

FireDos® Proportioners for Stationary Extinguishing Systems

Deluge systems



Seawater extinguishing systems



Sprinkler systems



Foam extinguishing systems



About us

FireDos® GmbH

We are a dynamic, medium-sized company, and have been engaged for over 25 years in the special field of dosing technology which works without external energy.

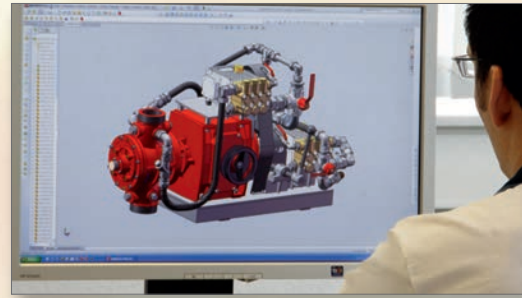
For around 15 years, we have been supplying specially developed product variants under the brand name **FireDos** for fire-fighting applications. Because of its special advantages, **FireDos** proportioners quickly aroused great interest, with the result that today several thousand proportioners are in service throughout the world to the satisfaction of our customers. Due to this outstanding success, this area of business has developed into a separate company with the name of **FireDos GmbH**.

We place great value on providing all services to do with our product ourselves: Design and development, handling of approval procedures, production including comprehensive parts manufacture, sales, service, quality and environmental management all remain in our hands.

We will be happy to work with you!



FD6000/3-PP-S in a foam extinguishing system for the protection of a tank farm

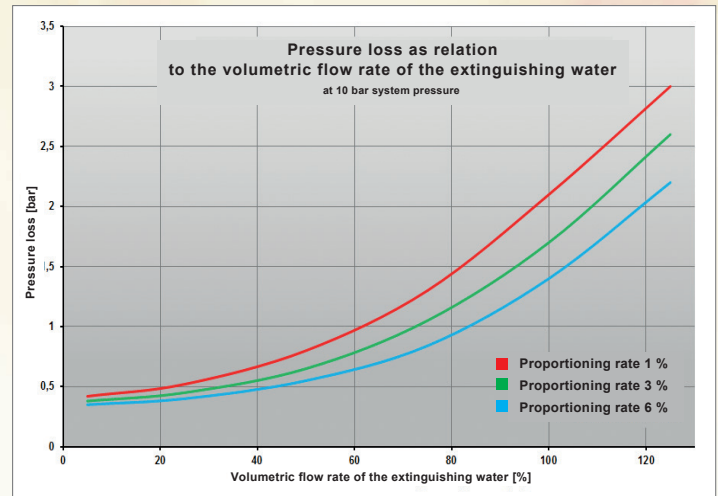
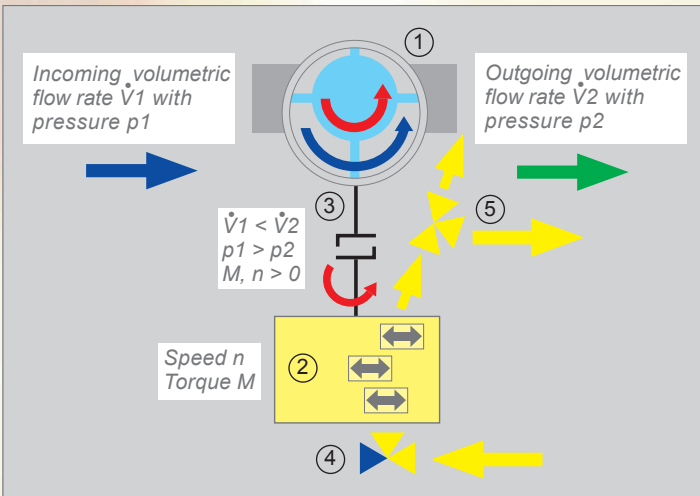
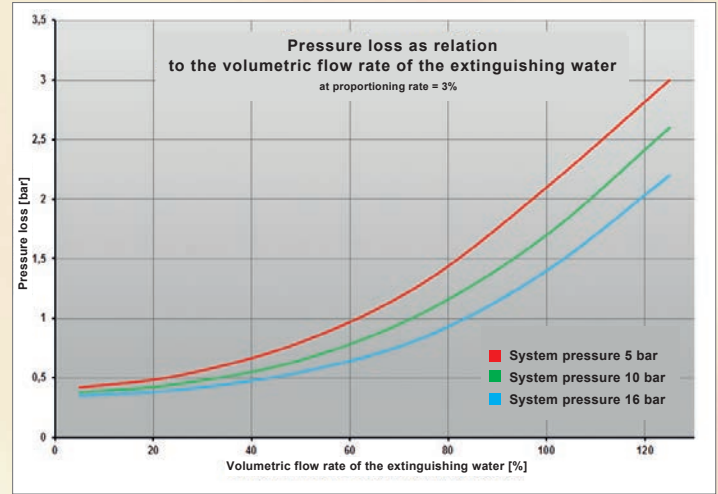
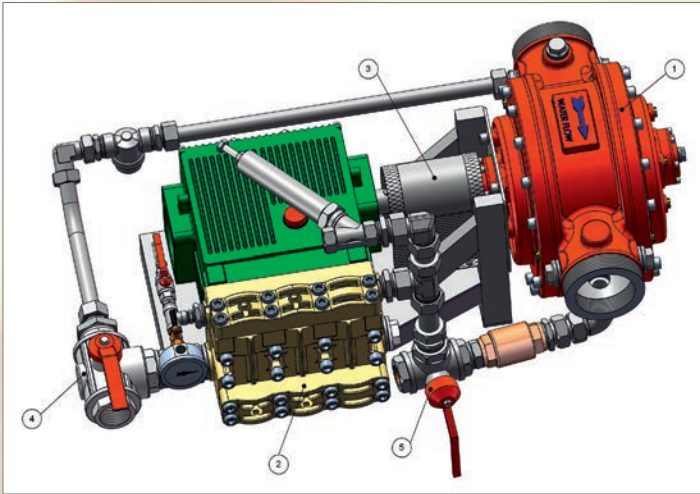


