



# FIREMIKS®

THE SWEDISH ORIGINAL

THE USER-FRIENDLY DOSING SYSTEM FOR FIRE FIGHTING

## SIMPLICITY

FIREMIKS® is a mechanical dosing system used for fire fighting. The circulation of the water solely drives the motor - no other additional energy is required! Efficient and environmentally friendly.

### Fixed Installations



### Mobile Applications



#### Industrial



#### Fire Brigades



#### Marine/Offshore



#### Forest/Bush Fires



#### Sprinkler



Firemiks AB  
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[www.firemiks.com](http://www.firemiks.com)

# THE USER-FRIENDLY DOSING SYSTEM

## EASY TO

### ...INSTALL:

Compact system driven by the water flow only.  
- *No additional parts or external energy needed.*

### ...USE:

Mechanical self-regulating and flow controlled system with a wide flow and pressure range.  
- *No need for complicated pressure balancing or calibration.*

### ...MAINTAIN AND TEST:

Economical and environmentally acceptable testing with the option of adding a Dosing return valve.  
- *No need to waste the extinguishing media during testing or maintenance.*

FIREMIKS is the efficient proportioning system where cost and environmental concerns are paramount.



## THE USER-FRIENDLY DOSING SYSTEM ADVANTAGES WITH FIREMIKS

- Dosing is proportional to flow rate and independent of pressure variations. This gives a steady admixture within the min/max flow and pressure for the FIREMIKS.
- FIREMIKS is available in different max flow sizes; from 300 up to 12.000 lpm, with fixed dosing alternatives; 0,5%, 1%, 2%, 3% or selectable. Other dosing options on request.
- Works with virtually all types of foaming agents, including high-viscosity alcohol resistant types and low-viscosity wetting agents.
- Permits uninterrupted application time as long as the extinguishing media concentrate and water are supplied.
- With a Dosing return valve, it is possible to test the FIREMIKS without consuming the extinguishing media concentrate, an economic and environmentally beneficial solution. For other dosing systems, such as bladder tanks, this option is not possible.
- You may use different types of nozzles, at different heights and lengths from FIREMIKS. Changes of length or diameter of pipe/hose system after FIREMIKS up to the nozzles are not affecting the admixture, as long as the water pressure from main pump is sufficient to transport the water/concentrate solution to the end of the system.
- Materials used are hard anodized and PTFE-coated aluminum for the water motor. All other parts are also made in corrosion resistant material such as AISI 316 stainless steel, brass and PET. Other materials are available on request. We offer our water motor in bronze for a durable resistance in sea water.
- Flushing with water of the dosing pump is easy through the internal flushing line.
- FIREMIKS is available for both fixed installations and mobile use and can also be easily adapted for semi-permanent installations.

### OPERATING PRINCIPLE



*N.B Reverse flow direction is optional.*

The water flow goes through the FIREMIKS water motor. This generates a circular rotor motion, transferred to the dosing pump over the direct drive coupling. The concentrate is pumped into the water motor outlet, where dosing occurs.

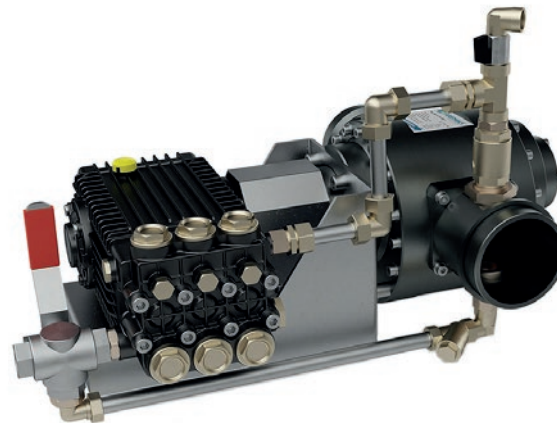
Since the water motor functions both as a power source to the dosing pump and as a flow meter system, the system becomes flow proportional: dosing automatically follows all the variations in the water flow.

The water motor rotor has 8 or 10 working wings, which gives an early and stable volumetric function of the water motor within a flow range up to 1:10 (for example 240-2.400 lpm)

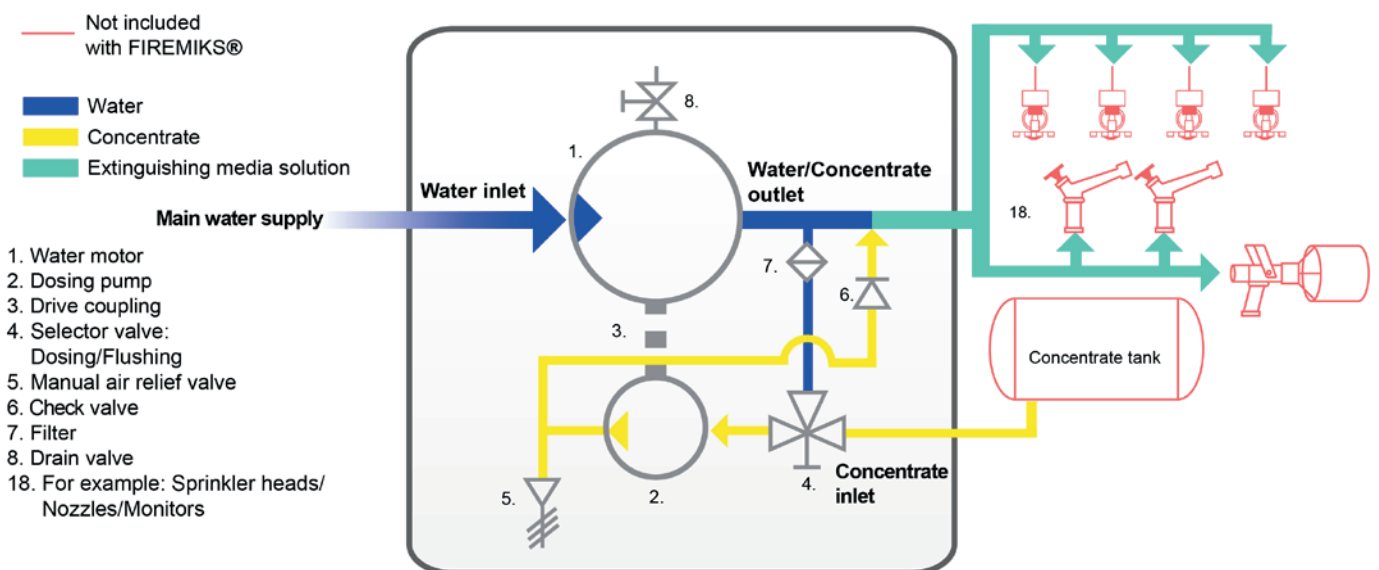
The narrow interior design along with the low friction of the vanes, reduces the noise level of the unit and creates a long and lasting durability.

