

Fire, Ice and Magic

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Instruction Manual Safety Torches



Mode of Operation:

The safety torches consist of a wire mesh cylinder filled with ceramic fibre. This cylinder sits inside a metal tube and can be pushed out of the torch using a lever at the side of the tube. The wire mesh cylinder is then fixed in this position using a handle. The handle does not heat up, even if the torch is lit for a long time. Therefore, a safety torch can be held comfortably for several minutes. When the handle is released, a spring pulls the mesh cylinder back into the tube, which douses the flame instantly. Even a torch dropped from a height of just 30 cm would be extinguished before it reaches the ground. The torches are covered with a black high-temperature powder-coating that is not damaged by the flames. Other colours / sizes can be manufactured on request.

The mesh cylinder does not necessarily have to be extended all the way, but can also be locked at a shorter length. As a result, the flame will burn at a lower height but for a longer amount of time.

We recommend the use of stagefire-liquid type B as the accompanying fuel. Alternatively, stagefire-liquid type A can also be used. For further information, see section 'preparatory work'.



Technical Data:

Safety Torch, small

- Diameter 30 mm
- Length when retracted 390 mm
- Length when extended 485 mm
- Weight approx. 430 grams
- Flame height with stagefire-liquid type B approx. 55 - 60 cm
- Flame height with stagefire-liquid type A approx. 40 - 45 cm
- Burning time with stagefire-liquid type B (at constant flame height) approx. 4.5 - 5 min
- Burning time with stagefire-liquid type A (at constant flame height) approx. 4 - 4.5 min
- Duration until fully extinguished approx. 6 min



Safety Torch, medium

- Diameter 35 mm
- Length when retracted 500 mm
- Length when extended 635 mm
- Weight approx. 660 grams
- Flame height with stagefire-liquid type B approx. 70 - 75 cm
- Flame height with stagefire-liquid type A approx. 45 - 55 cm
- Burning time with stagefire-liquid type B (at constant flame height) approx. 5 min
- Burning time with stagefire-liquid type A (at constant flame height) approx. 4 - 4.5 min
- Duration until fully extinguished approx. 8 min

Safety Torch, large

- Diameter 45 mm
- Length when retracted 500 mm
- Length when extended 635 mm
- Weight approx. 910 grams
- Flame height with stagefire-liquid type B approx. 85 - 90 cm
- Flame height with stagefire-liquid type A approx. 60 - 65 cm
- Burning time with stagefire-liquid type B (at constant flame height) approx. 6.5 - 7 min
- Burning time with stagefire-liquid type A (at constant flame height) approx. 5 - 5.5 min
- Duration until fully extinguished approx. 10 min

General Safety Instructions:

Safety torches are intended for creating fire effects on stage and similar settings. A safety torch is not a toy and should only be operated by experienced specialists.

Before first use, make sure to thoroughly read and understand this instruction manual. As your application is beyond our control, we cannot accept any liability for accidents caused by incorrect operation.

Before each use, suitable extinguishing agents must be provided in sufficient quantity. Familiarise yourself with operating these extinguishing agents before lighting safety torches.

Clarify in advance whether authorisation is required before use (e.g. in places of assembly) and whether automatic fire alarm systems (if present) have been deactivated in the effective range of the torch.

Only use the torches in a suitable environment, away from highly flammable materials. Protective measures and safety distances must be determined as part of the user's own risk assessment.

Suitable clothing and, where required, special protective equipment must be worn - especially during preparatory work. Please also pay attention to the safety data sheets of the flammable liquids used.

Unknown effects must always be tested in a safe environment before performing them in front of an audience. All personnel, especially performers, must be thoroughly instructed in the correct handling of safety torches.

Before each use, all safety torches must be checked to ensure that they are functioning correctly. Torches that do not function properly must *not* be used - this applies in particular to the extinguishing mechanism.

Only use the built-in mechanism to extinguish safety torches. They must never be extinguished by immersing them in water, sand or similar. Grains of sand can block the mechanism. Furthermore, the wire mesh cylinder must not be deformed under any circumstances, e.g. by hitting it against other objects.

