







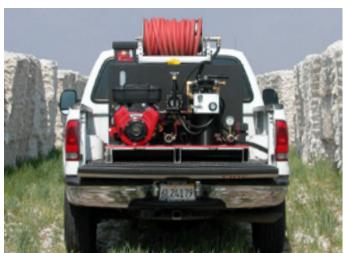
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100% MECHANICAL **AUTOMATIC** DOSING SYSTEMS FOR 100% SUCCESSFUL FIREFIGHTING FOAM OPERATIONS

LEADER MIX 2000, 4000 AND 6000 P. 16 FLOWMIX

P. 20 📕





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100% AUTONOMOUS DOSING SYSTEMS

LEADER
100% MECHANICAL
AUTOMATIC DOSING
SYSTEMS
FOR AUTONOMOUS
OPERATIONS

The use of automatic dosing systems for foam concentrate dosing ensures that your firefighting foam operations are a success. They are adapted to all flow rates, guaranteeing homogeneous foam production regardless of any changes to the operation. Automatic dosing systems also ensure better management of foam concentrate stock, as they do not require the use of nozzles calibrated to 200, 400 or 800 l/min when only 300, 500 or 600 l/min are used for extinguishing.

The LEADER automatic proportioners rely on 2 major principles:

- ▶ The Venturi type system, which has always worked at fixed flow rates, is used for LEADER MIX devices. Designed by LEADER engineers, this dosing system is an automatic venturi proportioner allowing a wide range of flow rates. The LEADER MIX system patented by LEADER is unique worldwide for its compactness, simplicity and reliability.
- ▶ The technology of "SDU: Storage and Dosing Units" at balanced pressure is the foundation of FLOWMIX devices. The US manufacturer "Robwen" launched FLOWMIX in the 1980s. The technology was purchased by LEADER in 2015 due to the reliability of the devices, which continue to work after more than 30 years.

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WHY CHOOSE AUTONOMOUS MULTI-FLOW DOSING SYSTEMS?

Guaranteed operation:

During firefighting operations, building power supplies are often switched off. This is why using 100% autonomous automatic proportioners ensures the system works regardless of the external conditions. As a result, it is not necessary for the installer to provide a back-up power supply to ensure the dosing system works.

■ Enhanced reliability

LEADER automatic dosing systems do not have a dosing pump. Unlike other dosing systems, there is no problem with dry running and they do not continue to needlessly mix the foam concentrate, a known phenomenon which is detrimental to the product's life span.



Controlled costs:

When mounted on firefighting vehicles, 100% mechanical dosing systems do not draw on your vehicle's power supply. Therefore it is not necessary to oversize the truck's alternator.

Easy to maintain:

In addition to being autonomous, the 100% mechanical LEADER MIX do not use a dosing pump. This helps with:

- ▶ installation: no wiring
- maintenance: no dosing pump to drain, flow meter to check, brush to change, oil level to check.
- diagnosis: no risk of failure due to onboard electronics which are often difficult to repair.
- after sales: no costly repairs incurred due to travel by specialised electronics engineers.



The 100% autonomous LEADER MIX and FLOWMIX dosing systems can also be used in a portable version or in places which do not have a sufficient power supply (pick-up flatbed, etc.)

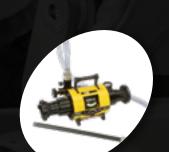




WHAT MAKES LEADER DIFFERENT

DIFFERENT DOSING SYSTEMS

FOR CONTINUOUSLY
OPTIMISED PERFORMANCE



LEADER MIX: CONTINUOUS USE FOR CLASS A OR B FIRES

BENEFITS:

- ► Concentration adjustment from 0.3 to 6%. 1% and 3%V positions specially calibrated to AR (Alcohol Resistant)-type Viscous foam concentrates.
- Much lighter and more compact than its mechanical competitors, LEADER MIX does not require a power supply. This asset avoids the excess weight of an oversized alternator.
- ➤ Continuous operation: unlike bladder tank, LEADER MIX sucks the foam concentrate directly into the tank, which can be filled even during use.
- ➤ Venturi Principle not requiring a dosing pump: no risk of dry running at the bottom of the tank.
- ▶ Ideal for short pulses during pulsing mode operation: the device maintains the suction rate once there is a flow, unlike some electronic devices. Electronic devices must complete calculations and so require more time to adjust the suction flow.