## THE USER-FRIENDLY DOSING SYSTEM FIREMIKS - PP (PISTON PUMP)

FIREMIKS - PP is provided with a piston pump and is particularly suited for use in systems with low start flows (for example, sprinkler systems) as well as for extinguishing media concentrates with low viscosity such as wetting agents. The unit shall be placed in such a manner that the media concentrate has a free flow and flows down from the tank to the dosing pump.



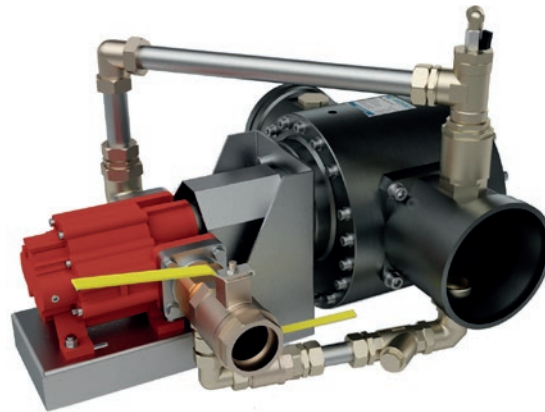
## FLOW CHART - PP (PISTON PUMP)



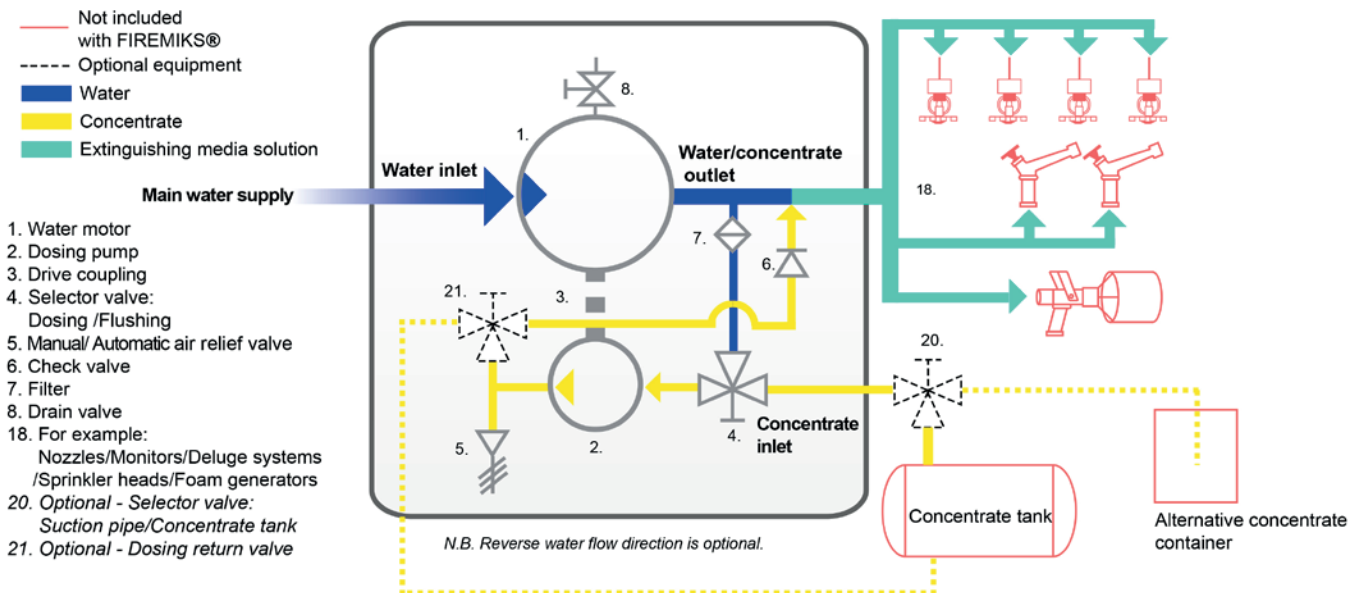
*N.B. Reverse water flow direction is optional.*

