different ceiling heights by adjusting the flange. Inlet G 3/4" male.

Working pressure is given on pre-assembled valve for body shower.

Body Shower Outlet, Ceiling Mounted



No. 17 901 830

Weight: Approx. 1 kg

Body shower outlet, ceiling mounted, concealed in Stainless Steel with self-draining shower head.

Working pressure is given on pre-assembled valve for body shower.

Body Shower Outlet, Wall Mounted

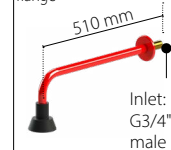


No. 17 120 009

Other Models

No. 17 088 009

Male inlet and fixed flange



Weight: Approx. 1.5 kg

Body shower outlet, wall mounted, in brass with chemical resistant BROEN-LAB Polycoat with self-draining shower head. Inlet G 3/4" male.

Working pressure is given on pre-assembled valve for body shower.

Body Shower Outlet, Wall Mounted

Anti-corrosive



Disability-Friendly

No. 17 130 004



Weight: Approx. 1.5 kg

Wall mounted body shower outlet in Stainless Steel AISI 304, with self-draining shower head. Inlet G 1" male. With adjustable flange.

Dimensions comply with the requirements of ANSI A117.1-2003.

Working pressure is given on pre-assembled valve for body shower.

Other Models

No. 17 088 004

Male inlet and fixed flange. Stanniloy



RECESSED EMERGENCY SHOWERS

Eye Shower, Wall Recessed

Anti Corrosive



Disability-Friendly

No. 17 156 009-3289

No. 17 156 009
Stainless Steel version



Weight: Approx. 10 kg

Eye shower, wall recessed, disability-friendly with cabinet in Stainless Steel AISI 316L with chemical resistant BROEN-LAB Polycoat, two outlet heads and built-in FLOWFIX (16 l/min). Cabinet door activates the eye wash and catches the water. Min. working pressure: 2 bar.

Eye and Body Shower, Wall Recessed

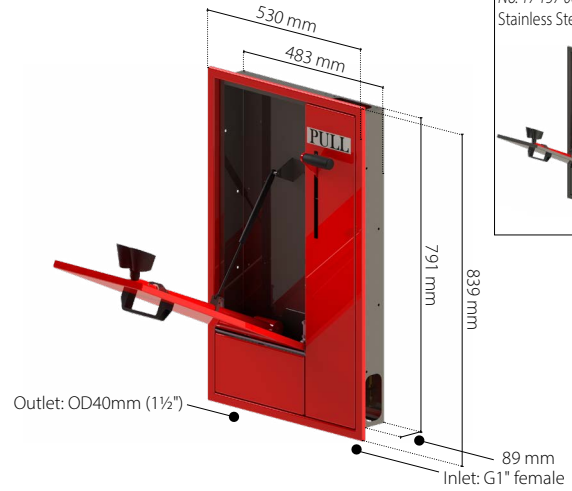
Anti Corrosive



Disability-Friendly

No. 17 157 009-3289

No. 17 157 009
Stainless Steel version



Weight: Approx. 16 kg

Eye shower, with 1" valve for body shower, wall recessed, disability-friendly with cabinet in Stainless Steel AISI 316L with chemical resistant BROEN-LAB Polycoat, two outlet heads and built-in FLOWFIX (16 l/min). Cabinet door activates the eye wash and catches the water. Integrated hand activating 1" valve for body shower with various options for shower outlet. Min. working pressure: 2 bar.

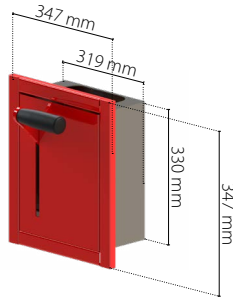
Body Shower, Wall Recessed, Hand Activator

Anti Corrosive



No. 17 143 009-3289

No. 17 143 009
Stainless Steel version



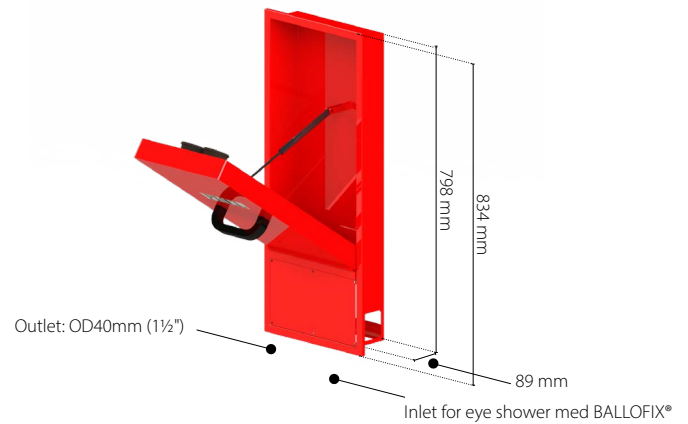
Weight: Approx. 2.5 kg

Wall recessed cabinet in Stainless Steel AISI 316L with chemical resistant BROEN-LAB Polycoat and hand activator for body shower with various options for shower outlet. 1" valve for 3/4" or 1" pipe. Min. working pressure: 1 bar.

Eye Shower, Wall Recessed



No. 17 152 009



Weight: Approx. 10 kg

Eye shower, wall recessed, disability-friendly with cabinet in Stainless Steel AISI 304 with chemical resistant BROEN-LAB Polycoat, two outlet heads, built-in FLOWFIX (14 l/min), and BALLOFIX®. Cabinet door activates the eye wash and catches the water. Min. working pressure: 2 bar.

ORDERING INFORMATION

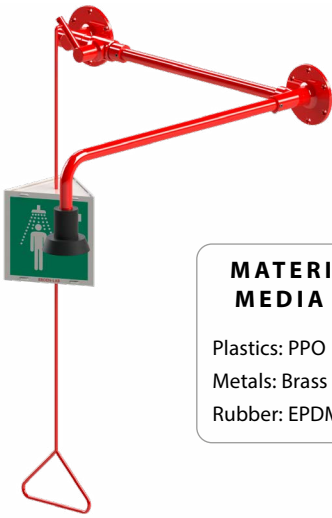
- 17 1xx Y09 Stainless Steel cabinet with red inner parts
- 17 1xx Y09-3289 Powder coated in red Stainless Steel cabinet with red inner parts

Where XX refers to the model and Y to country code.

- Country code: 0 = international version with 40 mm drain
- 1 = US version with 2" NPT drain

BODY SHOWERS

BROEN-LAB has developed body showers, which comply with EN15154-1 and ANSI Z358.1 norms and also offer many improved features.



MATERIALS WITH MEDIA CONTACT

Plastics: PPO
Metals: Brass
Rubber: EPDM

SAFETY

- Flow rate in according to EN15154-1
- Spray pattern according to the EN 15154-1
- Sign according to ISO 3864-1
- BROEN-LAB recommends the installation of a Thermo-static Mixing Valve (TMV) with shower equipment for safer operation. See page 11 for more information.

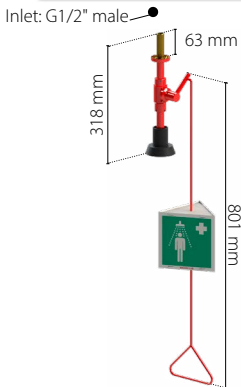
OPERATION

- Plug and Play assembly
- Stronger wall flange with 6 holes for wall mounted models with exposed piping

RELIABILITY

- Plug and Play Spare Parts
- Anti-limescale design and material
- Improved functionality
- Long lifetime

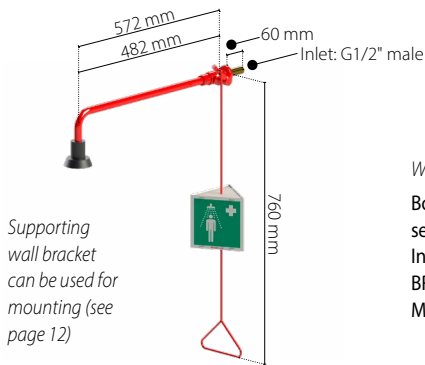
Body Shower, Ceiling Mounted



No. 17 580 009

Weight: Approx. 1.7 kg
Body shower, ceiling mounted with self-draining head. In brass with chemical resistant BROEN-LAB Polycoat.
Min. working pressure: 1 bar.