FLOWMIX: IDEAL FOR CLASS A FIREFIGHTING

BENEFITS:

- ▶ Bladder tank-type system: Long-term storage of foam concentrate in optimal conditions (kept in vessel protected from air and ultraviolet ray).
- ▶ Ideal for class A urban and forest fires with very low concentration adjustment from 0.1 to 1% for a flow rate range of 30 to 2000 l/min.
- Low pressure losses.
- ▶ Like LEADER MIX, FLOWMIX is lighter than its mechanical competitors and does not require a power supply. This avoids overloading a vehicle with the weight of an oversized alternator.
- ▶ No moving parts: Only the bladder containing the foam concentrate needs to be replaced every 5 years.





ABOUT FOAM

FOAM CONCENTRATESHOW DO THEY WORK?



FIGHTING FIRES AND RESPECTING THE ENVIRONMENT

■ FLUORINE-FREE foam concentrates:

- ➤ The use of fluorinated organic components is common in the firefighting foam concentrate industry, as they improve performance.
- ▶ Some perfluorinated components are known for their harmful effects on the environment and our health. For this reason, firefighting foam concentrate manufacturers are investing in the development of new fluorine-free foam concentrates. This is a major challenge, as high-risk areas such as the chemical and petrochemical industry need high-performance foam concentrates.
- ➤ Currently, some manufacturers offer a new generation of very high performance fluorine-free foam concentrates which are suited to various applications. LEADER specifically recommends the products manufactured by BIO EX, a sister company which has been a pioneer in this field since the early 2000s.

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COMBUSTION, THE PROCESS

Combustion:

Combustion is a chemical oxidation reaction between a fuel and a combustion agent in the presence of an energy source.



- Oxygen in the air,
- Chlorine,
- Oxygenated water,
- ► Nitric acid,
- Chlorates,
- ► Perchlorates...

Energy:

- Mechanical due to friction,
- ► Electrical (lightning or static electricity),
- ► Chemical, biochemical, solar, etc.

Fuel:

- Class A (wood, cardboard, paper, fabric, rubber, etc.),
- ► Class B (petrol, oil, white spirits, etc.),
- ► Class C (gas such as propane, butane, acetylene, hydrogen, methane, etc.),
- ► Class D (finely divided metals such as aluminium powder, steel wool, magnesium, etc.).

Fire

Fire is the result from the interaction between these three elements: fuel, combustion agent and energy. Removing any one of these elements results in the fire being extinguished.

OXYGEN



HOW FOAM HELPS EXTINGUISH FIRES

■ The effects of extinguishing foam:

 1/Separation effect: the layer of foam on the surface of the fuel limits the oxygen supply and thus extinguishes the fire.



▶ 2/Isolation effect: the foam has high air content, which means low thermal conductivity. Therefore it can be applied to surfaces which are not yet on fire to limit the spread of the fire.



▶ 3/Cooling effect: The water in the foam bubbles evaporates on contact with hot surfaces. The evaporation phase consumes a huge amount of energy to change water from its liquid state to a gas state, therefore removing or reducing the energy needed for combustion.



LEADER MIX DOSING SYSTEM

OUR ENGINEERS
HAVE OVERCOME
TECHNICAL OBSTACLES
TO KEEP YOU WORKING

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LEADER MIX

INNOVATIVE DOSING SYSTEMS FOR MAXIMUM EFFICIENCY DURING FIREFIGHTING OPERATIONS.

Efficient, robust and cost-effective, LEADER MIX proportioners are 100% mechanical.

When mounted on vehicles, they do not require an oversized alternator.

And if part of a fixed installation, they do not require a backup power supply.

LEADER MIX 1000 is available as a "portable" or "fixed" option. The "Fixed" type LEADER MIX 1000, 2000, 4000 or 6000, supplied with a control panel, are mounted on a firefighting vehicle or installed in an industrial facility.



LEADER MIX 1000

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- Fixed Model 200 1000 I/min for Class A

LEADER MIX 2000, 4000 AND 6000 P. 16

Fixed and Portable Model 300 - 2000 l/min for Class A and Class B



- ightharpoonup 2x2000 = 600 to 4000 l/min
- \rightarrow 3x2000 = 900 to 6000 l/min

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LEADER MIX 1000

COMPACT, SIMPLE AND EFFECTIVE

Using the Venturi principle, LEADER MIX automatic dosing systems ensure your firefighting foam operations are a success. 100% autonomous, they are adapted to all flow rates, guaranteeing homogeneous foam production regardless of any changes to the operation.

Reliable and precise, they also help limit foam concentrate usage as they do not require the use of nozzles calibrated to 200, 400 or 800 l/min when lower flow rates are required.