If a safety torch is to be shipped and/or transported in general traffic, it must be completely burnt out beforehand so that there is no residue of flammable liquid left in the mesh cylinder.

Preparatory Work:

Once confirmed that your safety torch is functioning correctly, you can start applying the stagefire-liquid. Ensure that suitable extinguishing agents are available and wear the necessary protective equipment and clothing. Determine and secure the hazard area.

To begin with, extend the torch and lock it in place (see 'ignition and handling'). Two techniques have proven effective for soaking the ceramic fibre inside the wire mesh cylinder:

1. dipping it into a suitable container of stagefire-liquid.
2. slowly pouring a small amount of stagefire-liquid over the mesh cylinder. Please take into account that any excess liquid will drip down. Suitable drip trays must be placed underneath.

To ensure that there is no unabsorbed liquid in the torch, it is necessary to remove the excess by spinning the torch or allowing it to drip off after the soaking process. We recommend simply placing the torch vertically (with the mesh cylinder facing downwards) on a paper towel for a few minutes.

The paper towel must be properly disposed of afterwards.

Caution: Always allow safety torches to cool down sufficiently before soaking them again. Never soak a hot safety torch again immediately!

We recommend the use of stagefire-liquid type B (based on paraffin oil). This product burns with a strong yellow flame and produces a small amount of smoke. Stagefire-liquid type B has a flash point of over 60° Celsius and does not evaporate at room temperature. If necessary, a safety torch can therefore already be soaked with the liquid ahead of time, without the risk of it drying out or alcohol dissipating into the air. Furthermore, under normal conditions, stagefire-liquid type B only burns through 'wicking', i.e. the liquid alone cannot be ignited, but only burns once it has been

absorbed into a carrier material (in this case the ceramic fibre inside the wire mesh cylinder). Any drips caused by overflow will therefore not catch fire.

In some exceptional cases, it may also make sense to work with stagefire-liquid type A (nearly smoke-free with a light-yellow alcohol-based flame). You can find more information about stagefire-liquids on our website.

Ignition and Handling:

Firstly, slide the mesh cylinder all the way out of the tube using the lever. Next, keep the cylinder in place by gripping the handle on the lower part of the safety torch in your fist. As long as the handle is pressed against the tube of the safety torch, the mesh cylinder remains extended. With a little practice, it is possible to pass a lit safety torch from one performer to the next.

Caution: The socket screw on the top end of the torch must not be tightened down. The plate below the screw should always be able to rotate! Otherwise, the mesh cylinder cannot expand upwards when it is heated. Instead, it might expand in diameter and get jammed on its way back into the extinguishing tube.

As long as the torch is extended, the slot through which the lever was pushed up must not be touched under any circumstances! If the handle is released, the wire mesh cylinder will slide back into the extinguishing tube and the lever will abruptly move downwards through the slot towards the handle. **Risk of injury!**

To light the torch, a pilot flame must be held against the mesh cylinder. An ample amount of heat energy is required for ignition, as the metal of the mesh cylinder must be heated above 60° Celsius for the liquid to develop flammable vapours. Blowtorches have proven particularly effective for igniting safety torches quickly. If a performer needs to light a torch quickly on stage (without using a blowtorch), it is advisable to briefly ignite the safety torch backstage beforehand so that the mesh cylinder is already hot. The safety torch can then be lit quickly and easily for several minutes - using a normal lighter for example.

Caution: During the burning process, the upper part of the torch becomes hot and should therefore not be touched under any circumstances. The metal parts can still be hot even after the torch has been extinguished!

If necessary, pay attention to wind direction!

To extinguish the safety torch, simply loosen your grip around the handle. The mesh cylinder will then slide back in and the flames will be extinguished immediately.

If it is necessary to extinguish a torch silently, e.g. for scenic reasons, you can keep the lever in place with your second hand before releasing the handle and then let the lever slide down slowly. It is also possible to push the wire mesh cylinder out only partly and keep it fixed at a lower position. In this case, the fire effect would be smaller but the flames would burn for a longer time.

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