Body Shower, Wall Mounted

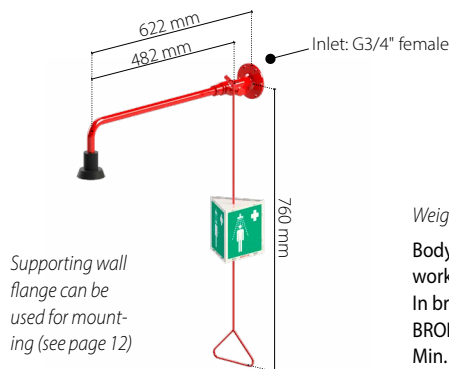


No. 17 581 009

Supporting wall bracket can be used for mounting (see page 12)

Weight: Approx. 2.5 kg
Body shower, wall mounted with self-draining shower head. In brass with chemical resistant BROEN-LAB Polycoat.
Min. working pressure: 1 bar.

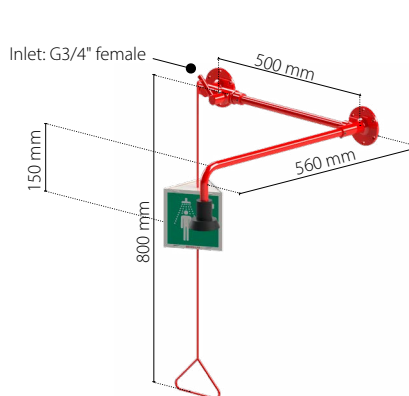
Body Shower for Exposed Pipework, Wall Mounted



No. 17 582 009
No. 17 582 009E
Includes a 700 mm connection hose with union nut 1/2" inlet. More information, see page 13

Weight: Approx. 2.9 kg
Body shower for exposed pipe-work with self-draining head. In brass with chemical resistant BROEN-LAB Polycoat.
Min. working pressure: 1 bar.

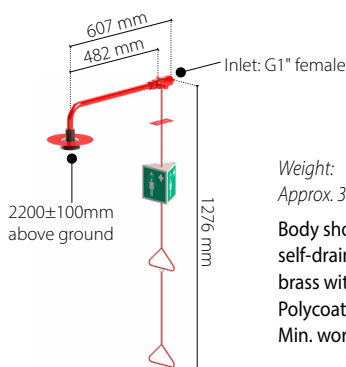
Body Shower, Wall Mounted above Door



No. 17 587 009
No. 17 587 009E
Includes a 700 mm connection hose with union nut 1/2" inlet. More information, see page 13

Weight: Approx. 4.2 kg
Body shower, wall mounted above door for exposed pipework with self-draining head. In brass with chemical resistant BROEN-LAB Polycoat. Valve to be mounted left or right of door.
Min. working pressure: 1 bar.

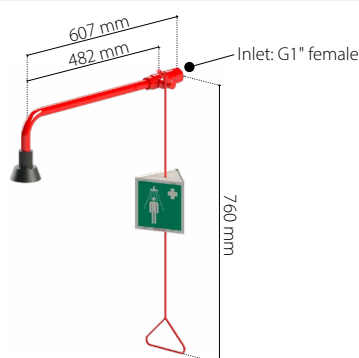
Body Shower, Ceiling Mounted with ceiling flanges



No. 17 660 009

Weight: Approx. 3.1 kg
Body shower, ceiling mounted with self-draining head and ceiling flange. In brass with chemical resistant BROEN-LAB Polycoat.
Min. working pressure: 1 bar.

Body Shower, Wall Mounted



No. 17 575 009

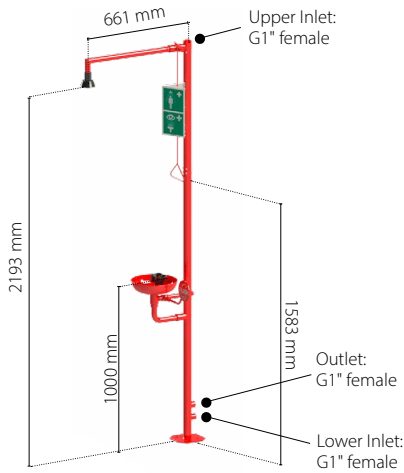
Weight: Approx. 2.5 kg
Body shower, wall mounted with self-draining shower head. In brass with chemical resistant BROEN-LAB Polycoat.
Min. working pressure: 1 bar.

COMBINATION SHOWERS

Body Shower with Eye/Face Shower and Bowl, Modular

No. 17 656 009

No. 17 656 009E
Includes a 700 mm connection hose with union nut 1/2" inlet. More information, see page 13



Weight: Approx. 18 kg

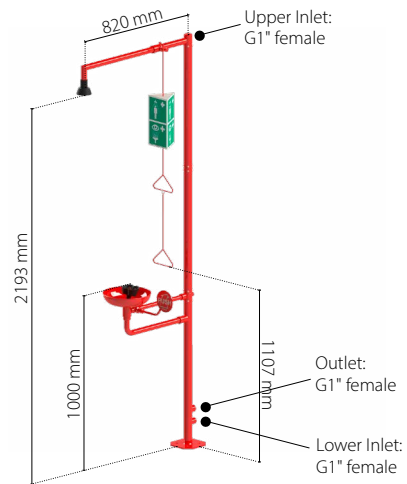
Body shower with eye/face shower and bowl, modular. In brass and SS with chemical resistant red BROEN-LAB Polycoat with self-draining shower head. Eye wash with built-in FLOWFIX for regulation of water flow (16 l/min). Bowl in Stainless Steel with integrated outlet. Min. working pressure: 1.5 bar.

Body Shower with Eye/Face Shower and Bowl, Modular



No. 17 657 009

Disability-Friendly



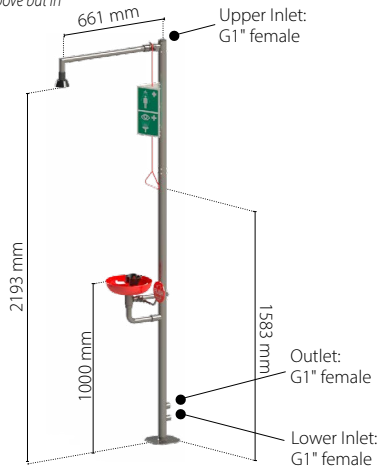
Weight: Approx. 19 kg

Body shower with eye/face shower and bowl, modular. In brass and SS with chemical resistant red BROEN-LAB Polycoat with self-draining shower head. Eye wash with built-in FLOWFIX for regulation of water flow (16 l/min). Bowl in Stainless Steel with integrated outlet. Min. working pressure: 1.5 bar.

Anti-corrosive - Modular

No. 17 656 004

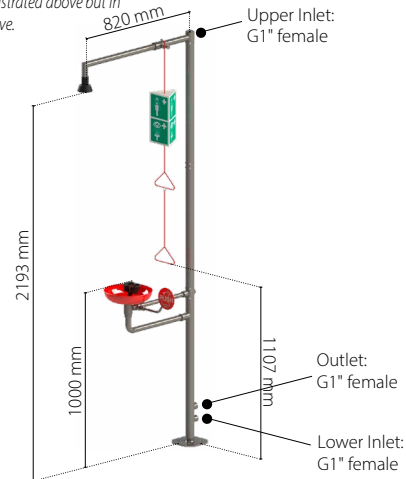
Same as illustrated above but in anti-corrosive.



Anti-corrosive - Modular

No. 17 657 004

Same as illustrated above but in anti-corrosive.



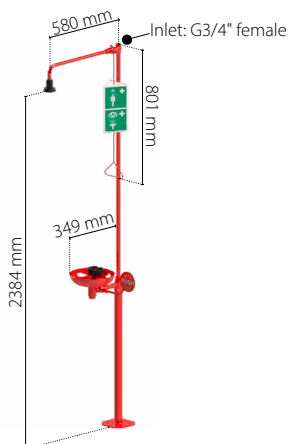
Disability-Friendly

EMERGENCY SHOWER SYSTEMS

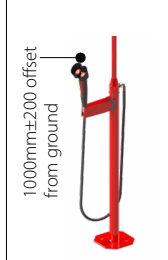
Body Shower with Eye/Face Shower and Bowl, Modular

No. 17 556 009

No. 17 556 009E
Includes a 700 mm connection hose with union nut 1/2" inlet. More information, see page 13



No. 17 536 009
With hand-held eye shower



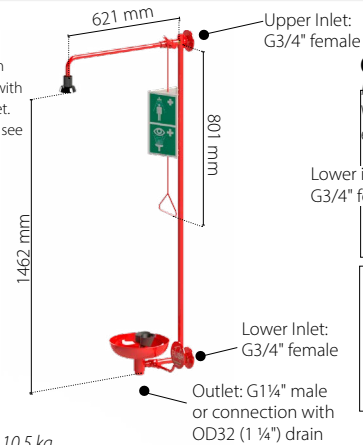
Weight: Approx. 14 kg

Body shower with eye/face shower and bowl, modular. In brass and SS with chemical resistant red BROEN-LAB Polycoat with self-draining shower head. Eye wash with built-in FLOWFIX for regulation of water flow (16 l/min). Bowl in Stainless Steel. Min. working pressure: 1.5 bar.