**THE USER-FRIENDLY DOSING SYSTEM**  
**FIREMIKS - GP (GEAR PUMP)**

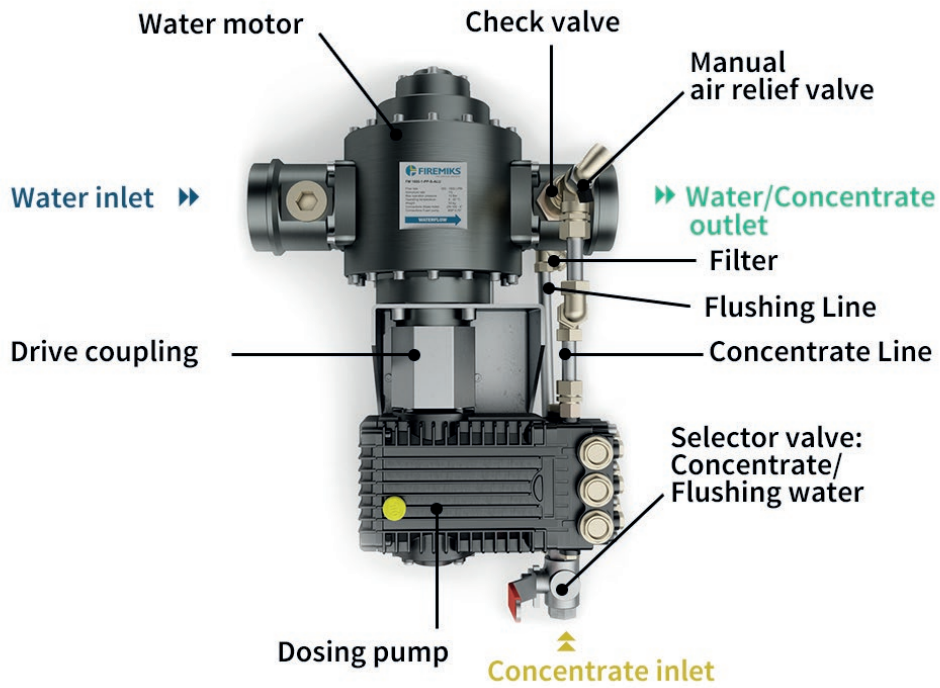
FIREMIKS - GP is provided with a gear pump and is particularly suited for use in systems with higher flow rates, such as deluge systems, fire monitors and fire trucks. This type is, in addition, also very suited for high viscosity extinguishing media concentrates.



