OPERATING INSTRUCTIONS
DR-STHAMER FOAMBOX

Please study thoroughly and follow the instructions accurately.
Precise use is essential in order to achieve exact results!

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Dr. STHAMER FOAMBOX

Operating Instructions Version:01/13

1 General

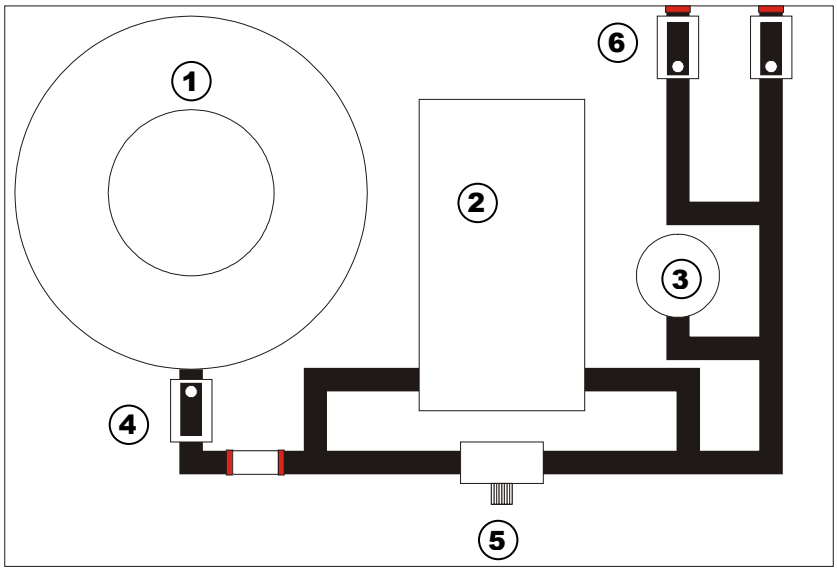
1.1 Contents

The ***Dr. STHAMER FOAMBOX*** comprises the following components:

1 Pump (12 Volt), (1)
1 Foam/Water Bottle (max. 5 Liter)
1 Power Supply (230 Volt to 13,8 Volt)
1 Medium Expansion Foam Nozzle
1 Low Expansion Foam Nozzle
2 Connection Hoses (Length 1,5 m, Ø 4mm)
1 Pressure Guage
1 Measuring Tube
1 Hand Mixer
1 Aluminium Carry Case

1.2 Description

The pump is permanently mounted on the base plate. The Foam Water bottle is connected to suction side of the pump. On the discharge side of the pump there are two push-fit connectors to connect to the foam nozzles. The pump pressure is manually adjusted by a valve in the pump bypass line.



1 Storage Bottle
2 Pump
3 Pressure Guage
4 Storage Bottle Valve
5 Pump Pressure Valve
6 Foam Nozzle Valves
Fixed Piping, Do Not Tamper
Piping which can be adjusted.
Push-Fit Connectors

Figure 2: Schematic of Base Plate and Components

1.3 Identification and instructions

Important Information and Instructions are indicated with the following symbols

Caution Indicates Caution, instructions must be followed.

Risk of Electric Shock Indicates risk of electric shock.

Safe Operating Instructions Indicates safe working of the ***Dr. STHAMER FOAMBOX***

1.4 Description of Components

1.4.1 Pump

The mini-pressure diaphragm pump is ideal for high pressure and continuous running applications that may run dry. The pump is rated for a maximum pressure of 10.5 bar at 5.7l/min and at a maximum current of 7amps continuous load.
The pump is equipped with a safety cutout at 7.5 bar. A thermal overload limits the pump temperature to 80°C.

Intended Use

The Pump is used to pump the premixed foam extinguishing agent solution at a specified pressure. The maximum discharge pressure is limited to 7.5 bar and must not be altered. The foam/water solution must not exceed a temperature of 60°C.

The pumps power supply connection may only be via the included AC power transformer. The pump must not be directly connected to the mains 230 volt supply.

Hazards related to electric shock are not included in these instructions, please refer to your electricity supply provider for examples.

1.4.2 Power Supply

The power supply manufactured byVoltkraft™ model 1138 has the following ratings:
13,8 Volt DC (Direct Current) at 8 Amps continuous rating/ 10 amps for short periods (not exceeding 5 minutes!)

Intended Use

The stabilised Voltkraft™ fixed voltage power supply model 1138 is suitable for connection and operation of low voltage devices.

Under normal operation of the pump does not exceed the maximum output of the power supply.
The power supply is manufactured to protection Class 1. It is only approved for connection earthed sockets and a standard 230 V ~ / 50 Hz supply.

Use in damp areas, outdoors or in unfavourable environmental conditions is not recommended..

Unfavourable Environmental Conditions Include:

- Damp or high humidity.
- Dust or flammable gases, vapours or solvents.
- Strong Vibrations

Any use other than those described in this manual can lead to damage of the power supply and may involve other risks such as: Short Circuit, fire, electric shock etc. The power supply must not be modified. The safety instructions must be followed.