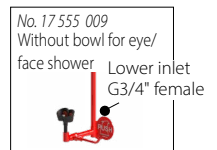
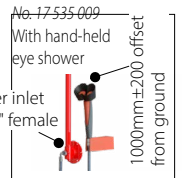
Body Shower with Eye/Face Shower and Bowl, Modular, Wall Mounted

No. 17 552 009

No. 17 552 009E
Includes a 700 mm connection hose with union nut 1/2" inlet. More information, see page 13



Other Models



Weight: Approx. 10.5 kg

Body shower with eye/face shower and bowl, modular. In brass and SS with chemical resistant red BROEN-LAB Polycoat with self-draining shower head. Eye wash with built-in FLOWFIX for regulation of water flow (16 l/min). Bowl in Stainless Steel. Min. working pressure: 1.5 bar.

ACCESSORIES FOR EMERGENCY SHOWER SYSTEMS

Thermostatic Mixing Valves for Emergency Shower Systems

BROEN-LAB TMVs for eye and body showers are thermostatic mixing valves designed for delivering tepid water (22-28°C) for eye/hand or body showers.

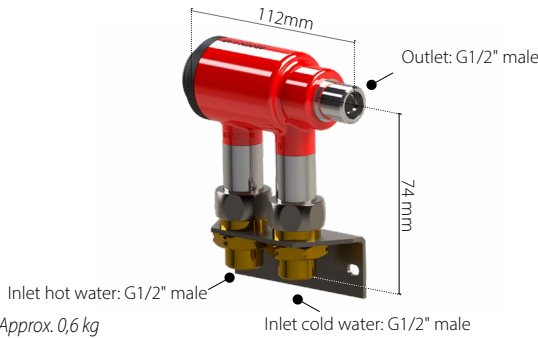
The Thermostatic Mixing Valve solution is designed for the operation of one eye/hand shower or one body shower, respectively.

The water temperature is set to tepid per our factory.

The TMV incorporates in one body the following features:

- Hot-Water Fail Safe: If the cold water is interrupted, the built-in anti-scalding device will automatically cease the flow of hot water.
- Cold Water Fail-Safe: If the hot water is interrupted, the built-in intentional leak will allow cold water to flow at a sufficient flowrate to ensure operation. THIS WORKS AUTOMATICALLY AS WELL
- Includes check valves on both hot and cold supply

Thermostatic Mixing Valves for Eye Shower

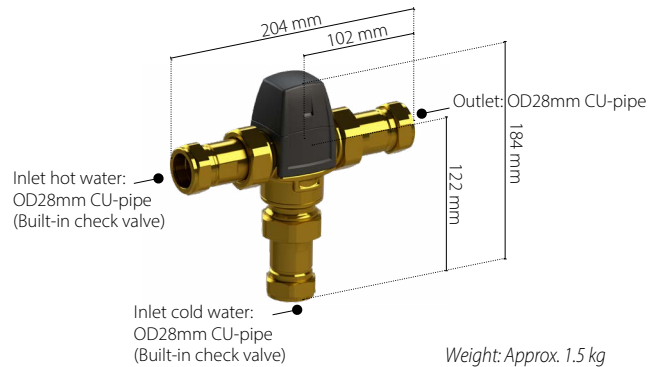


Weight: Approx. 0,6 kg

No. 2703 007 1035: Model with G1/2" male inlet Thermostatic mixing valve for eye shower with bracket. Min. working pressure: 1 bar.

No. 2703 009 1035: Model with G3/4" female inlet Thermostatic mixing valve for eye shower without bracket. Min. working pressure: 1 bar.

Thermostatic Mixing Valves for Body- and Combination Showers



Weight: Approx. 1.5 kg

No. 17 512 009: Thermostatic mixing valve for body and Eye shower. Min. working pressure: 1.5 bar.

No. 17 513 009: Model with R1" inlet/outlet connections

Signs for Emergency Shower Systems

Nr. 17 001 920

(Weight: Approx. 0.23 kg)

Sign (pull rod mounted) and instruction card for Body and Eye Shower



Nr. 17 002 27

(Weight: Approx. 0.03 kg)

Instruction and Service Sign - Body Shower



Nr. 96M0042

(Weight: Approx. 0.01 kg)

Sign for body shower (sticker)



Nr. 17 001 910

(Weight: Approx. 0.13 kg)

Sign (pull rod mounted) and instruction card for Body Shower



Nr. 17 002 28

(Weight: Approx. 0.03 kg)

Instruction and Service Sign - Body and Eye Shower



Nr. 96M0043

(Weight: Approx. 0.01 kg)

Sign for eye shower (sticker)



Nr. 17 002 010

(Weight: Approx. 0.15 kg)

Sign (wall mounted) and instruction card for Body and Eye Shower



Nr. 17 002 29

(Weight: Approx. 0.03 kg)

Instruction and Service Sign - Eye Shower fountain



Nr. 96M0345

(Weight: Approx. 0.01 kg)

Sign for direction (sticker)



Nr. 17 001 900

(Weight: Approx. 0.08 kg)

Sign (wall mounted) and instruction card for Eye Shower



Nr. 17 002 30

(Weight: Approx. 0.03 kg)

Instruction and Service Sign - Eye Shower - Hand-Held



Nr. 96M0366

(Weight: Approx. 0.5 kg)

Sticker for floor indicates the area that should remain cleared



Nr. 17 002 000

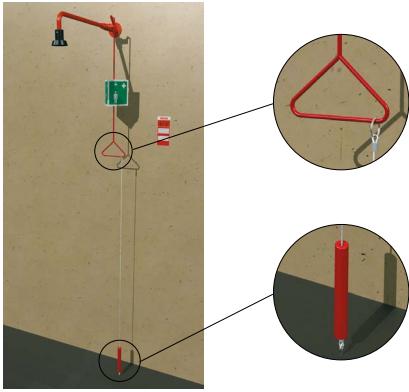
(Weight: Approx. 0.08 kg)

Sign (wall mounted) and instruction card for Body Shower



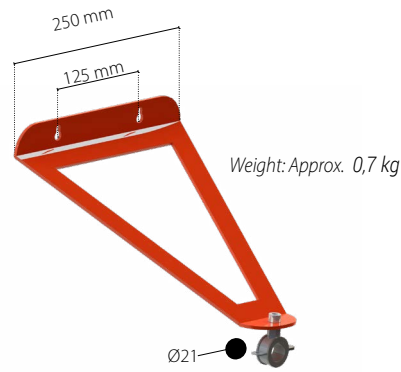
ACCESSORIES FOR EMERGENCY SHOWERS

Cable



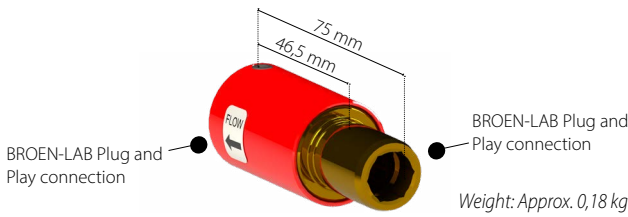
No. 17 901 64
A cable may be installed as a supplement to the pull rod, this enables the user to activate the shower at floor level

Wall bracket for body showers



Nr. 17 001 079
Wall bracket for support of wall mounted body showers (size 1/2").
Other sizes on request

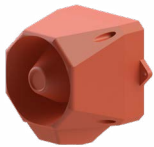
Flowfix regulator unit



Unit to reduce the water flow of a combination or body shower.

Item no.	Flowrate	Colour of flowfix (inside unit)
17 552 239	50 l/m.	Red
17 552 249	70 l/m.	Ligth blue
17 552 259	90 l/m.	Blue

Alarm for Emergency Shower



No. 17 851 95
Signal and light alarm for emergency showers.
- 112dB(A) output
- IP66 protection
- 32 alarm tones
Working temperature: -20°C to 70°C
Power supply: 230VAC, 50/60Hz

For operation in Non Ex Proof areas (also available for Ex Proof areas)

Foot Treadle for Operation of Eye Showers



No. 17 909 909
Foot treadle in aluminium and SS for the operation of eye showers. It is possible to combine with 17 919 009 if mounted 180° opposite. Delivered with all mounting accessories. (see page 20)

Flow switch



Weight: Approx. 0,5 kg

- Good reliability
- Low pressure loss
- Dirt resistant

Item no.	Material	Size*	PN, bar
96P0062	brass	G3/4	25
96P0063	brass	G 1 1/4	25
96P0066	SS	G3/4	25
96P0068	SS	G 1 1/4	25

* Please note that size of the flow switch should be a size bigger than the inlet of the emergency shower

- Hermetic separation of electrical and hydraulic components

When there is a stream of water in the connection piping to the emergency shower, the paddle in the flow switch triggers an electrical reed switch. This switch can be connected to any type of warning system, such as an alarm central, a horn, a light or similar.