Based on waterpower

FireDos proportioners work without external energy, and even under changing pressure conditions reliably and at a constant proportioning rate. They are suitable for the proportioning of fluids.

Water motor (1): The drive is provided completely by the extinguishing water flow. The water flows through the water motor (1), which is installed directly in the extinguishing water pipework. The extinguishing water flow is therefore available in full for fire-fighting. Without losses. The speed of the water motor is proportional to the volumetric flow rate of the extinguishing water.

Intelligent proportioning with *FireDos*[®]



Proportioning pump (2): The water motor (1) and proportioning pump (2) are connected with each other via a coupling (3), and therefore operate at the same speed. A purely mechanical system, which regulates itself automatically: The more extinguishing water that flows through the water motor, the more extinguishing agent is added, and vice versa. The proportioning rate selected by the user always remains constant.

3-way ball-valve “Flushing/Priming“ (4): The 3-way ball-valve “Flushing/Priming“ can be used to change from proportioning to flushing operation. This directs water from the extinguishing water pipework at over-pressure through the proportioning pump, and switches off the proportioning.

3-way ball-valve “Returning/Admixing“ (5): With the aid of the optional connection of the extinguishing agent return line with pressure relief valve, the actual proportioning rate can be determined for test purposes without generating premix.

FireDos proportioners draw the energy required for the proportioning process from the extinguishing water. This results in a low pressure loss, which can be minimised by the optimum dimensioning of the *FireDos* proportioner.

All components of the *FireDos* proportioner are assembled as a fixed unit, and tested in the factory for function and leaks. Commissioning can take place directly following installation on site. Adjustment or setting is neither necessary nor possible.



FD4000/1-PP-S in a sprinkler system with proportioning for protection of a high rack warehouse



FD8000/3-PP-S in a deluge system with foam proportioning for protection of an aircraft hangar



FD8000/1-PP-S seawater in a foam extinguishing system for protection of an oil loading terminal

Tailor-made proportioners for every application

FireDos proportioners for stationary extinguishing systems are in successful use throughout the world in thousands of buildings, industrial plants and commercial businesses. They are in service in various types and designs, in all common types of extinguishing systems such as sprinkler systems and deluge systems with foam proportioning and foam extinguishing systems.

For all common extinguishing agents

FireDos proportioners can be used for the proportioning of all common extinguishing agents. The supply to the extinguishing system requires only an unpressurised, atmospheric tank, which can be filled or emptied easily, even during the extinguishing process. The replacement of the extinguishing agent, or switching to another product, is therefore possible without any problem and at any time. The following types of extinguishing agents are used in practice, and can be added to the extinguishing water flow with **FireDos** proportioners:

- Aqueous film forming foaming agent (AFFF)
- Aqueous film forming foaming agent for polar fluids (AFFF-AR)
- Class A and multi-zone foaming agent (MBS)
- Protein (PS) and fluorine film forming protein foaming agent (FFFP)
- Gel forming extinguishing agents
- Retarders
- Chemical extinguishing agents

Just to make sure

With the use of **FireDos** proportioners, you ensure that the proportioner used in your extinguishing system complies with the internationally required standards of legislators and insurance companies. Because **FireDos** proportioners are approved by some of the world's major institutions, including Factory Mutual (FM), Germanischer Lloyd (GL) and VdS Schadenverhütung.



