

## DATA SHEET

### System for Dosing rate test according to EN 13565-1, NFPA 11, FM 5130

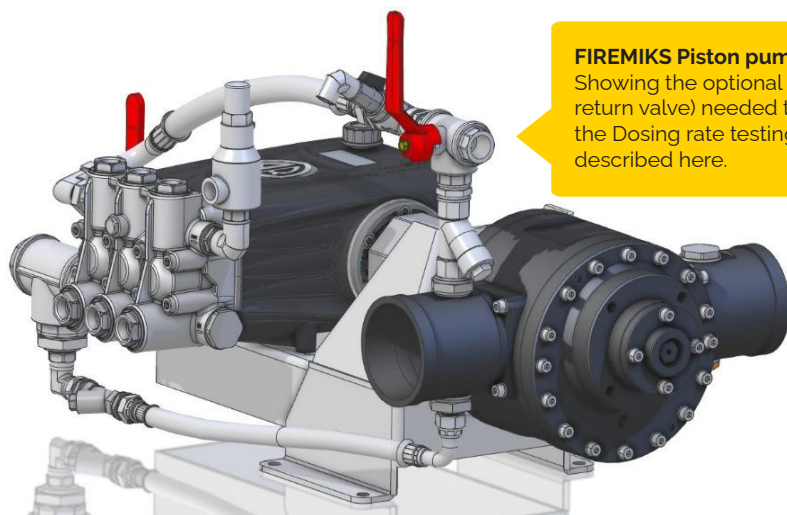
#### FOR WATER DRIVEN VOLUMETRIC PROPORTIONER FIREMIKS - IN FIXED INSTALLATIONS

FIREMIKS is a water driven volumetric proportioner for firefighting – for fixed installations connected to a concentrate tank with gravity feed to the dosing pump. Extinguishing water drives the volumetric water motor, which in its turn drives the positive displacement pump that doses the correct amount of concentrate in the extinguishing water exiting the water motor.

In-house designed multi-vane water motor giving early volumetric function, without using moving elastomer sealing or spring-loaded vanes.

To be able to simply test and verify the correct proportioning the unit needs to be equipped with an optional **Dosing return valve, DRV, (no 22a.)** this allows for testing the system without mixing the concentrate. A **Pressure relief valve PRV, (no 22f.)** also included to eliminate the risk for over-pressure if return line is closed/ blocked by mistake.

Furthermore one need to install **two Flow meters; one for main water line (22b.) and one for concentrate return line (22c.)**, plus a **Pressure regulating valve (22d.)** to simulate system pressure, displayed by a **Damped pressure gauge (22e.)**.



**FIREMIKS Piston pump model**  
 Showing the optional DRV (Dosing return valve) needed to use the Dosing rate testing system described here.

#### THE ACCURATE WAY OF VERIFYING DOSING RATE

Verifying dosing rate equals to verifying the correct volumetric function **of both the water motor and dosing pump with two independent flow meters** and calculate to this formula, in accordance with EN 13565-1, NFPA 11, FM 5130:

**Concentrate flow** \_\_\_\_\_ x 100 = Dosing rate %

**Water flow + Concentrate flow**

#### REVOLUTION COUNTER METHOD - THE LIMITS

The revolution counter method which is also presented on the market assumes the correct working of the water motor, this means it gives only an **estimate** of water flow and therefore it cannot be used to correctly verify the dosing rate, as the dosing rate is **directly dependent on the performance of the water motor**. **The revolution counter method is not an approved method to verify dosing rate as described by EN 13565-1, NFPA 11, FM 5130.** Quote from FM Approval guide: **"...may be used to provide a general estimate of the extinguish water flow..."**

#### REVOLUTION COUNTING WITH HANDHELD TACHOMETER

The **estimated** water flow can be measured with handheld tachometer (contact or non-contact) to ensure that the unit is not **over-speeding**, i.e. working within the upper rpm = flow limit specified in the Data sheet of each FIREMIKS model.

**22b.) Electromagnetic flow meter for water line; MAG 5100W + Transmitter MAG 6000**

Size	Optimal Flow range L/min (Overflow capacity)	Suitable for size/skid
DN 40 - 1.5"	25 - 560 (675)	180, 450
DN 50 - 2"	40 - 700 (1000)	450, 600
DN 65 - 2.5"	75 - 1200 (1800)	600, 800, 1000, 1200
DN 80 - 3"	120 - 2000 (2700)	800, 1000, 1200, 1800
DN 100 - 4"	200 - 3200 (4000)	1800, 2400, 3200
DN 125 - 5"	350 - 5000 (6750)	3200, 4500
DN 150 - 6"	500 - 7000 (9000)	4500, 6000
DN 200 - 8"	900 - 12000 (18000)	8000, 10000, 12000
DN 250 - 10"	1300 - 20000 (24000)	16000, 20000
DN 300 - 12"	1800 - 28000 (35000)	20000



**SIEMENS SITRANS FM MAG 5100W - some benefits and specs at a glance**

- Suitable for underground installation and permanent immersion (IP68) or underwater installation.
- Unique SensorProm technology - stores critical, sensor-specific data and passes it to the transmitter. This allows a simple, flexible commissioning of the sensor.
- Plug & Play - allows easy on-site replacement and commissioning of the transmitter in just minutes
- "Hot swappable" - exchangeable during operation.
- **Mounting flexibility - compact or remote installation possible.**
- Validated calibration ensures accurate flow measurement. Each Siemens flowmeter is calibrated in facilities that are individually accredited to ISO / IEC 17025.
- Service and diagnostics - Designed for MAG on-site verification with traceable certification. Regular calibration of the SITRANS FM Verificator ensures accuracy in the field.