For operation in Non Ex Proof areas (also available for Ex Proof areas)

For more information and technical datasheets please contact your BROEN-LAB sales representative.



The standard 700 mm connection hose with G1/2" union nut is suitable for all new models with female G3/4". For other requirements, do not hesitate to contact BROEN-LAB.



Easy to install on current pipes

At BROEN-LAB we focus on quality in every detail to help you work smarter while reducing installation time.



No teflon tape or hemp is needed

work smarter while reducing installation time. Therefore no Teflon tape is needed.



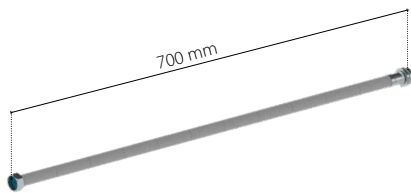
O-ring sealing

The O-ring reduces the risk of leakage and improves safety functions.



See how easy it is to connect

Connection hoses for Emergency Showers

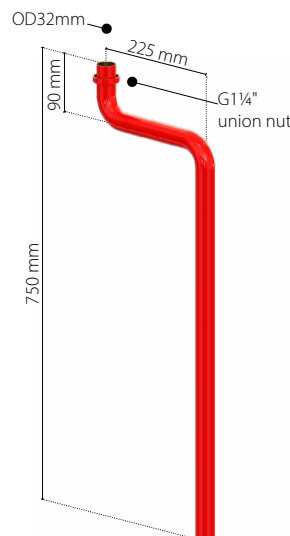


- No. 93i59370700 (Male G1" - Female G1" union nut connection)
- No. 93i59330700 (Male G1" - Female G3/4" union nut connection)
- No. 93i42330700 (Male G3/4" - Female G3/4" union nut connection)
- No. 93i42370700 (Male G3/4" - Female G1" union nut connection)

Material: Silicone
 Braiding: Stainless Steel
 Inside diameter: Ø15mm
 Outside diameter: Ø21,5mm
 Max.working pressure: 10 bar
 Max.working temperature: 90°C

Drain kit for Emergency Showers

No. 17 556 579



For extra drainage under bowl on body showers with eye/face wash and bowl.

- Compatible with:
- 17 552 009
 - 17 528 009 + 17 528 004
 - 17 541 009 + 17 541 004
 - 17 556 009
 - 17 533 009 + 17 533 004
 - 17 653 009 + 17 653 004

TEST EQUIPMENT FOR EMERGENCY SHOWER SYSTEMS

Test Trolley for Emergency Showers

No. 17 851 929, model with integrated pump

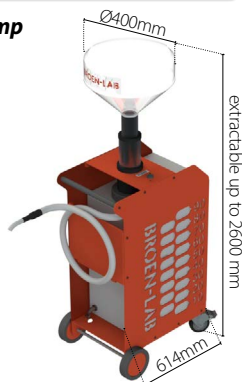
*With 8 mm connection cable and international plug

Test trolley with integrated pump.

Drainage hose is included. Capacity: 90 l

Can be used for heated and unheated emergency showers.

Weight: Approx. 22 kg



For operation in Non Ex Proof areas.

Test Funnel for Emergency Showers

No. 17 001 08

Test funnel for testing of emergency showers in PC (polycarbonate) with 2.2m hose.

No. 27 99 008 10 01

Measuring Cylinder for checking Eye Wash Stations



FIRST AID KIT

P7330051000002



Standard First Aid Kit which contains

- Clean pads
- Cool pads
- Stop dressing
- Elastic band aids x 2
- Sterile eye wash
- pH eye wash
- Signs
- instruction sheets
- First Aid Plans

It's also possible to configure you own First Aid Kit using the refill components beneath. For help please contact your BROEN-LAB representative.

REFILLS

Quick Clean

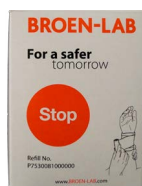
P7530071000000



Sterile wipes are ideal to clean skin and wound prior to dressing.

Quick Stop

P7530081000000



Wound dressing kit used to protect wound form further harm.

Quick Cool

P7530061000000



Burn gel that eases the pain if the skin has been in contact with hot surfaces or substances.

pH Neutral Eye Wash

P7170031000000



PH Neutral features phosphate buffer property with documented efficiency in chemicals-based eye injuries.

Elastic Plaster

P7530031000000



Elastic plasters that conform the movement of the skin so they are comfortable to use. The plasters are extremely skin-friendly and allow the skin to breathe.

Sterile Eye Wash

P7170021000000



Sterile Eye wash for optimum assistance if dirt, dust or other substances come in contact with eyes.

For more information and technical datasheets please contact your BROEN-LAB sales representative.

INTRODUCTION

Thousands of industrial accidents happen every year in spite of precautionary safety measures, accidents that are caused by human exposure to heat (fire, boiling water and oil, steam, etc.), to corrosive agents (fluid acids and caustics) and/or to influence by dust and corrosive aerosols (metal, dirt, fluids).



These accidents cause acute pain, disablement, and may even lead to loss of life. However, experience shows that the consequences and human suffering following such accidents can be considerably limited if water is applied directly to the affected areas instantly after the exposure.

The harsh reality is that risk lurks in many places: in the laboratory, in the kitchen, in the warehouse, in the chemical plant, in the workshop, or generally speaking in any place where heat, corrosion or dust can cause serious human injury. For these reasons we strongly recommend the installation of adequate emergency shower systems as a means of mitigating these risks.

Location and Operation of Emergency Showers

As a basic rule the shower must be located as close to the workplace as possible so that the general first aid instructions of flushing the affected area immediately after the accident has occurred can be followed.

Please note that if strong acids or caustics are involved, immediate action is required. Please also be aware that it must be easy to locate and access at all times for potential users.

BROEN-LAB Emergency Showers can be recognized by their red and white stripes on body and eye showers, red pull rods and luminescent signs and symbols for the clear identification of the emergency shower.

Selecting the Right Shower

There are many different conditions that determine the type of emergency shower to be installed. It is important that the chosen unit is designed and tested according to the existing standard as well as suits the specific application and location - **and environment!**



Tank showers - see page 19



Mobile and portable emergency showers - see page 18



Heated body showers - see page 16-17

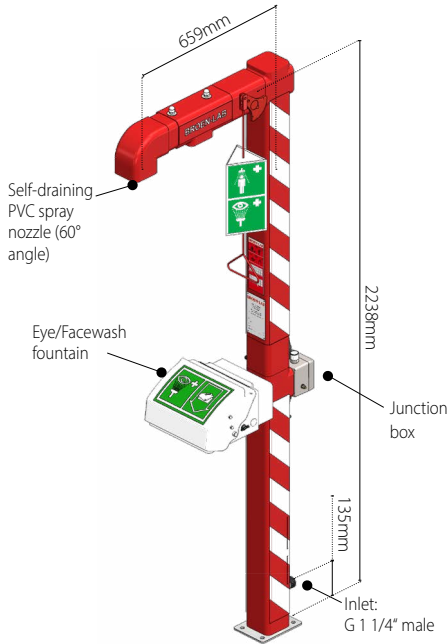
In this section you can find a wide range of BROEN-LAB Emergency Showers that can be installed outside and be used in areas where outside temperatures go as low as -35°C.



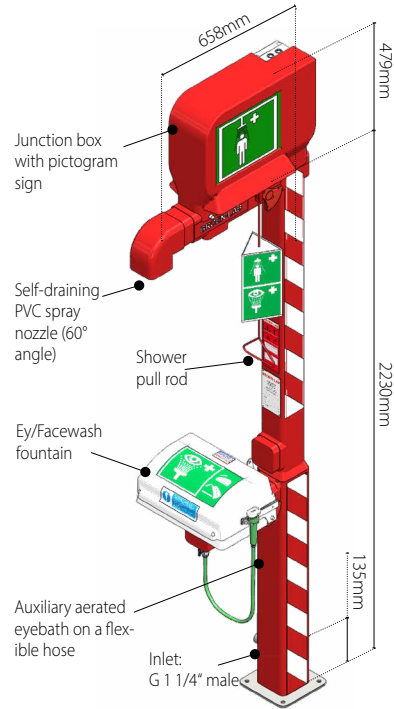
HEATED COMBINATION SHOWERS

Frost protected outdoor combination safety showers, trace tape heated, and pre-insulated. Delivered with eye/facewash fountain and additional eyebath diffuser on flexible hose to treat unconscious or disabled personnel.