FireDos proportioners also comply with the following legal directives:

- EU Machinery Directive 2006/42/EG
- DIN EN 13565-1 "Fixed fire-fighting systems – Foam extinguishing systems, Part 1: Requirements and test procedures for components"
- DIN EN 13565-2 "Fixed fire-fighting systems – Foam extinguishing systems, Part 2: Planning, installation and maintenance"
- NFPA11, "Standard for Low-, Medium- and High-Expansion Foam"
- EC Directive 94/9/EG, Appendix 1, "Proper use in areas subject to the risk of explosion" (applies to selected types of **FireDos** proportioners)

FireDos proportioners are available with certificate of conformity according to ATEX 95 equipment directive 94/9/EC, category group 2 and 3: Ex - II 2G IIC c T4, II 2D IIC c T<130°C



Memberships

We are a member of the following associations and institutions:

- bvfa (Bundesverband Technischer Brandschutz e. V. / National Association of Technical Fire Protection)
- VDMA (Verband Deutscher Maschinen- und Anlagenbau / German Engineering Federation)
- vfdb (Verein zur Förderung des Deutschen Brandschutzes e. V. / German Fire Protection Association)
- NFPA (National Fire Protection Association)



Options and configurations

The proportioner which leaves nothing to be desired

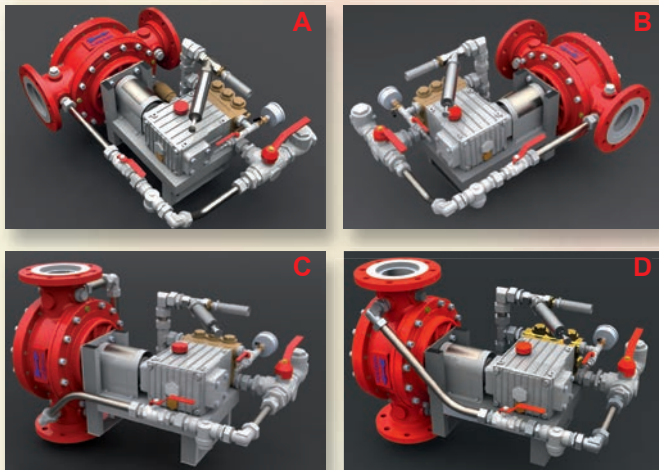
FireDos proportioners can be individually configured for every extinguishing system, and thereby optimally adapted to its requirements.

A selection of the most popular accessory options is given below, although many other variants are also available. Simply give us a call. We will be happy to advise you on the optimum configuration for your planned or existing extinguishing system.

Alternative flow direction

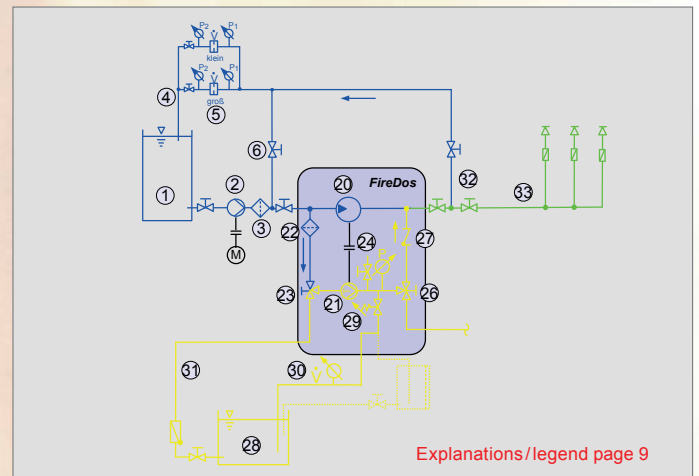
FireDos proportioners can be supplied with the following alternative flow directions, to take into account the relevant building circumstances:

- A** Horizontal flow through the water motor, from left to right, with the proportioning pump pointing towards the viewer (standard)
- B** Horizontal flow through the water motor, from right to left
- C** Vertical flow through the water motor, from bottom to top
- D** Vertical flow through the water motor, from top to bottom