For the safe operation of the ***Dr. STHAMER FOAMBOX*** Pump and power supply we have built in a safety factor!

To ensure a safe distance between power supply and pump a 2.5metre low voltage connection cable has been provided, this cable should not be shortened.

The intended use also requires that the Power Supply manufacturers instructions be followd.

1.4.3 Storage Bottle

The Storage bottle is manufactured from High Density Polyethylene (HDPE), it has a maximum fill capacity of 5000 ml and has graduation marks at 500 ml intervals. This scale is not accurately calibrated. The HDPE material has good chemical resistance and good thermal stability upto +60°C. The storage bottle outlet incudes a fine mesh filter to protect the discharge tubing and nozzles from particulates.

Intended Use

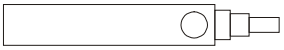
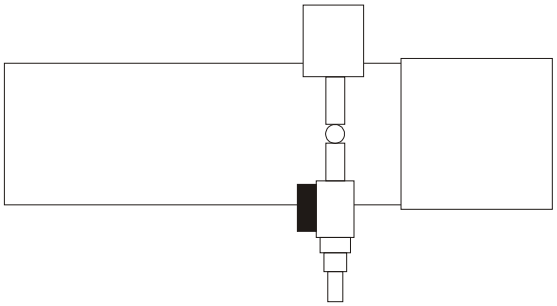
The storage bottle is only for use with foam extinguishing agents solutions upto +60°C.

The storage bottle must only be operated at atmospheric pressure.

During operation of the pump the bottom outlet valve must be opened and the storage bottle cap must be removed, otherwise a vacuum will occur.

1.4.4 Foam Nozzles

Supplied with the ***Dr. STHAMER FOAMBOX*** are two foam nozzles that have been matched to the output of the pump and pressure losses in the system. The flow capacity of foam are between 1 to 1,5 Liter/min at 3 to 6 bar pressure at the Pump.

	Pump Pressure	Expansion	
Low Expansion Foam Nozzle	4-5 bar	ca. 6 to 7 times	
Medium Expansion Foam Nozzle	4-5 bar	ca. 40 to 50 times	
High Expansion Foam Nozzle (optional)	0,8 – 1,2 bar	ca. 500 times	

The above figures refer to standard conditions, i.e. water and ambient temperature at 20°C.

Intended Use

He foam nozzles may only be used for discharging aqueous foam extinguishing agent solutions.

1.4.5 Connection Hoses

The hoses are made of polyurethane (PUR). The discharge pipe system is designed to work at the pre-set lengths at a pump working pressue of 4-5 bar. The connection hoses have a diameter of 4mm and a length of 1,5m.

Intended Use

The maximum operating pressure of the hose is 10 bar. Maximium operating Temperature is 60°C.
The connection hoses are only to be used with the ***Dr. STHAMER FOAMBOX.***

1.4.6 Measuring Cylinder

The measuring cylinder is made of PMP/TPX®, it has a maximum volume of 250 ml and is graduated in 1ml increments.The material is resistant to temperature in the range.

Intended Use

The measuring cylinder is used to measure and dispense foam extinguishing concentrates only..

1.4.7 Hand-Mixer

The hand mixer is made of stainless steel (V2A) and can be used with all foam extinguishing agent concentrates and solutions.

Intended Use

The hand mixer is to be used for mixing foam agent solutions only.

1.4.8 Foam Extinguishing Agents

The ***Dr. STHAMER FOAMBOX*** can be used with all commercially available foam extinguishing agents.

The intended use of the ***Dr. STHAMERFOAMBOX*** infers that all instructions and details of the foam agent manufacturers be followed.

2 Operating Instructions

This manual contains information and instructions on the safe working of the ***Dr. STHAMER FOAMBOX*** only when the contents are understood and followed:

- Hazards will be avoided.
- The reliability and service life of the ***Dr. STHAMER FOAMBOX*** will be extended.

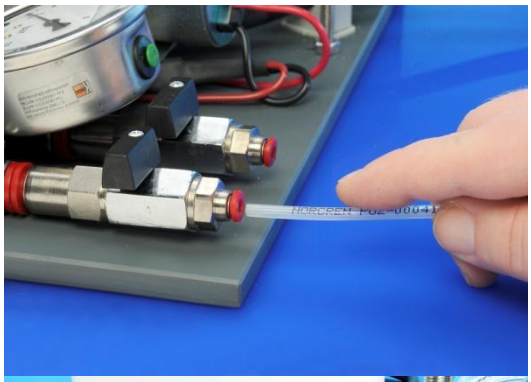
This manual does not seek to replace existing Health and Safety Rules in force in your location, which must be followed at all times.