Ultra-compact and light, they are available in 2 configurations:

- LEADER MIX 1000 Fixed "Class A"
 - Reliable concentration at 0.3, 0.5 and 1%
 - Flow rate range: 200 1000 l/min
 - Control panel
- LEADER MIX 1000 Portable or Fixed "Class A and Class B (AR)"
 - Reliable concentration at 0.3 / 0.5 / 1 / 3 / 3V and 6%
 - 1% and 3%V positions: specific to viscous foam concentrates
 - Flow rate range: 200 1000 l/min from 0.3 to 3% (with a limit of 500 l/min at 6%)
 - Control panel (for the fixed version)



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FEATURES AND BENEFITS



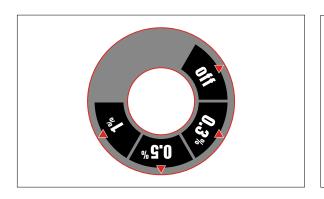
Automatic up to 1000 l/min:

Flow rate from 200 to 1000 l/min of premix. Concentration from 0.3 to 3% (6% up to 500 l/min).



Portable or Fixed:

At just 14kg and with complete energy autonomy, the LEADER MIX 1000 Portable is the lightest in its category.



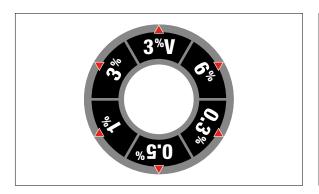
Class A version:

A specific model for use on Class A fires from 0.3 to 1% for flow rates from 200 to 1000 l/min.



Bypass Position:

Reduces pressure losses when the foam concentrate injection is not required.



Viscous foam concentrate settings:

1% and 3%V for AR (Alcohol Resistant)-type viscous foam concentrates.



Easy to flush:

Simple rinsing system when the process is complete to ensure successful operation during the next use.

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LEADER MIX 1000 DOSING SYSTEMS







LEADER MIX 1000 CLASS A

LEADER MIX 1000 CLASS A AND B

LEADER MIX 1000 CLASS A AND B PORTABLE

140.90.120

200 l/min

140.90.112

200 l/min

at 3%: 1000 l/min

at 6%: 500 l/min

140.90.110

200 l/min

at 3%: 1000 l/min

at 6%: 500 l/min

PERFORMANCES

Min. flow rate from 5 to 16 bar	
Max. flow rate @ 16 bar*	

Concentrations

Suction indicator Control panel

at 1%: 1000 l/min

0.3% - 0.5% - 1%

3% - 3%V - 6%

0.3% - 0.5% - 1% 0.3% - 0.5% - 1%

3% - 3%V - 6%

FEATURES (WITHOUT COUPLING)

Туре	FIXED	FIXED	PORTABLE
Weight	15.5 kg	15.5 kg	15.5 kg
Dimensions	486 x 220 x 274 mm	486 x 220 x 274 mm	486 x 237 x 274 mm
Water input (BSP)	2.5" F	2.5" F	2.5" F
Foam concentrate input	1" M BSP	1" M BSP	Storz D
Pre-mix output (BSP)	2.5" F	2.5" F	2.5" F

OPTIONS AND ACCESSORIES

Hose for panel connection	•	•	-
Pick-up tube	-	=	■ l 2.5m/1" Storz D
Pressure gauge	■ on panel	■ on panel	
Bypass position	on panel	■ on panel	
Rinsing position	■ on panel	■ on panel	
Swivel connections			
International couplings	<u>a</u>	<u>a</u>	a

GPM VARIANTS

References	140.90.121	140.90.119	140.90.118
Flow rates gpm	50-275 GPM	50-275 GPM	50-275 GPM
Water input (NH)	2.5" F	2.5" F	2.5" F
Foam concentrate input	1" M BSP	1" M BSP	Storz D
Premix output (NH)	2.5" M	2.5" M	2.5" M

WARRANTY

Parts and labour	2 years	2 years	2 years
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KEY

- As standard
- $\hfill\square$ Option (variant) to be indicated when ordering
- Option which can be supplied later
- Not applicable
- **a** On request

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^{*}for higher flow rates see page 16





LEADER MIX 2000, 4000 AND 6000 LARGE FLOW RANGE

Using the Venturi principle, LEADER MIX 2000 automatic dosing systems ensure your firefighting foam operations are a success. 100% mechanical, they are very compact and lightweight and do not require a power supply.

Reliable and precise, they are modular and supply high-flow installations with premix.