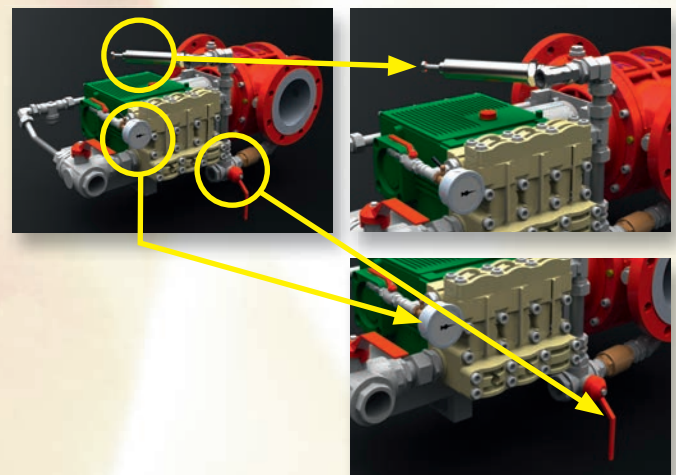


Return connection with pressure relief valve

The return line to be installed on site serves during tests or acceptance procedures for easy determination of the proportioning rate, without generating premix. By switching the 3-way ball-valve "Returning/Admixing", the extinguishing agent supplied by the proportioning pump is no longer led into the extinguishing water pipework but back to the tank. If a 3-way ball-valve installed in the return line on site is closed, the proportioning pump supplies extinguishing agent via a pressure relief valve, which opens automatically at the same moment. By means of the pressure relief valve adjustable with the aid of a manometer, a back-pressure can be simulated, which corresponds to that in the extinguishing water pipework, so that the operating conditions when determining the proportioning rate for test purposes correspond fully to conditions in practice.

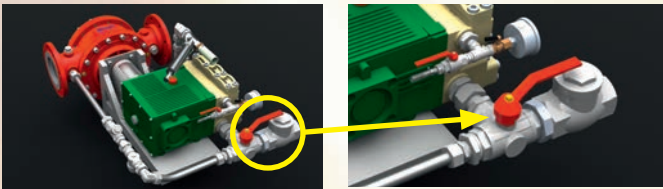


FireDos proportioner with a connection of the extinguishing agent return line with pressure relief valve



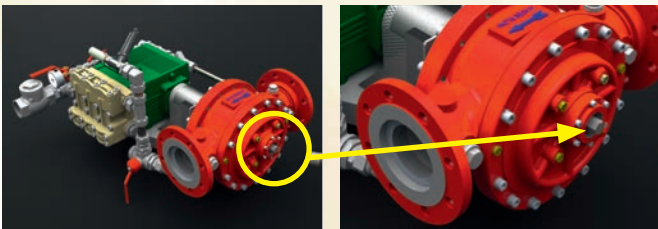
Non-return flap in the suction line

An optionally available non-return flap as an addition to the suction line prevents the return flow of extinguishing water into the extinguishing agent tank. A double nipple is supplied with the non-return flap, in order to be able to connect this to the 3-way ball-valve for switching between flushing of the proportioning pump and suction of the extinguishing agent. The non-return flap can alternatively be installed at another point in the suction line.



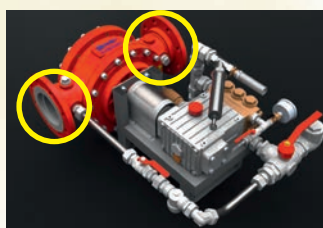
Service crank

The service crank attached to the *FireDos* proportioner by a steel cable is used for moving the water motor by hand for maintenance purposes. It is fitted by a hexagonal drive at the water motor, which is located behind a locking cover. This enables regular maintenance to be carried out without having to start the extinguishing water flow.



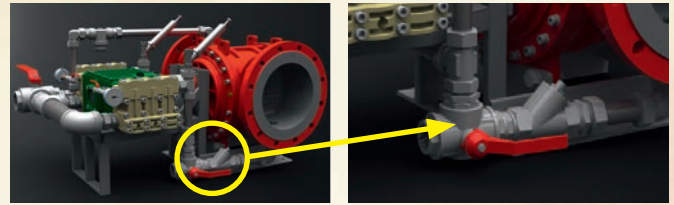
Flanges

Up to series FD2500, the connections of the water motors have external threads, for which flanges are optionally available. From series FD4000, the flanges are integrated into the housing of the water motor. All flanges can be designed to DIN or ANSI specifications.



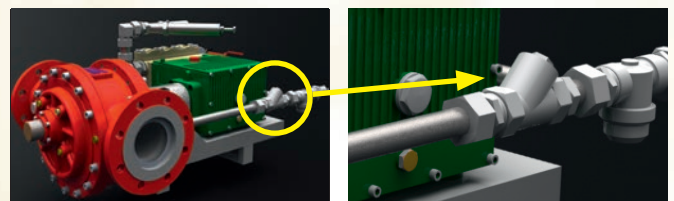
Non-return valve in the proportioning line with increased opening pressure

The non-return valve with increased opening pressure prevents the proportioning pump from running dry. The same applies to an extinguishing agent tank located at a higher level than the *FireDos* proportioner, in the event of an unpressurised extinguishing water pipework. It can be installed instead of the standard non-return valve.