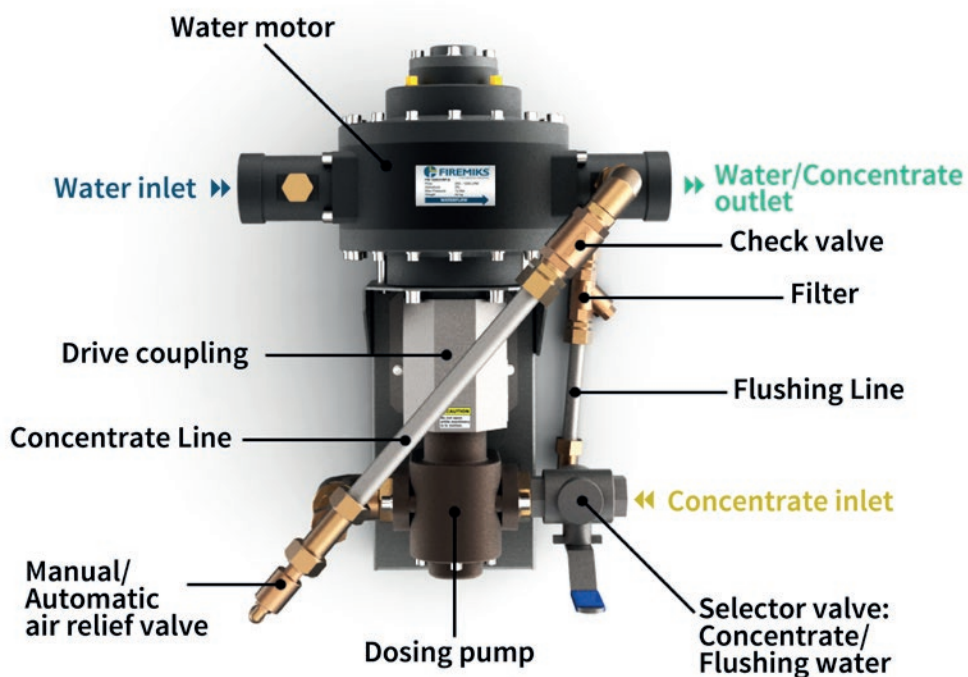
**FLOW CHART- GP (GEAR PUMP)**



THE USER-FRIENDLY DOSING SYSTEM  
**OVERVIEW - PP (PISTON PUMP)**



**OVERVIEW - GP (GEAR PUMP)**

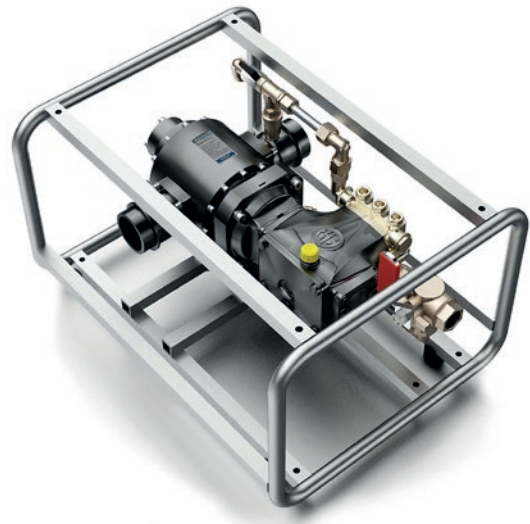


**THE USER-FRIENDLY DOSING SYSTEM**  
**FIREMIKS - MOBILE UNIT**

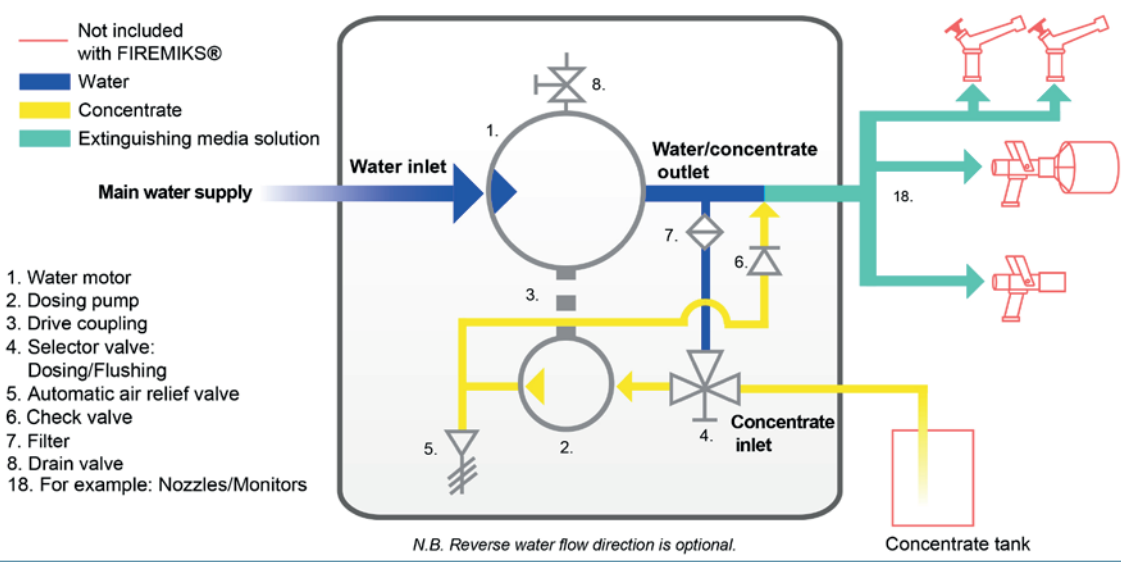
FIREMIKS Mobile unit is mainly used by fire & rescue services as a handy complement to fixed concentrate proportioning systems. Just connect FIREMIKS to the fire hoses and insert the suction tube into a concentrate tank, and it is ready to be used!

Equipped as standard with an Automatic air relief valve to speed up the suction from the pump. On units provided with a gear pump (- GP) the suction from the unit is automatic. The extinguishing media concentrate needs to be in line with the dosing pump on our mobile models with a piston pump (- PP).

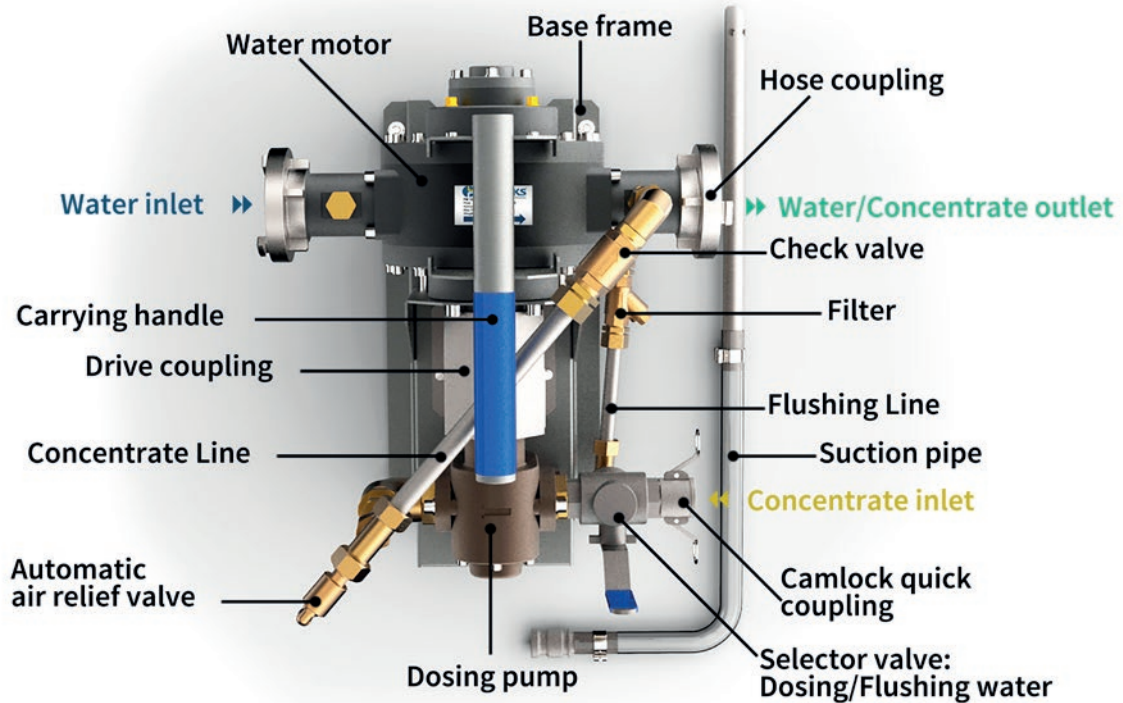
Smaller sizes are carried by using the handle, larger sizes are placed on a wheeled frame or trailer to ensure easy movement.



**FLOW CHART - MOBILE UNIT**



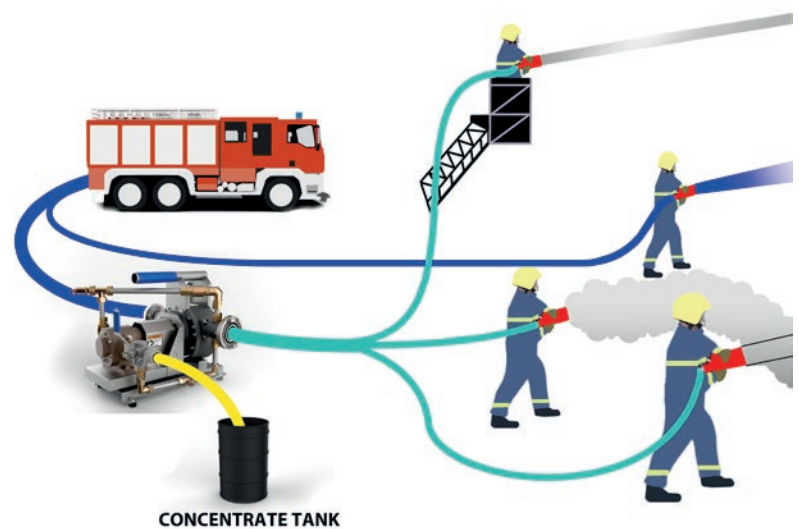
## THE USER-FRIENDLY DOSING SYSTEM MOBILE UNIT - OVERVIEW



## ONE FIREMIKS - SEVERAL NOZZLES

With FIREMIKS, fire & rescue services can count on a very flexible system that easily adapts to different fire-fighting situations. You may use several different nozzles at the same time, positioned at different lengths and different heights from the FIREMIKS.