With a flow rate range of 300 to 2000 l/min, LEADER MIX 2000 is modular and can be installed with parallel operation for even higher flow rates.

► 4000 l/min needed: 2 x LEADER MIX 300-2000 in parallel For a flow range of: 600 to 4000 l/min

► 6000 l/min needed: 3 x LEADER MIX 300-2000 in parallel For a flow range of: 900 to 6000 l/min



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FEATURES AND BENEFITS



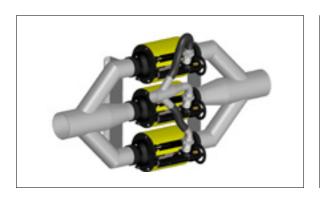
100% mechanical:

For complete energy autonomy. No back-up power supply needed.



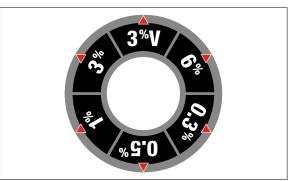
Control panel:

To be mounted on a vehicle or positioned in fixed installations.



Modular:

LEADER MIX 2000 can be combined for installations requiring 4000 l/min, 6000 l/min or even more premix flow.



Viscous foam concentrate settings:

1% and 3%V for AR (Alcohol Resistant)-type viscous foam concentrates.



Bypass Position:

Operated from the panel, this helps reduce pressure losses when injection is not required.

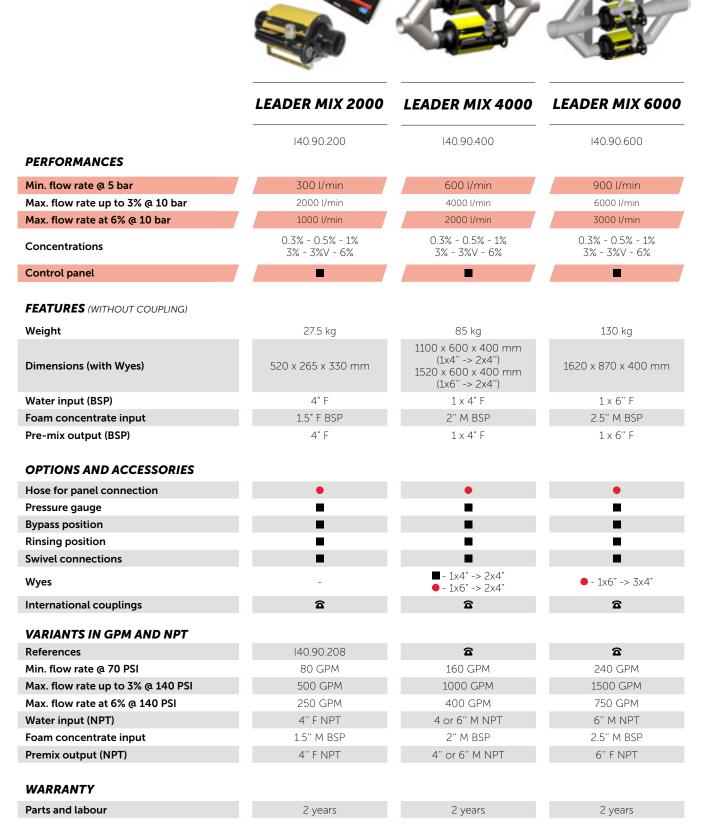


Easy to flush from the panel:

Simple rinsing system when the process is complete to ensure successful operation during the next use.

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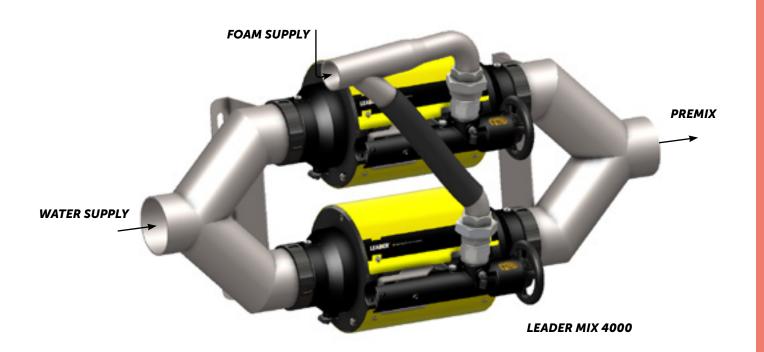
LEADER MIX 2000, 4000 AND 6000 DOSING SYSTEMS