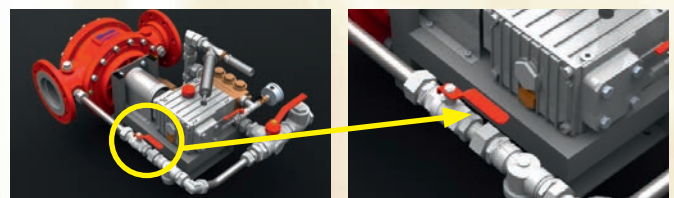
Additional non-return valve set in the flushing line

If the extinguishing agent tank is located at a higher level than the *FireDos* proportioner, it can run dry in the event of an unpressurised extinguishing water pipework and simultaneous faulty operation or simultaneous defect in the 3-way ball-valve for switching between suction of the extinguishing agent and flushing of the proportioning pump. This can be prevented by the installation of the optionally available non-return valve.



Additional ball-valve in the flushing line

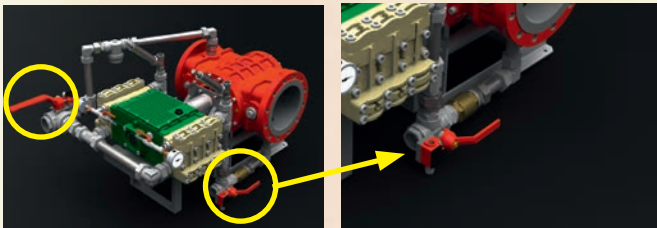
In order to shut off the flushing line of a *FireDos* proportioner which is under pressure for a short time, a manually operated ball-valve can be installed. This enables the maintenance/cleaning of the filter installed in the flushing line, without the pressure in the extinguishing water line having to be relieved.



Options and configurations

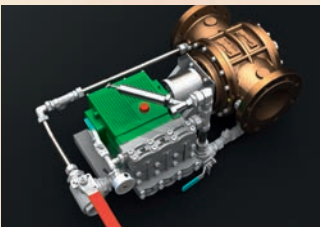
Electrical monitoring of 3-way ball-valves

Electrical monitoring of the position of manually operated 3-way ball-valves for switching between “Flushing/Priming” and “Returning/Admixing” (1 opener and 1 closer). The maximum control voltage is 24V DC, and the maximum switching current 3 A. The electrical monitoring is integrated into the 3-way ball-valves, but can also be fitted at a later date without any problem.



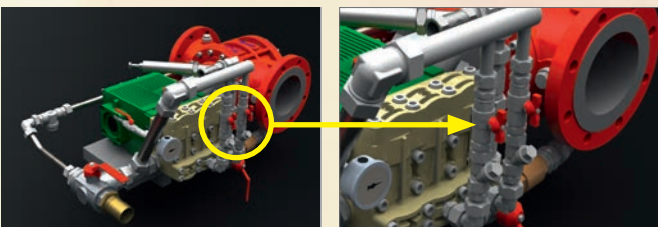
Seawater-resistant version

If seawater is to be used for extinguishing purposes, every **FireDos** proportioner is available in a seawater-resistant version. Special materials and surface coatings provide effective protection against corrosion.



Cylinder switch off

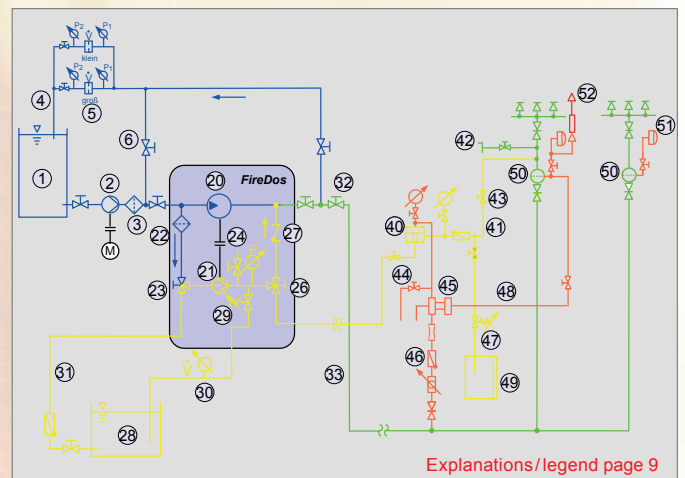
For stepwise adjustment of the proportioning rate by switching off individual cylinders of the proportioning pump. For example, this enables the generation of extinguishing foam or wetting agent with the same **FireDos** proportioner.