You may add or remove hoses, vary the hose diameter and open or close nozzles independently. It does not affect the quality of the admixture as long as the min and max flows of the FIREMIKS unit are followed.





## THE USER-FRIENDLY DOSING SYSTEM SPECIFIC ADVANTAGES

The basic concept of FIREMIKS® is two interconnected volumetric devices; a water motor and a dosing pump. This gives great advantages since this principle creates a practically flow and pressure independent admixture, within the min and max limits for the unit. Importantly, only the water flow is needed to operate the unit, no other additional energy is required.

### 9 Specific advantages with FIREMIKS®

1) The water motor rotor has 8/10 working vanes. This provides a more stable rotation at low rotation speed compared with earlier 4 vane version, i.e. you have an earlier volumetric function of the water motor.

2) FIREMIKS and the water motor with its connections, is constructed and built using a flexible modular system. We can modify - even for a single unit - the water motor size in lpm and/or make the unit in another material, for example bronze, duplex or titanium, based on a special customer request.

3) FIREMIKS can be delivered with almost any type of connections, for example BSP-threads, NPT-threads, Cut groove adaptors, Flanges etc. For the end-user it is therefore easy, for example, to convert a fixed unit into a mobile unit or vice-versa.

4) We can offer both a rugged industrial gear pump for high viscosity extinguishing media and a powerful piston pump for high pressure and low viscosity liquids. Both are made of durable and corrosion resistant materials.

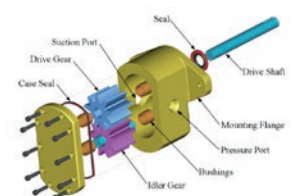
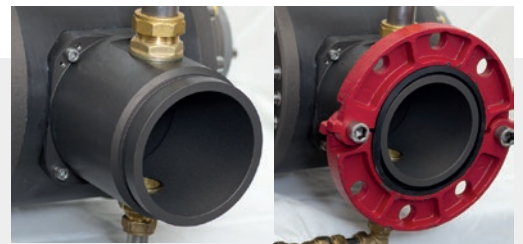
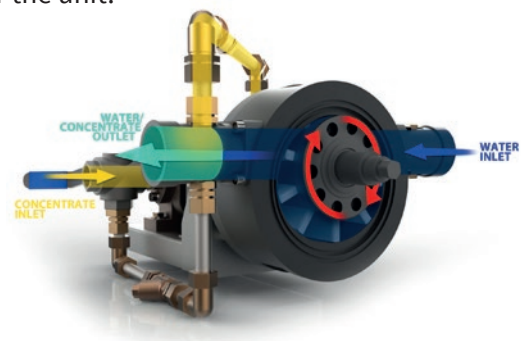
5) An industrial Gear pump is a rugged and reliable solution to achieve the correct admixture within the approved tolerances. The pictures below to the right shows the basic design of a gear pump. Apart from high viscous liquids, it is very suitable for a high-flow system. It can be placed in both vertical and horizontal positions.

6) A piston pump is a pump that suits low starting flows, e.g. sprinkler systems and it gives a very precise dosing, even at high pressures.

7) The water motor is manufactured from standard rolls and bars. Manufactured parts are considered to be stronger than moulded materials, this gives us the flexibility to easily manufacture single units for any specific customer needs.

8) FIREMIKS is designed to be easy to use and understand. Marked arrows clearly show the flow direction of the water, concentrate media and flushing water. Only brief training and handover is required to ensure a safe and secure handling of the FIREMIKS unit.

9) FIREMIKS has, through its precise and accurate interior design of the water motor, a lower noise level than other systems. This is important for a good and safe working environment, it also increases the potential for many years of reliable operation.



## THE USER-FRIENDLY DOSING SYSTEM

### BASIC DATA (Examples)

#### TECHNICAL OVERVIEW | FIREMIKS - GP - Gear Pump with 3%

Model Size	Flow range lpm*	Standard Connection Water motor	Connection Dosing pump G female	Weight (kg) -F, Alu
FM 400-3-GP	80-400	G 2" male - DN 50	0,75"	16
FM 800-3-GP	160-800	G 2,5" male - DN 65	1"	28
FM 1200-3-GP	250-1.200	G 3" male - DN 80	1,25"	36
FM 1800-3-GP	350-1.800	G 4" male - DN 100	1,5"	51
FM 2400-3-GP	500-2.400	G 4" male - DN 100	2"	71
FM 3200-3-GP	650-3.200	Cut groove DN 125 - 5"	2"	89
FM 4000-3-GP	800-4.000	Cut groove DN 125 - 5"	2"	106
FM 6000-3-GP	1.200-6.000	Cut groove DN 150 - 6"	2,5"	138
FM 8000-3-GP	1.600-8.000	Cut groove DN 200 - 8"	2,5"	158
FM 10000-3-GP	2.000-10.000	Cut groove DN 250 - 10"	3"	223
FM 12000-3-GP	2.400-12.000	Cut Groove DN 300 - 12"	3"	236

\*Note: Min. water flow rate varies depending on system pressure and viscosity properties of the concentrate.