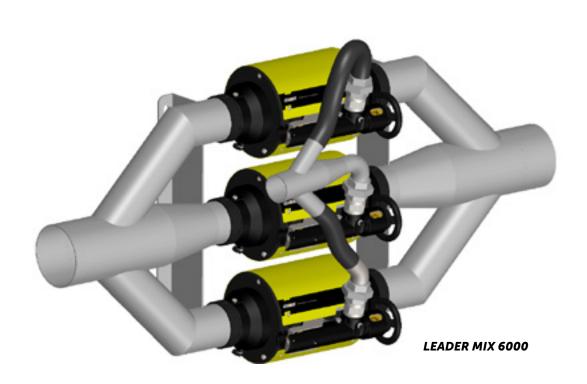


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- As standard
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- Not applicable
- **☎** On request

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FLOWMIX

FIXED OR MOBILE UNITS FOR STORING AND DOSING FOAM CONCENTRATES FROM 0.1 TO 1%

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FLOWMIX FOR PRECISE DOSING AND IDEAL STORAGE:

There are 2 configurations of the $\ensuremath{\mathsf{FLOWMIX}}$ range of dosing systems:

- ► COMPACT models: for fixed installations (fire hose network, sprinkler network, on a pick-up, supplying small fixed fire monitors, etc.) or for use in portable mode
- ► KIT models: for installation by modules on firefighting response vehicles (VPI, VSR, FPTL, FPT, etc.).

 The components are distributed in the installation.

To make it easier to refill, the Compact versions are equipped as standard with a manual pump, whilst the Kit versions are equipped with an electric filling pump.



FLOWMIX

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- **⊘** Compactness
- **⊘** Up to 2000 lpm
- ✓ Low pressure loss

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FLOWMIX STORAGE AND DOSING UNIT

The use of an automatic dosing system like FLOWMIX ensures your fighting fire foam operations are a success. It is adapted to all flow rates, guaranteeing homogeneous foam production regardless of any changes to the operation. Automatic dosing systems also ensure better management of foam concentrate stock, as they do not require the use of nozzles calibrated to 200, 400 or 800 l/min when only 100, 500 or 600 l/min are used

FLOWMIX is a very compact bladder tank dosing system used to inject all types of foam concentrate used in firefighting:

- ► Class A additives from 0.1% to 1%
- ► Class B foam concentrates from 1% and 3%

Entirely based on a mechanical principle, FLOWMIX does not require any auxiliary energy source and operates automatically. It is naturally positioned downstream from the pump and operates as soon as the water flows. Reduced pressure loss: Ideal for long distances of hoses.

Particularly well-suited to use with additives for class A fires whose concentration is very low (0.1 to 0.7%) due to limited capacity from 19 to 76 litres:

- Urban and industrial firefighting operations:
 - Wood, Paper, Cardboard,
 - Plastic, Rubber,
 - Fabric, Textiles
- Forest and wild fires firefighting operations
 - Plants, Straw, etc.



FLOWMIX COMPACT VERSION

FEATURES AND BENEFITS



Low pressure losses:

Ideal for long distance hoses layouts. FLOWMIX only generates 0.5 bar pressure with loss at 500 lpm



Precise dosing:

Adjustable concentration of 0.1%, 0.2%, 0.3%, 0.4%, 0.5%, 0.7%, 1% and 3%.



Wide flow rate range:

From 20 to 2000 l/min (for a concentration from 0.1 to 1%) and up to 500 l/min (at 3%).



Low or high pressure:

Working pressure: 1.5 to 30 bar.



Dosing and storage:

Foam concentrate storage capacity up to 76 litres in 1 or 2 tanks of 19, 28 or 38 litres, protected from air and ultraviolet ray.



2 configurations:

- COMPACT for fixed installations or use in portable mode
- KIT for mounting on firefighting vehicles.

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FLOWMIX DOSING SYSTEMS







FLOWMIX 500

FLOWMIX 750

FLOWMIX 1000

PERFORMANCES

Storage capacity (litres)

Autonomy at 0.3% (delivered qty)

Flow rates

Flow rates at 3%

Concentrations

19 l 6300 l 20 to 2000 l/min 20 to 500 l/min 0.1% -0.2% -0.3% -0.4% 0.5% - 0.7% - 1% - 3% 28 l 9300 l 20 to 2000 l/min 20 to 500 l/min 0.1% -0.2% -0.3% -0.4% 0.5% - 0.7% - 1% - 3% 38 l 12600 l 20 to 2000 l/min 20 to 500 l/min 0.1% -0.2% -0.3% -0.4% 0.5% - 0.7% - 1% - 3%