Remote proportioning

In the standard case, the proportioning line is integrated into the **FireDos** proportioner. As an alternative, the remote proportioning of the extinguishing agent offers the possibility of supplying individual extinguishing zones specifically with premix, independently of other extinguishing zones, without the need for a separate **FireDos** proportioner for every extinguishing zone.

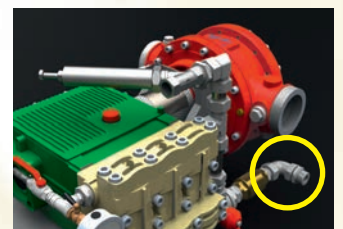
On actuation of the relevant extinguishing zone, an extinguishing agent control valve opens, making the connection between the proportioning line and the admixing point. The proportioning line can be designed as a simple pipe connection with non-return valve.



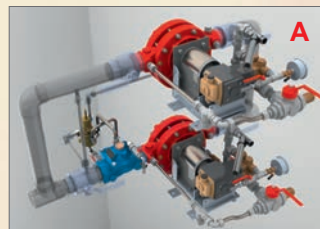
FireDos proportioner for remote proportioning

Proportional control valve operating on differential pressure for parallel installation or as a by-pass opener

In case of an increasing volumetric flow rate of the extinguishing water, a further, parallel installed **FireDos** proportioner can be switched in by means of a proportional control valve operating on differential pressure.



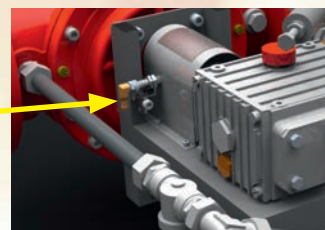
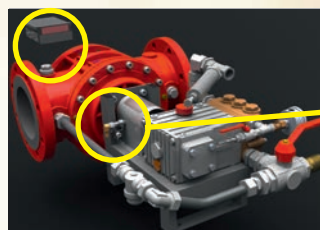
In a **FireDos** proportioner which is initially intended to work alone at low volumetric flow rates of the extinguishing water, the pressure difference is measured between the inlet and outlet of the water motor. This increases with an increasing volumetric flow rate of the extinguishing water. The pressure difference corresponding to the maximum volumetric flow rate of the extinguishing water of the **FireDos** proportioner, when initially working alone, is set as the threshold value at the proportional control valve. As soon as this pressure is reached, a further, parallel installed **FireDos** proportioner is switched in by the proportional control valve. The proportional control valve can be used in the same way in order to open a by-pass around a **FireDos** proportioner. The part of the volumetric flow rate of the extinguishing water which would overload a **FireDos** proportioner is directed via the by-pass. This protective device is advisable particularly when starting up dry extinguishing systems.



Indication of the volumetric flow rate of the extinguishing water

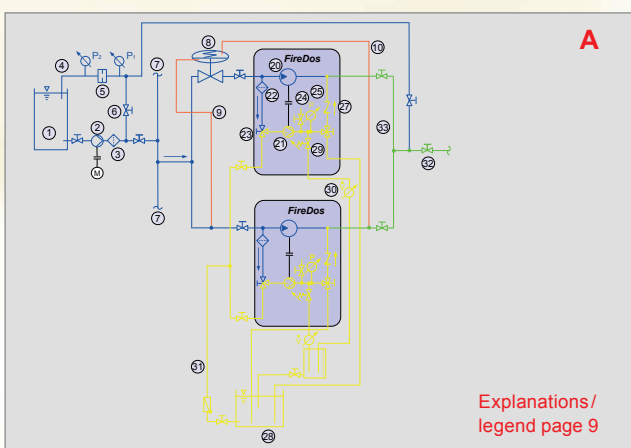
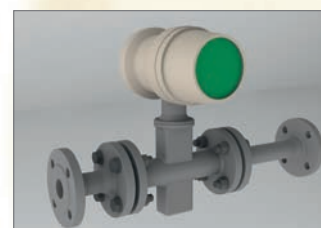
The speed of the **FireDos** proportioner is detected with the aid of a proximity switch fitted at the coupling between the water motor and the proportioning pump.

The volumetric flow rate of the extinguishing water is calculated from the speed, and shown on an LED display in litres per minute. The display is intended for installation in an optionally available plastic housing or switch cabinet already available on site.