Heated Body Shower - Free Standing with Eye Wash Fountain



Heated Body Shower - Free Standing with Eye Wash Fountain



TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
Min. working temperature: -20°C
Water Flow: 115 l/min.
Supply voltage: 230 VAC, 50/60 Hz

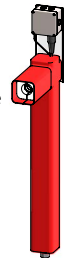
Heated underground extension pipe (ordered separately, see page 20 for more information)



TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
Min. working temperature: -35°C
Water Flow: 115 l/min.
Supply voltage: 230VAC, 50/60Hz

Heated underground extension pipe (ordered separately, see page 20 for more information)



ORDERING INFORMATION

BROEN-LAB item no.	Material	Ex-proof*	Min. working temperature	Eye wash fountain	Mounting	Heated underground extension pipe
H7 41 002 10 00 221	Stainless Steel	Yes	-20°C	Yes	Floor	Available
H7 41 001 10 00 241	Stainless Steel	Yes	-35°C	Yes	Floor	Available
H7 41 001 10 00 231	Stainless Steel	No	-35°C	Yes	Floor	Available

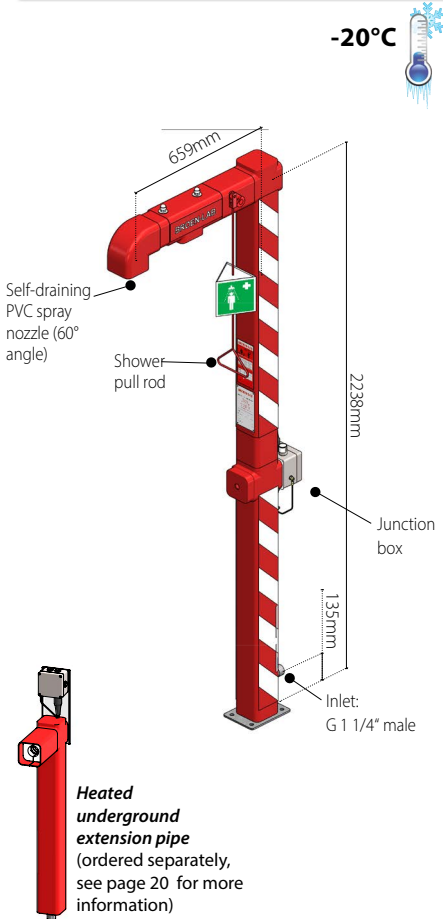
*Ex-proof zone 1 and zone 2.

For more information and technical datasheets please contact your BROEN-LAB sales representative.

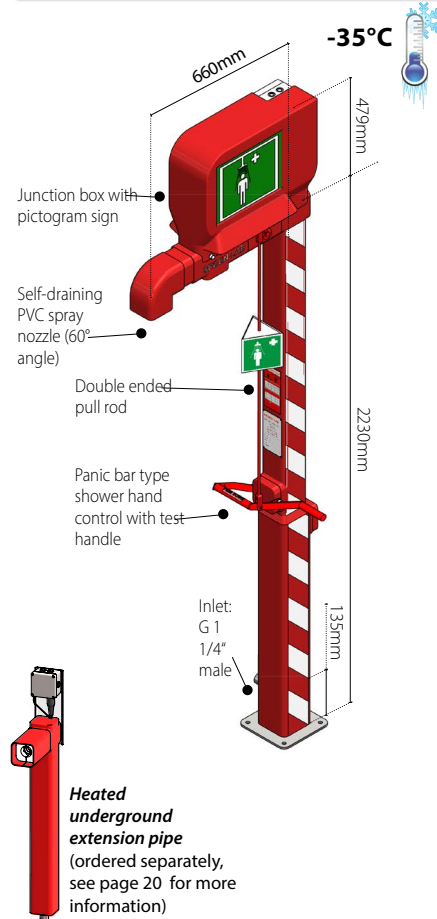
HEATED BODY SHOWERS

Frost protected outdoor combination safety showers, trace tape heated, and pre-insulated.

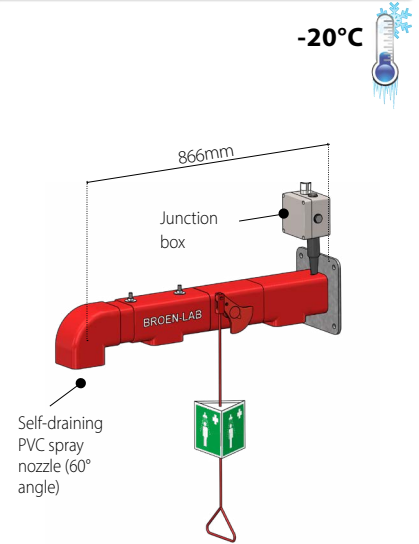
Heated Body Shower - Free Standing



Heated Body Shower - Free Standing



Heated Body Shower - Wall Mounted



TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
 Min. working temperature: -20°C
 Water Flow: 115 l/min.
 Supply voltage: 230VAC, 50/60Hz

TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
 Min. working temperature: -35°C
 Water Flow: 115 l/min.
 Supply voltage: 230VAC, 50/60Hz

TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
 Min. working temperature: -20°C
 Water Flow: 115 l/min.
 Supply voltage: 230VAC, 50/60Hz

EMERGENCY SHOWER SYSTEMS

ORDERING INFORMATION



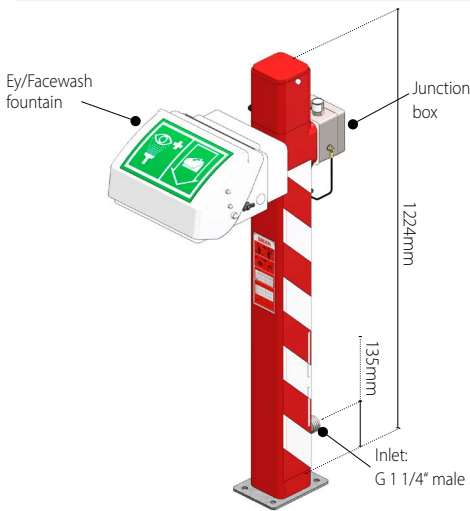
BROEN-LAB item no.	Material	Ex-proof*	Min. working temperature	Eye wash fountain	Mounting	Heated underground extension pipe
H7 21 002 10 00 221	Stainless Steel	Yes	-20°C	No	Floor	Available
H7 21 001 10 00 241	Stainless Steel	Yes	-35°C	No	Floor	Available
H7 21 001 10 00 231	Stainless Steel	No	-35°C	No	Floor	Available
H7 23 001 10 00 221	Stainless Steel	Yes	-20°C	-	Wall	-

*Ex-proof zone 1 and zone 2.

For more information and technical datasheets please contact your BROEN-LAB sales representative.

HEATED EYE/FACE SHOWERS

Heated Eye Wash Fountain, Pedestal Mounted

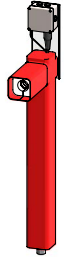


Outdoor pedestal mounted emergency eye/facewash fountain, trace tape heated and pre-insulated. Delivered with “unbreakable” integral lid, aerated diffusers, flow regulator and self-adhesive sign.


TECHNICAL SPECIFICATIONS

Min. working pressure: 2 Bar
 Min. working temperature: -20°C
 Water Flow: 20 l/min.
 Supply voltage: 230VAC, 50/60Hz

Heated underground extension pipe (ordered separately, see page 20 for more information)



ORDERING INFORMATION

BROEN-LAB item no.	Material	 Ex-proof*	Min. working temperature	Mounting	Heated underground extension pipe
H7 31 001 10 00 221	Stainless Steel	Yes	-20°C	Floor	Available

*Ex-proof zone 1 and zone 2.

MOBILE & PORTABLE EMERGENCY SHOWERS

Mobile Emergency Safety Shower is designed as a quick response, first-aid device for use where a plumbed-in unit is not available and must therefore be backed up by a method of further decontamination.