#### TECHNICAL OVERVIEW | FIREMIKS - PP - Piston Pump with 1%

Model Size	Flow range lpm*	Standard Connection Water motor	Connection Dosing pump G female	Weight (kg) -F, Alu
FM 400-1-PP	40-400	G 2" male - DN 50	0,5"	15
FM 800-1-PP	80-800	G 2,5" male - DN 65	0,5"	23
FM 1200-1-PP	120-1.200	G 3" male - DN 80	0,75"	24
FM 1800-1-PP	180-1.800	G 4" male - DN 100	0,75"	52
FM 2400-1-PP	240-2.400	G 4" male - DN 100	1"	57
FM 3200-1-PP	320-3.200	Cut groove DN 125 - 5"	1"	76
FM 4000-1-PP	400-4.000	Cut groove DN 125 - 5"	1,25"	115
FM 6000-1-PP	600-6.000	Cut groove DN 150 - 6"	1,25"	134
FM 8000-1-PP	800-8.000	Cut groove DN 200 - 8"	1,5"	178
FM 10000-1-PP	1.000-10.000	Cut groove DN 250 - 10"	1,5"	216
FM 12000-1-PP	1.200-12.000	Cut Groove DN 300 - 12"	1,5"	230

\*Note: Min. water flow rate varies depending on system pressure and viscosity properties of the concentrate.

## THE USER-FRIENDLY DOSING SYSTEM

# A GUIDE TO CHOOSE YOUR FIREMIKS

FIREMIKS offers a **simple** solution, making it ideal for **many** different applications and environments. The following list is a guide which will assist you defining your specifications. Based on the information provided, we will develop the optimum FIREMIKS model for your particular needs.

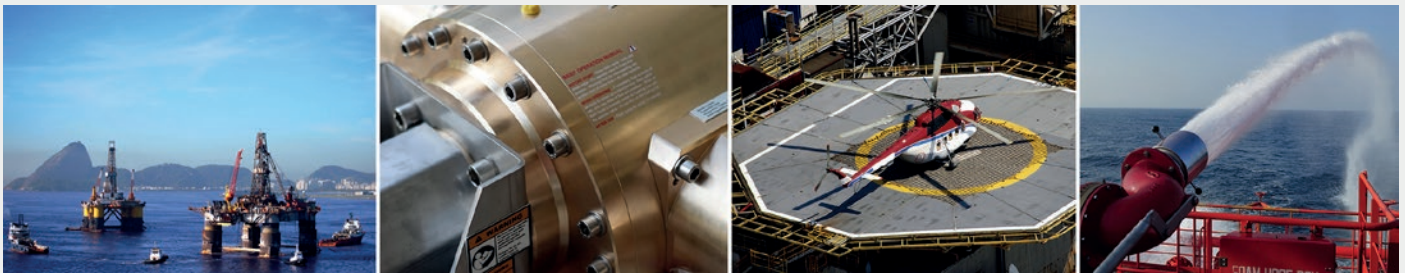
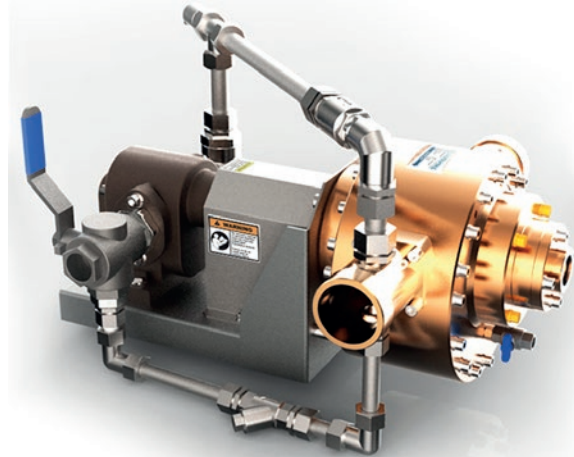
Unit configuration points	Factors to consider
1. Freshwater or saltwater as driving medium of the water motor	<i>Freshwater:</i> Water motor in hard-anodized aluminium with PTFE coating. <i>Saltwater:</i> Water motor in Bronze
2. System flow range	Provide max. and min. flow in liters per minute (lpm). Or provide target flow, e.g deluge system with only one steady flow.
3. Working pressure range	State max. and min. working pressure in bar, or provide target pressure, e.g deluge system, for the inlet of the FIREMIKS. Also please state if the pressure drop over the unit is a crucial factor. In such cases, a larger size of the water motor can be chosen to decrease the pressure drop. (For normal pressure drop please consult corresponding data sheet.)
4. System pressure	State in Bar the maximum system pressure.
5. Type of concentrate	State type of concentrate, viscosity, Newtonian/Non-Newtonian. If possible please provide the data sheet from the supplier. Generally speaking, lower admixture percentage is better.
6. Dosing of concentrate	State dosing rate in % and if there is a need for selectable dosing rate. Also state if suction of concentrate is needed or if gravity feed is possible. Generally speaking, gravity feed is strongly recommended especially on Piston pump models.
7. Select Gear pump (- GP) or Piston pump (-PP)	<b>From the information above in section 2-6 we can recommend the most suitable model.</b>
8. Optional – Dosing return valve	The FIREMIKS unit can be supplied with a dosing return valve when there is a need for testing the system without consuming extinguishing media.
9. Optional – Installation/ Mobility	Possible options: Different kinds of couplings, bottom bracket, carrying handle, protective frame, wheels, automatic air relief valve (manual air relief valve is standard), separate suction pipe, hand pulled cart, trailer.
10. Optional – Spare parts	Packages of Recommended spare parts are available for all models.
11. Optional – Other	E.g. Reverse flow direction, extra selector valve and/or clap valve for the suction pipe, unit adapted to high ambient temperatures, stainless-steel couplings, etc.
12. Documentation – Delivery	Test protocol, CE-certificate. Optional: material specification EN 10204
13. Documentation – Third party certification	Each unit can be inspected by third parties such as DNV, BV, etc.

## THE USER-FRIENDLY DOSING SYSTEM SEA WATER RESISTANT

### SUITABLE FOR MARINE ENVIRONMENTS AND OFFSHORE INSTALLATIONS

FIREMIKS is available with the water motor entirely made from bronze, to make it suitable for offshore, shipping and other installations where seawater is used. Other material options are high-grade stainless steel, super-duplex, titanium, etc.

The gear pumps on our type - GP are made of bronze as standard. The piston pumps on our type - PP can also be delivered in fully corrosion-resistant materials.