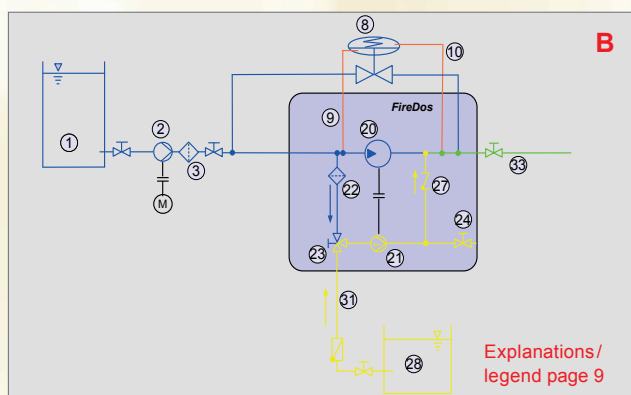


Magnetic inductive flow meter for the on-site return line

Magnetic inductive flow meters are available to register the volumetric flow rate of extinguishing agent returned to the tank by the return line. These have the necessary stabilisation stretches with flange connections for integration into the on-site return line. The delivery also includes seals, bolts, nuts and washers for the flange connections.



FireDos proportioner in parallel installation

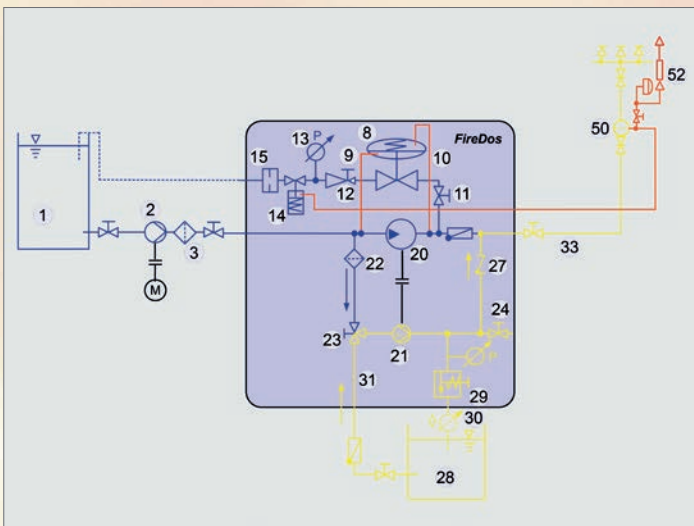


FireDos proportioner with by-pass line

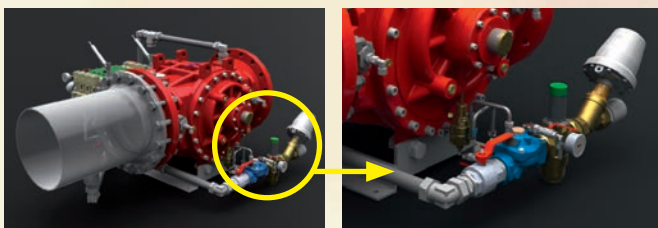
Options and configurations

Reduction of the minimum volumetric flow rate of the extinguishing water

Reduction of the volumetric flow rate of the extinguishing water from which the **FireDos** proportioner can be used to about 1/3 of the level without the reduction device. A higher volumetric flow rate of the extinguishing water than required is initially directed through the water motor, in order to ensure reliable starting. After the water motor, a constant amount of the volumetric flow rate is led back into the extinguishing water tank. The reduction device switches itself on automatically at the start of the extinguishing process. If the actual volumetric flow rate of the extinguishing water being used increases to the point where stable proportioning is ensured without the reduction device, it switches itself off again hydraulically. This option is only possible in combination with a connection of the extinguishing agent return line with pressure relief valve.



FireDos proportioner with reduction of the minimum volumetric flow rate of the extinguishing water



- 1 Extinguishing water supply
- 2 Extinguishing water centrifugal pump
- 3 Strainer
- 4 Test line
- 5 Orifice in test line
- 6 Shut-off valve for test operation of extinguishing water centrifugal pump
- 7 External extinguishing water supply
- 8 Proportional control valve operating on differential pressure
- 9 Control line "high pressure"
- 10 Control line "low pressure"
- 11 Shut-off valve of the reduction of the minimum volumetric flow rate
- 12 Pressure reducer
- 13 Manometer as setting aid for pressure reducer
- 14 Hydraulic valve (opener)
- 15 Restrictor orifice
- 20 Water motor
- 21 Proportioning pump
- 22 Flushing line filter
- 23 3-way ball valve "Flushing/Priming"
- 24 Air bleeding
- 25 Manometer as setting aid for pressure relief valve
- 26 3-way ball valve "Returning/Admixing"
- 27 Non-return valve of proportioning line
- 28 Extinguishing agent tank
- 29 Pressure relief valve
- 30 Volumetric flow rate measurement in return line
- 31 Suction line
- 32 Shut-off valve for test operation
- 33 Extinguishing water line
- 40 Extinguishing agent control valve
- 41 Remote proportioning line
- 42 Test outlets
- 43 Shut-off valve in remote proportioning line
- 44 Manual actuation of the extinguishing agent control valve
- 45 Pressure-actuated membrane valve
- 46 Non-return flap
- 47 Test outlet
- 48 Control line for automatic actuation of remote proportioning
- 49 Extinguishing agent measurement tank
- 50 Alarm valves
- 51 Alarm bell
- 52 Signal line to fire alarm centre