2.1 Commissioning / Installation

2.1.1 Place the Carrying Case and Base Plate on a stable position.

2.1.2 Insert the (Ø 4mm) connection hoses in the corresponding Push-Fit connectors.

2.1.3 Check and confirm positive connections.



2.1.4 Connect the Power Supply

2.1.5 Prepare the foam solution.
Either in the provided container or externally – Avoid foaming!

2.1.6 The foam storage bottle cap must be removed during operation.

2.1.7 Open valves on Storage Container and Foam Nozzle — see (4) and (6) in Figure 2

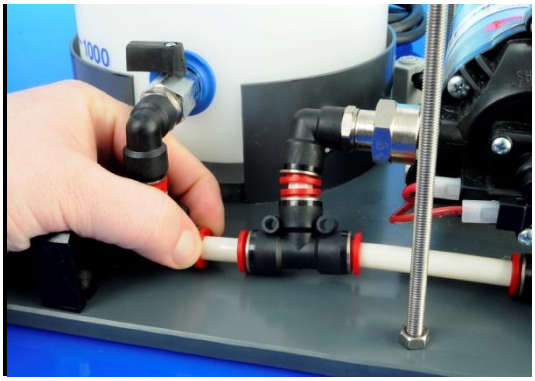
2.1.8 Fix Foam Nozzle in a Tripod (not supplied)

2.1.9 Start the pump power supply, after a short moment stable foam will be produced.

2.1.10 If necessary adjust the pump pressure.

2.2 After Use / Cleaning /Maintenance

All foam concentrate residues must be cleaed from all components and fittings, if necessary disconnect and clean.



2.2.1 Thoroughly rinse the storage container with clean water.

2.2.2 Replace the storage container and fill with hot water (max 60C) and flush out the pump and connecting pipes with plenty of water to ensure no residues remain.

2.2.3 After satisfactory cleaning disconnect the power supply.

3 Problems / Faults

Problem	Cause	Solution
Pump does not function	No power	Check the connections, the fuse on the power supply,the cables for damage and good fit.
	Overheating of the pump is triggered at T > 80°C.	Allow the pump to cool.
	Has the pump overpressure tripped? Set at p > 7,5 bar	Open the valves to reduce the back pressure.
Pump pressure not within the specification of the foam nozzles	Air trapped in the system	Run the pump until the pressure has built up.
Pump pressure to low	Storage container outlet filter is blocked	Clean the filter or replace with a new one if necessary.
	Storage Container Sealed	Remove the storage container cap and open the outlet valve.
	Push-Fit connectors loose and drawing air	Check the connections are good and air tight.
Pump pressure to high	Pressure loss in the system is to high	Check connection tubes have no kinks.
No or low foaming	Foam agent concnetration solution to weak.	Check the mixing of the faam agent solution for correct ratio or remake to ensure correct ratio.
	Foam Extinguishing agent of insufficient quality/out of specification	Source alternative sample for testing.
	Pump pressure to high or to low	Adjustthepumps pressure.
	Air trapped in the system	Run the pump until the pressure has built up.
	Storage container outlet filter is blocked.	Clean the filter or replace with a new one if necessary.
	Foam nozzles clogged	Clean the foam nozzles.

4 General Safety

Keep these instruction clean and legible at all times and have a copy to hand whenever in use.
Read and understand the manuals before attempting any maintenance.
Disconnect the power supply before attempting any maintenance.
The **Dr. STHAMER FOAMBOX** must only be operated with the supplied components and must be maintained in perfect condition for safe operation in accordance with these instructions.

The intended use of the **Dr. STHAMER FOAMBOX** is the production of foam using the included foam nozzles only. The responsibility is limited solely to the production of foam.
Compliance to local statutory Safety Regulations is the responsibilty of the operator.
The instructions contained in the foam concentrate data sheets and Safety Data sheets must be adhered to.

5 Non Compliance with Safety Instructions.

Failure to follow the safe working instructions can result in danger to the operator and others, the environment and the equipment
Failure to follow these safety instructions will lead to loss of any warranty and damage claims.

In individual cases, non compliance can for example can cause the following risks:
• Failure of the components of the ***Dr. STHAMER FOAMBOX*.**
• Danger to person from electrical, mechanical and chemical effects.
• Damage to the environment due to negligent handling of the fire fighting foam concnetrate and solutions.

6 Appendix

6.1 Admixing Table

Concentrate Type	Discharge Volume [ml]				
	3000	3500	4000	4500	5000
1%	30 / 2970	35 / 3465	40 / 3960	45 / 4455	50 / 4950
2%	60 / 2940	70 / 3430	80 / 3920	90 / 4410	100 / 4900
3%	90 / 2910	105 / 3395	120 / 3880	135 / 4365	150 / 4850

Admixing Table for determining the amount of concentrate/water at predetermind volumes of solution.

Measure using the Measuring cylinder the indicated amount of foam concentrate and fill the storage bottle with the corresponding quantity of water, and mix carefully to avoid foaming.