### ENVIRONMENTAL AND SAFETY BENEFITS WHEN USING FIREMIKS

*FIREMIKS is driven solely by water. No other additional energy is required for dosing, neither a combustion engine nor electricity. There are several important environmental and safety benefits when using the FIREMIKS-system. An electrically driven dosing pump can in some cases mean an increased risk in hazardous areas. Electricity may create sparks and cause explosions in areas where there are flammable gases. With FIREMIKS this risk can be eliminated if you specify an explosion-proof unit. Furthermore, the water is itself environmentally friendly, non-flammable, inexpensive, clean and readily available.*

*We strongly recommend only using environmentally friendly extinguishing agents. Our - PP type, is among other things, very suitable for the new low viscosity environmentally friendly concentrates. Forest fires are considered to be responsible for 20 % of CO2 emissions which effectively increases the effects of global warming. With an effective firefighting system, such as FIREMIKS, we can help to mitigate that effect by quick and efficient extinguishment.*

*Our company believes in a more sustainable world so we support WWF in its campaign for saving the Baltic Sea.*



## THE USER-FRIENDLY DOSING SYSTEM

# FREQUENTLY ASKED QUESTIONS

Here you find the most frequently asked questions. Note! All answers are based on assumption that the stated min. and max. limits of flow and pressure are within the specified limits for any given FIREMIKS-unit.

### Frequently asked questions for use of FIREMIKS® in fire & rescue services

**Q: Can we apply several different types of nozzles to a FIREMIKS?**

A: Yes, you can use for example spray nozzles, Low- Medium- or High-EX devices, or any other type of nozzle at the same time as long as they are designed for roughly the same nominal pressure.

**Q: Can we use different and varied feed pressures to the FIREMIKS?**

A: Yes, the admixture is practically independent of the inlet and back pressure in the system.

**Q: Can we distribute a correct concentrate solution to a nozzle placed on a 40-meter high raised platform?**

A: Yes, the FIREMIKS can cope with heights up to 50 meters if the inlet pressure to the FIREMIKS from the main pump is 12 bar. Pressure drop over FIREMIKS 1-2 bar, 50 meters height 5 bar, leaving about 5 bar for hoses and nozzles.

**Q: What length of hoses can we use downstream the FIREMIKS?**

A: You can use whatever length you want or need since the length doesn't affect the function of the FIREMIKS. The crucial factor is having an adequate pressure of the water from the main water pump so the water/concentrate solution can be transported to the nozzle at the required flow and pressure.

**Q: Can we divide the hoses and use several nozzles positioned in different lengths and heights from the FIREMIKS?**

A: Yes, there are no problems with this; it creates practically no effect on the dosing rate. You may also close and open these nozzles independently of each other. See also crucial factor in previous answer.

**Q: Does the FIREMIKS function even with high-viscosity Alcohol Resistant foam concentrates and low-viscosity wetting agents?**

A: Yes, FIREMIKS can be adapted to all common types of extinguishing media concentrates, on request please specify which type of extinguishing concentrate, dosage and viscosity, and we will offer you the FIREMIKS type that is optimally adapted to your choice. The general rule is that the gear pump (GP) is best suited for high-viscous extinguishing media solutions and a piston pump (-PP) is best suited for low-viscosity.

### Frequently asked questions for use of FIREMIKS® in Fire Fighting installations

**Q: Can we install a FIREMIKS in an existing water sprinkler system?**

A: Yes, you only have to install the FIREMIKS somewhere suitably between the main pump and sprinkler heads and connect it to an atmospheric concentrate tank. The optimum FIREMIKS for sprinkler systems is our piston pump type – PP.

**Q: Can we use FIREMIKS in a deluge system?**

A: Yes, it works perfectly. Deluge systems are designed for a certain flow/pressure, with a FIREMIKS you have an increased safety margin if the system for any reason does not keep this intended flow/pressure. A suitable FIREMIKS for deluge systems is our gear pump type – GP.

**Q: Do we need a pressure tank for the concentrate supply?**

A: No, just a normal atmospheric tank is needed, you may well use the container from the extinguishing media concentrate supplier.

**Q: Can we install two FIREMIKS in parallel?**

A: Yes, that is not a problem; you can even install 3-4 units in parallel as long as you create a harmonic flow in the pipes and you keep the required min. flow of each unit.



## THE USER-FRIENDLY DOSING SYSTEM INSTALLATION GUIDELINES

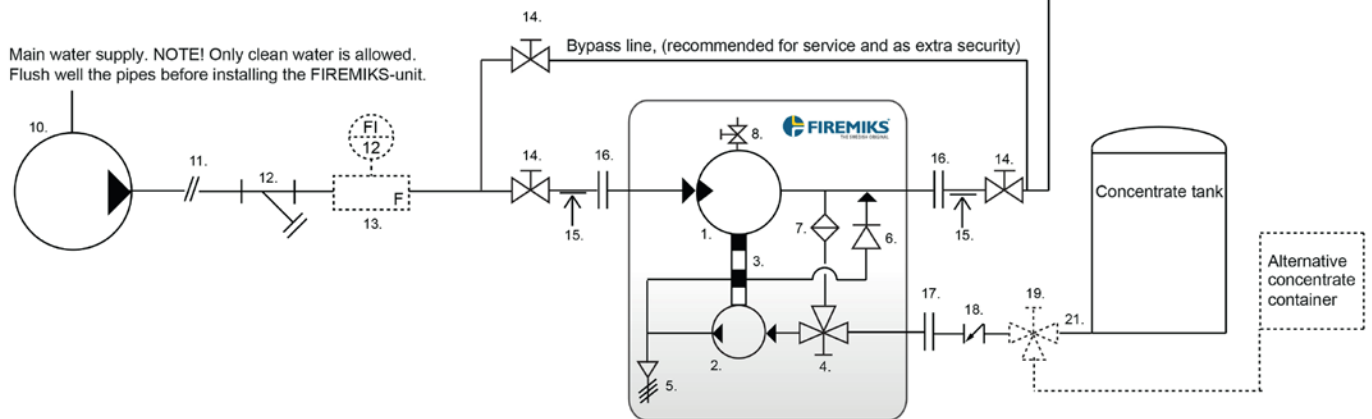
### RECOMMENDED PRINCIPLE SETUP - FIREMIKS® FIXED TYPE (AUTOMATIC FLUSHING)

The purpose of this recommended principle setup scheme is to inform on the general needs for making a good installation with the FIREMIKS and is not binding or contractual in any way. For information about each specific FIREMIKS model, working conditions, connection types, etc. please consult the respective data sheets. We reserve the right to make changes in this information without prior notice.