(Possible scope of delivery of **FireDos** proportioners)

Expert advice and comprehensive service

We will be happy to advise you on what type of equipment and which configuration is most suitable for your extinguishing system. Benefit from our complete service, starting with planning support through to the care of **FireDos** proportioners in existing extinguishing systems. Our service offer applies irrespective of the age of the **FireDos** proportioner, and includes:

- Consultation during the production of our quotation
- Training in various key subjects
- Commissioning on site
- Repairs
- Supply of spare parts

Every **FireDos** proportioner supplied is clearly identifiable by a serial number, which documents its history. Please let us know your requirements.



FD10000/3-PP-S and FD8000/3-PP-S in a sprinkler system with proportioning for protection of a painting line and painting preparation of an automotive manufacturer.

Equipment types and technical data

Water motor	Nominal diameter		Volumetric flow rate*
FD130	DN32	ca.	10–130 l/min
FD200	DN40	ca.	15–200 l/min
FD500	DN50	ca.	60–500 l/min
FD1000	DN65	ca.	150–1,000 l/min
FD1600	DN100	ca.	150–1,600 l/min
FD2500	DN100	ca.	250–2,500 l/min
FD4000	DN150	ca.	400–4,000 l/min
FD6000	DN200	ca.	500–6,000 l/min
FD8000	DN250	ca.	500–8,000 l/min
FD10000	DN300	ca.	500–10,000 l/min
FD15000	DN350	ca.	650–15,000 l/min
FD20000	DN400	ca.	1,000–20,000 l/min

* without additional equipment (reduction of the minimum volumetric flow rate)

Fixed proportioning rates:

1%; 3%; 6%

Special proportioning:

0.3%; 0.5%; 2%; 5%

Stepwise adjustable proportioning rates:

e. g. from 3% to 1%, please ask for further details.

Maximum pressure:

PN16, further pressure limits on request.

The major advantages for your extinguishing system:

- **FireDos** proportioners are driven only by the extinguishing water.
- **FireDos** proportioners work proportionally with the flow of extinguishing water, and are automatically self-regulating systems. No further components are required to produce the proportional relationship between extinguishing water and extinguishing agent.
- **FireDos** proportioners enable the easy and quick checking of the proportioning rate, without the generation of premix.
- **FireDos** proportioners enjoy many approvals, including Factory Mutual (FM), Germanischer Lloyd (GL) and VdS Schadenverhütung (VdS).
- **FireDos** proportioners require only an unpressurised, atmospheric tank for the supply of the extinguishing agent.
- **FireDos** proportioners work without water loss.
- **FireDos** proportioners can be used without time restriction because the extinguishing agent tank can also be refilled during operation.
- **FireDos** proportioners maintain the selected proportioning rate irrespective of the pressure conditions or pressure fluctuations.
- **FireDos** proportioners are modular proportioners with set proportioning rates, or adjustable proportioning rates if required (stepwise or continuously adjustable).
- **FireDos** proportioners are easy to install and operate. Setting or adjustment is not necessary, which also makes commissioning a correspondingly simple matter.
- **FireDos** proportioners are suitable for the proportioning of all common extinguishing agents.
- **FireDos** proportioners cover wide ranges of volumetric flow rates of the extinguishing water and proportioning rates with their various equipment variants; volumetric flow rates of 10–20.000 l/min and proportioning rates of 0.1–6%.
- **FireDos** proportioners enable the admixing point to be located at a great distance from the proportioner (remote proportioning).
- **FireDos** proportioners with special materials can also be used with seawater in offshore applications.
- **FireDos** proportioners offer high operating reliability due to the comprehensive service facilities available to users.
- **FireDos** proportioners are in successful service in thousands of extinguishing systems throughout the world. For many years now, users have placed their confidence in the quality and durability of our products.

FireDos® – Your partner for fire-fighting monitors as well!



Please do not hesitate to contact us:

FireDos GmbH

Auf der Kaulbahn 6

DE-61200 Wölfersheim

Germany

Phone: +49 (0) 6036/9796-0

Email: info@firedos.de