Portable Emergency Eye and Face shower (Unheated)

No. H7170011000303



TECHNICAL SPECIFICATIONS

Capacity: 15 l
 Min. working temperature: +1°C
 Water Flow: 8 l/min.
 Material: Stainless Steel cylinder

Mobile Self Contained 1200 L Shower and Eyewash incl. Pump

No. H7470031000331



TECHNICAL SPECIFICATIONS

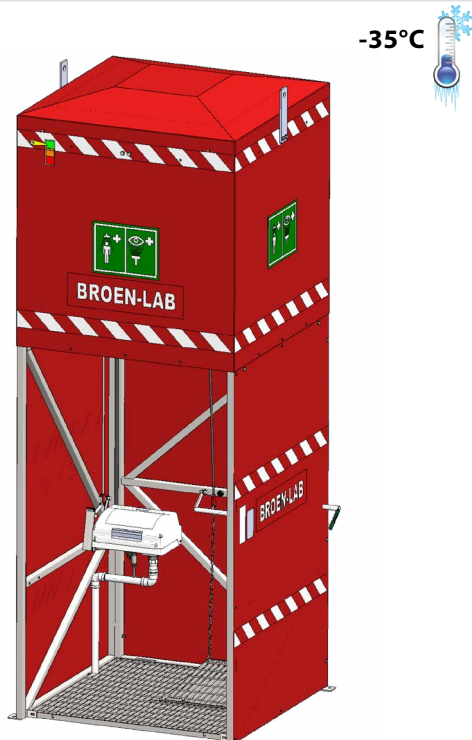
Capacity: 1200 l
 Min. working temperature: -10°C
 Water Flow: 75 l/min.
 Supply voltage: 230VAC, 50/60Hz
 Material:
 - Galvanized mild steel trailer
 - Red polyethylene tank

HEATED TANK SHOWERS

A range of heavy duty emergency tank showers, for use when warm water is required, or a constant supply of water cannot be guaranteed.

These units are essential where there is a lack of water pressure or inadequate flow rate. This improved range incorporates models to suit a wide range of situations.

Body Shower with Eye Wash Fountain & 1200 l tank



STANDARD CONFIGURATION

- 1200 l tank in medium density polythene
- Support legs and frame in Stainless Steel
- Rear and side GRP panelling
- Visual level indicator
- Body shower
- Eye/facewash fountain
- Shower control panic bar
- Foot panel for body shower

TECHNICAL SPECIFICATIONS

Min. working temperature: -35°C
 Water Flow: 75 l/min.
 Supply voltage: 230VAC, 50/60Hz

The **1200 liter** models will meet the mentioned standards even without an external supply connected.

For areas with high outside temperatures models with chillers can be supplied.

Unheated models are also available.

ORDERING INFORMATION

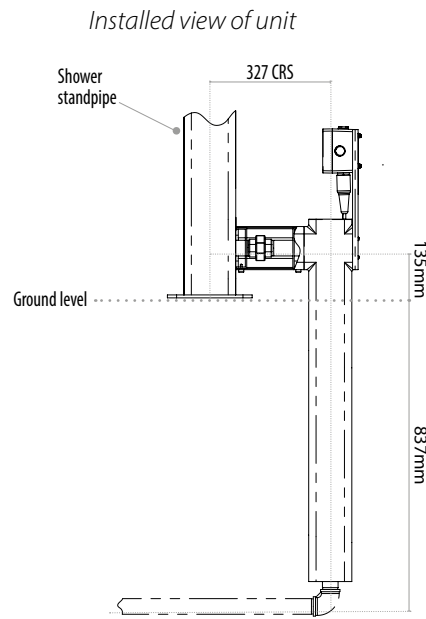
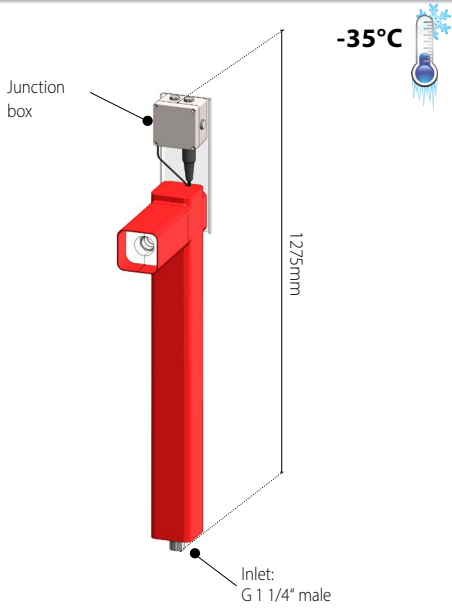
BROEN-LAB item no.	Material	 Ex-proof*	Min. working temperature	Eye wash fountain	Tank volume
H7 61 003 10 01 241	Stainless Steel	Yes	-35°C	Yes	1200 l
H7 61 003 10 01 231	Stainless Steel	No	-35°C	Yes	1200 l

*Ex-proof zone 1 and zone 2.

For more information and technical datasheets please contact your BROEN-LAB sales representative.

ACCESSORIES FOR HEATED SHOWERS

Heated Underground Extension Pipe for Heated Body Showers




Heated underground extension pipe, trace tape heated and pre-insulated. To be used for connecting to an underground supply.

TECHNICAL SPECIFICATIONS

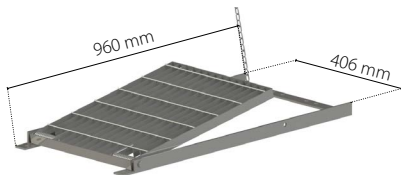
Min. working temperature: -35°C
Supply voltage: 230VAC, 50/60Hz

ORDERING INFORMATION

BROEN-LAB item no.	Material	 Ex-proof*	Min. working temperature	Mounting
H7 51 001 10 00 221	Stainless Steel	Yes	-35°C	Underground

*Ex-proof zone 1 and zone 2.

Foot Panel for Operation of Body shower



Weight: Approx. 23 kg

No. 17 919 009 - Stainless Steel version

It is possible to combine with 17 919 009 if mounted 180° opposite. (see page 12)

Foot Treadle for Operation of Heated Eye Wash



No. 17 804 009 - Stainless Steel version

For heated eye washes operational down to -20°C

No. 17 805 009 - Stainless Steel version

For heated eye washes operational down to -35°C

For more information and technical datasheets please contact your BROEN-LAB sales representative.

Emergency Showers Are Important

Thousands of industrial accidents happen every year in spite of precautionary safety measures, accidents that are caused by human exposure to heat (fire, boiling water and oil, steam, etc.), to corrosive agents (fluid acids and caustics) and/or to influence by dust and corrosive aerosols (metal, dirt, fluids).

These accidents may cause the injured person acute pain, disablement and loss of life.

However, experience shows that the consequences and human suffering following such accidents can be considerably limited if water is applied directly to the affected areas instantly after the exposure.

It is a harsh reality that risk lurks in many places: in the laboratory, in the kitchen, in the warehouse, in the chemical plant, in the workshop or generally speaking in any place where heat, corrosion or dust can cause serious human injury.

For these reasons we strongly recommend installation of an adequate emergency shower system as a means of limiting these risks.

Location and Operation of Emergency Showers

The shower must be located as close to the workplace as possible so that the general first aid instructions of flushing the affected area immediately after the accident has occurred can be followed.

Please note that if strong acids or caustics are involved immediate action is required.

When installing the emergency shower system please also be aware that it must be easy to locate and access at all times for potential users.

The BROEN-LAB showers can be recognized by their red body shower pull rods and red eye shower push handles. In addition the inter-nationally adapted graphic symbols for the clear identification of emergency shower installations are always included in BROEN-LAB solutions.

Further information and guidelines can be found in the EN 15154 part 1 & 2 - European standard for Emergency safety showers

Operation

All BROEN-LAB emergency shower systems are designed and engineered to be easily operable. This allows for "one-action" activation of the shower ensuring immediate and continued flushing without any need for further action.

The easy operation also allows the injured person to use both hands to keep the eyes open for effective flushing, to undress under the shower, or just to help exposing the affected area for better and more expedient treatment.

On the eye shower, the nozzles are protected by rubber cups to keep the injured person from hurting themselves unintentionally. The nozzles are also protected against dust and dirt by the caps which are removed automatically by the initial jet of water.

Water Pressure and Temperature

Emergency showers shall be connected to a cold water system with at least drinking water quality which ensures clean and fresh water. In addition, we recommend the water temperature to be kept within the range of 15° to 25° Celsius in order to provide the best immediate effect, reasonable human comfort, and at the same time avoid hypothermia.

All eye showers are delivered with FLOWFIX water regulating devices ensuring constant adequate water flow regardless of high water pressure.

The illustrations will inform you of the capacities of the showers.

Threading

In general the BROEN-LAB Emergency Showers are equipped with threadings as follows:

E.g. G 1/2": In accordance to ISO 228/1.

E.g. NPT 1/2": In accordance to ANSI-B1.20.1.

Maintenance and Information

When installing emergency shower systems, the relevant safety advisor must provide instructions on operation and maintenance.

As basic information the potential user must be advised of:

- The location of the emergency shower system
- How to operate it and
- How to behave in case of an emergency

BROEN-LAB recommends users to check installed emergency shower systems once a week.