**22c.) Electromagnetic flowmeter for concentrate return line; MAG 1100 + Transmitter MAG 6000**

Size	Flow range L/min	Suitable for model/skid
DN 3	0,2 - 3	180-1
DN 6	0,8 - 13	180-3, 450-1, 600-1, 800-1
DN 10	2 - 32	450-3, 600-3, 800-3, 1200-1, 1800-1, 2400-1
DN 15	4 - 80	1000-3, 1200-3, 1800-3, 3200-1, 4500-1, 6000-1
DN 25	8 - 240	2400-3, 3200-3, 4500-3, 6000-3, 8000-1, 10000-1, 12000-1, 16000-1, 20000-1
DN 40	25 - 560	8000-3, 10000-3
DN 50	60 - 800	12000-3, 16000-3, 20000-3



**SIEMENS SITRANS FM MAG 1100 - some benefits and specs at a glance**

- Compact wafer design meets EN 1092, DIN and ANSI flange standards.
- Same benefits as for MAG 5100W described above.

**Transmitter MAG 6000** may be installed on the flow meter or remotely connected via cable. Version for multi-voltage range also available at extra cost.

The above information is a short summary of the applications, benefits and technical data. For detailed Technical information consult website of: [www.siemens.com/global/en/products.html](http://www.siemens.com/global/en/products.html)

*An alternative method to measure the pumped concentrate that do not require a flow meter, is to pass it into a separate container and weight the amount during a defined time. (Nordtest method NT Fire 042).*



22d.) Pressure regulating valve



22e.) Damped pressure gauge

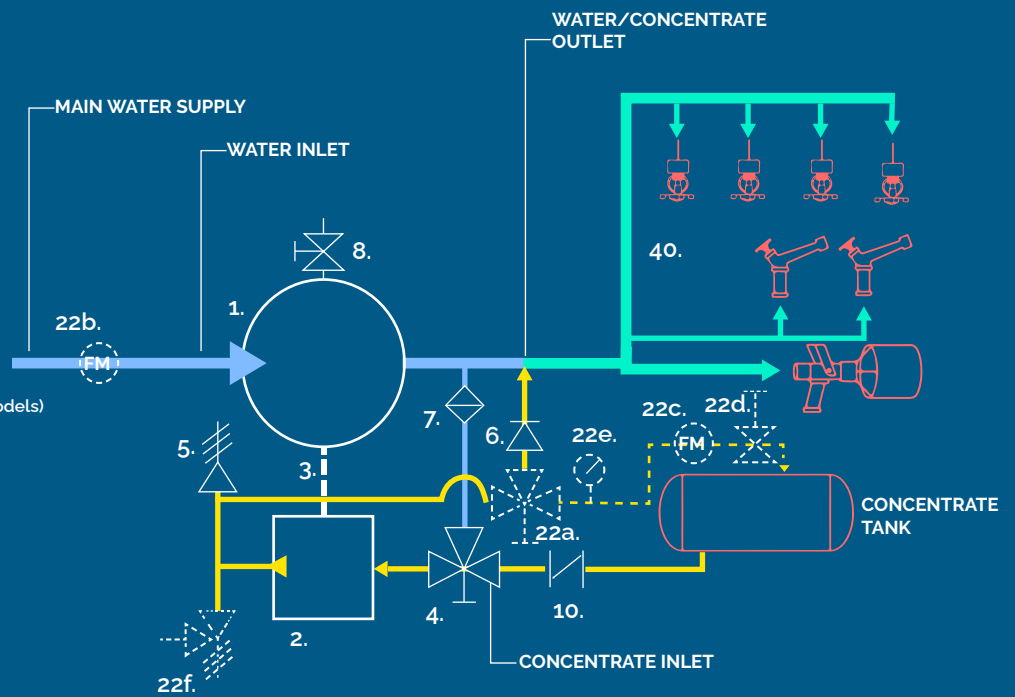
## PRINCIPLE FLOW CHART with optional DRV, PRV, 2 x Flow meters, Pressure regulating valve for simulating system pressure and Pressure gauge

- NOT INCLUDED WITH FIREMIKS
- OPTIONAL EQUIPMENT
- WATER
- CONCENTRATE
- WATER/CONCENTRATE SOLUTION

1. Water motor
2. Dosing pump
3. Drive gear/Drive adaptors
4. Selector valve: Dosing/Flushing
5. Air relief valve (Manual or Automatic)
6. Check valve
7. Filter flushing line
8. Drain valve (Not included on smallest models)
10. Flap check valve

- Optional:
- 22a. DRV - Dosing return valve
  - 22b. Flow meter for water line
  - 22c. Flow meter for concentrate return line
  - 22d. Pressure regulating valve
  - 22e. Damped pressure gauge
  - 22.f. PRV - Pressure relief valve

40. For example:  
Nozzles/Monitors/Deluge systems



N.B. Reverse water flow direction is optional.

FIREMIKS® is a registered trademark owned by Firemiks AB in Sweden.

Firemiks AB is SS-EN ISO-9001:2015 certified by Bureau Veritas, cert.no SE008839. Scope of supply: Development, production and sales of water motor driven dosing systems for firefighting.



**CE** FIREMIKS® is CE-marked and production is made according to European Directive 2006/42/EC.

Conforms to applicable parts of NFPA 11 and NFPA 1901.

*We reserve the right to make changes in the specifications without prior notice.*

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