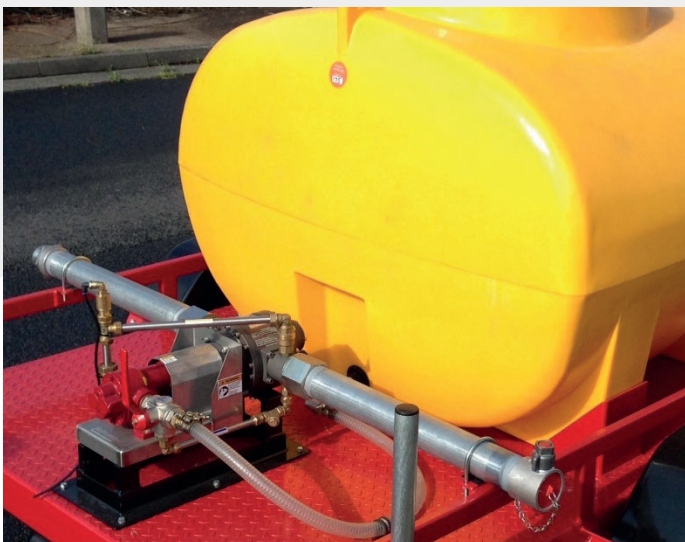
#### FIREMIKS

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>1. Water motor</li> <li>2. Dosing pump</li> <li>3. Drive coupling</li> <li>4. Selector valve: Dosing/Flushing</li> <li>5. Manual/Automatic air relief valve</li> <li>6. Check valve</li> <li>7. Filter</li> <li>8. Drain valve</li> </ul> | <ul style="list-style-type: none"> <li>10. Main water pump</li> <li>11. (Length does not affect dosing rate of FIREMIKS)</li> <li>12. Y-strainer, main water line,</li> <li>13. Optional: Flow meter</li> <li>14. Shut off valves</li> <li>15. Pipe supports</li> <li>16. Connections to Water motor</li> <li>17. Connection to Concentrate inlet</li> <li>18. Swing check valve, to prevent flushing water to enter the Concentrate tank, (do not use a check valve that is spring loaded, as it restricts the concentrate flow)</li> </ul> | <ul style="list-style-type: none"> <li>19. Optional; Selector valve: Suction pipe/ Concentrate container</li> <li>20. Nozzles - Monitors - Deluge system - Sprinkler heads - Foam generators, etc.</li> <li>21. Internal diameter on suction system must have equal or larger diameter as the inlet of the Selector valve Dosing/Flushing (pos no 4.)</li> </ul> |
|--|--|--|

*We recommend gravity-feed of concentrate from tank to dosing pump. (Obligatory for piston pump -PP types).*



## THE USER-FRIENDLY DOSING SYSTEM INSTALLATION GUIDELINES



### Some important Installation Guidelines

When installing FIREMIKS we strongly recommend that the extinguishing media tanks minimum level is placed above the inlet of the dosing pump so that the concentrate has a free flow from the tank down to the dosing pump, this makes the suction efficient and immediate from the start. In installations with our piston pump type – PP, is this a requirement.

The internal diameter on the suction system must have an equal diameter, or one step larger, as the inlet of the three-way valve on the dosing pump.

FIREMIKS is designed to operate with clean water. No abrasive particles should be present in the water flow. **Attention! Rinse the piping thoroughly before installing FIREMIKS to ensure that the extinguishing water is completely clean of waste products after welding, etc.**

If the installation is to operate for an extended period of time with extinguishing water only, a by-pass with suitable valves should be installed around the FIREMIKS system to avoid unnecessary wear.

**Dry running of the FIREMIKS dosing pump is not allowed, always use the internal flushing if suction of concentrate does not occur.**

For fixed installations we recommend that FIREMIKS is delivered with a return valve that makes it possible to return extinguishing media to the tank. This enables simple, fast and regular testing of the device's functionality, including the ability to check the proportioning without wasting any concentrate.

*You will find further information and documents, such as our Installation Manual, Datasheet and Flow Chart on our website [www.firemiks.com](http://www.firemiks.com).*

*Do not hesitate to contact us for more information!*

THE USER-FRIENDLY DOSING SYSTEM

**FIREMIKS AB - A FAMILY COMPANY FOR THREE GENERATIONS**

Originally founded in 1979 – as a Swedish family based business -  
Firemiks AB is operated by the third generation.

Throughout the years, our main focus has been to develop, manufacture  
and distribute our product line of water motor driven proportioning systems worldwide.

Our work method is to produce with flexibility, offering the opportunity  
to customize the product to the individual preferences of our clients.

With more than 30 years of experience in the international  
firefighting market – Firemiks AB is a company to count on!



**CONTACT US**

We distribute our product line of water motor driven dosing systems through partners worldwide.  
Please contact us directly for additional information about our products, a quotation or to make  
an order. Visit our [www.firemiks.com](http://www.firemiks.com) website where you can download our technical data sheets  
and find more information.

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SS-EN ISO-9001:2008 Certified, certificate no: SE003499-1



Member of Stockholm Chamber of Commerce



Member of The Swedish Fire Protection Association



Member of National Fire Protection Association