IN CASE OF AN EMERGENCY

In the event of accidents caused by human exposure to heat, corrosive agents, and/or to influence of dust and corrosive aerosols:

- ☞ Start flushing immediately – the seconds count.
- ☞ Remove contaminated clothing which is not stuck to the skin.
- ☞ Continue flushing.
- ☞ In case of an eye injury keep the eyelid open when continuing flushing.
- ☞ Call for an ambulance. Ask the doctor for advice.
- ☞ Continue flushing in the ambulance.
- ☞ Keep the flushing in the emergency room and during transport to the special ward.

In case of blistering, inform the doctor and the hospital about the substance in question and about possible countermeasures.

RAPID ACTION CAN BE OF VITAL IMPORTANCE.

PERSONAL WASH UNIT

The first seconds following an eye injury are often critical to keeping injury to a minimum. A personal wash unit may be kept in the immediate vicinity of employees working in a potentially hazardous area.

The main purpose of these units is to supply immediate flushing. With this accomplished, the injured individual should then proceed to a plumbed or self-contained eyewash and flush the eyes for the required 15-minute period.

REFERENCE: A1 PERSONAL WASH UNIT, ANSI Z358.1.

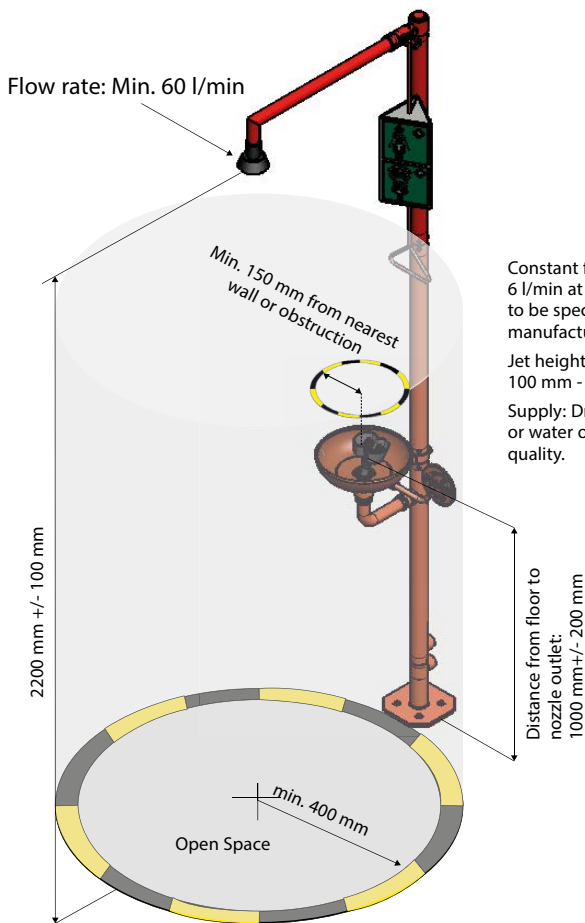
INTERNATIONAL STANDARDS
NORM EN 15154-1&2
 (European Committee for Standardization)

MAIN REQUIREMENTS

- The water supplied by the body shower shall be of constant flow rate in accordance with national regulations at a flow pressure to be specified by the manufacturer. The flow pressure shall be specified and measured where the shower is connected to the water system. The body shower shall be capable of delivering this supply for a minimum of 15 minutes. Note: When no national or local regulations apply, a constant flow rate of min. 60 l/min is suitable.
- It shall only be possible to make adjustments with a tool to the direction of spray or the water distribution of a shower head. The shower head shall be self-draining between the valve and the outlet. The shower head shall be removable for maintenance but only by use of a tool.
- At a distance 700 mm below the shower head, 50% (+/-10%) of the volume of water delivered shall fall in a circle with a radius of 200mm; the water level in the individual compartments in this circle shall not deviate by more than 30% from the mean value. At this measuring level, the area reached by minimum 95% of the water shall be limited to a circle with a radius of 400 mm. The velocity of the water spray shall be low enough to be non-injurious to the user.
- The shower head shall be designed to be installed so that its lower edge is (2200 +/- 100) mm above the level on which the user stands.
- The valve shall not close automatically once it has been opened. The direction of operating the valve actuator shall be clearly visible and unmistakable.

Flow rate: Min. 60 l/min

OPEN SPACE

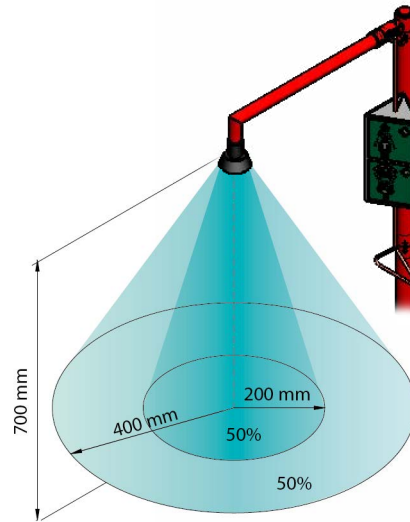


Constant flow rate of min 6 l/min at a flow pressure to be specified by the manufacturer.

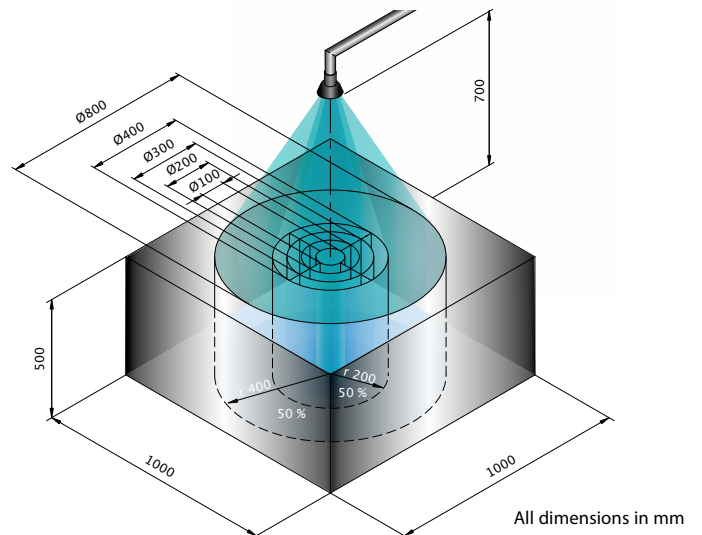
Jet height of water: 100 mm - 300 mm

Supply: Drinking water or water of equivalent quality.

WATER PATTERN



TYPE TESTING OF WATER DISTRIBUTION



Please refer to www.BROEN-LAB.com for a 3rd party certificate for EN 15154

INTERNATIONAL STANDARDS

NORM ANSI Z 358.1

(American National Standard Institute)

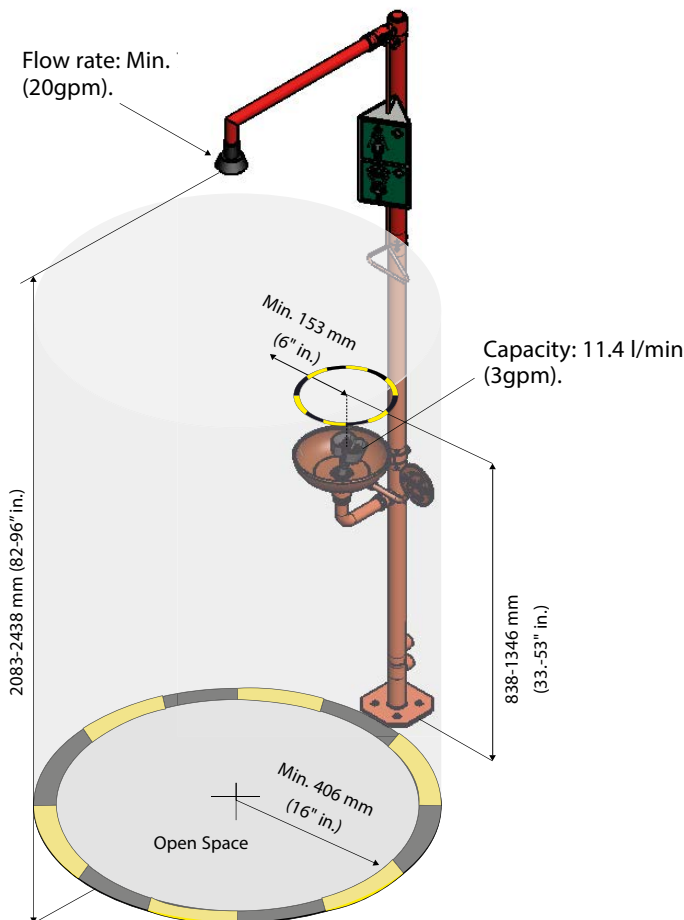
MAIN REQUIREMENTS

- Emergency eyewash and showers must be located in such a way that they can be reached by the user within maximum 10 seconds and available for immediate use (ref.: 4.5.2 + Safety considerations - B5).
- Eye/face showers must be able to deliver at least 11.4 l. water per minute continuously for at least 15 minutes (ref.: 6.1.6).
- The handle of pull rod must be located at a maximum height of 173.3 cm above the floor (ref.: 4.2).
- The valve must go from "off" to "on" position within 1 second or less and be able to remain open without further action. (ref.: 4.2).
- The body shower must be capable of delivering flushing fluid at a minimum of 75.7 liters per minute continuously for a minimum of 15 minutes (ref.: 4.1.4).

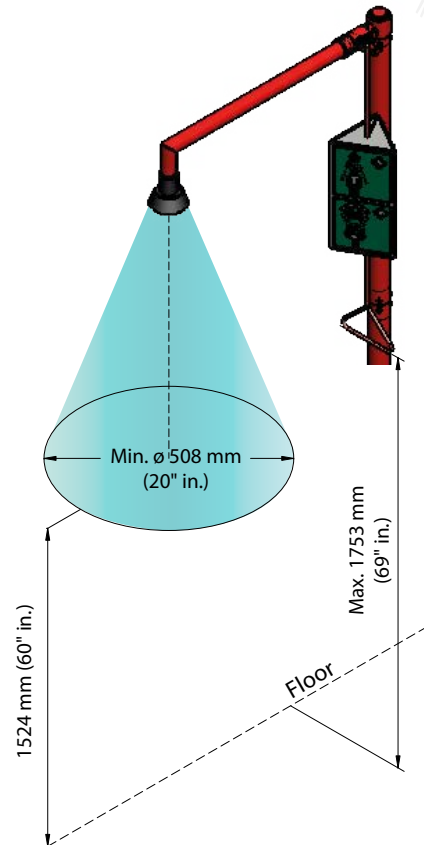
- The diameter of the water spray pattern must be minimum 50.8 cm measured at 152.4 cm above the floor (ref.: 4.1.4).
- The face of the showerhead shall be located within a range of 208.3 cm to 243.8 cm from the floor (ref.: 4.4.1).
- The eye/face showers flushing fluid flow pattern must be located within a range of 83.8 cm to 134.6 cm above the floor (ref.: 5.4.4).
- The shower must be activated at least once a week (ref.: 4.6.2).
- Tepid water is required in all showers (ref.: 4.5.6 + Safety considerations - B5).

Reference: ANSI Z 358.1-2014

OPEN SPACE



WATER PATTERN



An eye shower is the only allowable exception from the rule that no obstructions are allowed in the "open space".

Please refer to www.BROEN-LAB.com for a 3rd party certificate for ANSI Z358.1.

SPECIFICATION OF MATERIALS

Shower outlet	Brass/PP or PPO
Stand pipe	Stainless steel (AISI 304) or brass
Rubber cups	EPDM
Dust caps	POM
Bowl	Stainless steel (AISI 304)

Available in chemical resistant "BROEN-LAB Polycoat" (polyester powder coating) or "Stanniloy" plating (a highly anti-corrosive treatment based on a tin/nickel alloy).

TECHNICAL SPECIFICATIONS

Min. working pressure (Dynamic/Flow pressure): See individual products.

Recommended max. working pressure:

kPa	kN/m ²	bar	psi
500	500	5	72.5

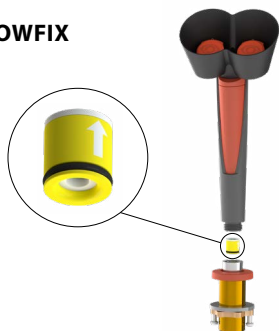
Max. working pressure (Static):

kPa	kN/m ²	bar	psi
1000	1000	10	145

Recommended temperature: 25°C.

Alternatively, install TMV.

FLOWFIX



FLOWFIX is a feature that is built into most of BROEN-LAB's eye baths and hand/eye showers. Flowfix is a water regulating device, that controls the water flow at a preset rate regardless of water pressure.

SYMBOLS:



Eye shower



Body shower

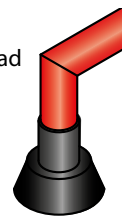


For disabled people as well

SELF-DRAINING SHOWER HEAD

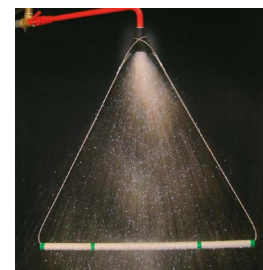
BROEN-LAB has developed a new self-draining emergency shower head in compliance with both EN15154-1 and ANSI Z358.1.

BROEN-LAB has 3rd party certificate for EN 15154 and ANSI Z358.1-2014. The self-draining shower head requires min. 1 bar (14.5 psi) and max. 10 bar (145 psi) dynamic water pressure for optimal function.



FEATURES & BENEFITS

- ✓ Self-draining, anti lime scale - prevents bacteria build-up and reduces maintenance
- ✓ Complies to both EN & ANSI Standards
- ✓ Chemical resistant PPO plastics
- ✓ Soft water spread
- ✓ Available for 1/2", 3/4" and 1" pipes



CALCULATING THE FLOWRATE AND DYNAMIC PRESSURE DROP

Any calculation can be done using the following formulas:

$$K_v = \frac{q_v [\text{m}^3/\text{h}]}{\sqrt{\Delta P [\text{bar}]}} \quad \text{or} \quad q_v = K_v \times \sqrt{\Delta P} \quad \text{or} \quad \Delta P = \left(\frac{q_v}{K_v} \right)^2$$

Where

K_v = flowrate [m³/h] or [l/sec] at 1 bar pressure drop

q_v = flowrate [m³/h] or [l/sec]

ΔP = pressure drop [bar]

1) Please note that eye showers with built-in FLOWFIX have a fixed flowrate.

Examples:

What pressure drop is needed in order to achieve 75 l/min = 1.25 l/sec through a body shower with 1/2" inlet?

$$\Delta P = \left(\frac{q_v}{K_v} \right)^2 = \left(\frac{1.25 [\text{l/sec}]}{1.08 [\text{l/sec}]} \right)^2 = 1.34 [\text{bar}]$$

What flowrate can be expected through a free standing body shower with top inlet at a pressure drop of 1.5 bar?

$$q_v = K_v \times \sqrt{\Delta P} = 1.10 [\text{l/sec}] \times \sqrt{1.5 [\text{bar}]} = 1.35 \text{ l/sec} = 80.8 \text{ l/min.}$$

K_v VALUES

Type of shower	Eye shower without FLOWFIX ¹⁾	Body shower 1/2" pipe or inlet	Body shower 3/4" pipe or inlet	Body shower 1" pipe or inlet	Free standing-body shower, top inlet	Free standing-body shower, bottom inlet	Thermostatic mixing valve 27 03 007 1035	Thermostatic mixing valve 17 512 009/17 513 009	
K_v -value	m ³ /h	0.75	3.89	4.3	5.31	3.97	2.99	1.05	4.7
	l/sec	0.21	1.08	1.19	1.48	1.10	0.83	0.29	1.33

NOTES

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BROEN-LAB develops, manufactures and sells Laboratory Fittings, Emergency Shower Systems and Eye Wash Systems into a broad spectrum of laboratories and industrial locations; sectors include Pharmaceutical, Food&Beverage and Academia. Our expertise and product quality ensure optimal solutions compliant to all relevant international norms setting new standards in risk mitigation in modern research and development facilities.

BROEN-LAB offers solutions that ensure the functionality, compliance, hygiene, durability and safety are of the highest priority. For more than 50 years our products have been integrated into a wide variety of workplaces, laboratories, hospitals and industrial locations, with features that are assessed and designed to be flexible, durable and compliant offering a broad range of options tailored to each location. This inherent design integrity provides confidence in the solution adopted wherever in the world these are applied.

BROEN-LAB is a collaboration partner in the design and layout of your next laboratory and it's integrated safety.



BROEN-LAB A/S ISO 9001 certification

In September 1991 BROEN-LAB A/S was certified according to ISO 9001 as one of the first Danish companies. The certification was carried out by Bureau Veritas, Denmark, for our Danish site in Assens.

The quality management system of BROEN-LAB A/S now complies with detailed specifications laid down by the internationally acknowledged EN ISO 9001:2015. This certification will further contribute to reputation for quality and reliability of BROEN-LAB A/S.

BROEN-LAB A/S ISO 14001:2015 certification

In December 2022 we got certified according to ISO 14001 in Environmental certification. The new certification was carried out by Bureau Veritas, Denmark, for Danish site in Assens. The Environment ISO14001 management system of BROEN-LAB A/S is included in internationally acknowledged EN ISO 9001:2015. Both certifications furthermore contribute to reputation for quality and reliability of BROEN-LAB A/S.