FEATURES (WITHOUT COUPLINGS)

Input/Output (BSP) 2.5" F / 2.5" M 2.5" F / 2.5" M 2.5" F / 2.5" M

FLOWMIX COMPACT MODELS (P)

References	140.20.036	140.20.037	140.20.040
Weight	35 kg	39 kg	43 kg
Dimensions (l x d x h)	30 x 45 x 70 cm	30 x 45 x 90 cm	30 x 45 x 110 cm
Manual pump			

FLOWMIX KIT MODELS (BI)

References	140.20.032	140.20.038	140.20.041
Weight	33 kg	37 kg	41 kg
Tank dimensions	Diam. 228 x lgth. 51 cm	Diam. 228 x lgth. 70 cm	Diam. 228 x lgth. 90 cm
Electric pump			
Manual pump	•	•	•

WARRANTY

Parts and labour	2 years	2 years	2 years
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KEY

As standard

☐ Option (variant) to be indicated when ordering

Option which can be supplied later

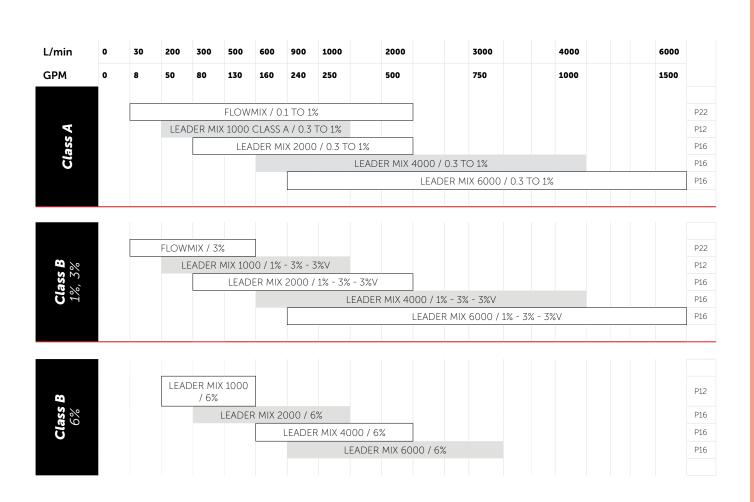
- Not applicable

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OVERVIEW OF DOSING SYSTEMS

BY CLASS OF FIRE AND BY FLOW RATE



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SINCE 1985, LEADER HAS DESIGNED AND MANUFACTURED HIGHER PERFORMING EQUIPMENT USED IN FIREFIGHTING, FIRE TRAINING AND SEARCH AND RESCUE APPLICATIONS AND PROPOSES THEM TO FIRE & RESCUE SERVICES, CIVIL DEFENSE, HAZARDOUS INDUSTRIES, NGOS, MARITIME SERVICES, ETC. ON THE 5 CONTINENTS.



A MAJOR AXIS: INNOVATION

To meet the advancing challenges of fire hazards and search & rescue missions, equipment must continually evolve and adapt to be more effective while ensuring maximum safety for workers.

To meet these challenges, LEADER is committed to constant innovation and new technologies and has its own inhouse Research & Development team which works alongside end-users to design and develop the equipment that will be available tomorrow.

To test our equipment and assess its performance, we at LEADER continually invest in our own infrastructure:

- ► Water and High-Expansion Foam test room (400 sq m)
- ▶ Ventilation test room (400 sq m)
- ► Fire test area in fire container Fire extinguishing equipment
- ► Casualty Search Equipment test area

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OUR COMMITMENT

When you choose LEADER equipment, you are assured of the quality and compliance of our products. These have been made in our workshops by our engineering and electronics specialists.

ISO 9001 certified since 1999, LEADER:

- ► Carries out checks at every stage of the manufacturing process as well as on the finished products before dispatch,
- ▶ Provides continuous training for all its staff.

GUARANTEED EQUIPMENT

Every LEADER product comes with a specific contractual guarantee.

CLOSE TO OUR CUSTOMERS

Through its sales force, its subsidiaries (in Germany, Austria, China and the USA) and an international distribution network, LEADER is present worldwide, keeping us as close as possible to its customers.



ADAPTED TRAINING

For optimal and long-term use of the equipment you purchase, LEADER can propose suitable training on the handling, on the use and maintenance of the equipment. Training can be done at our site or at your own site.

AN INTERNATIONAL PRESENCE

SUBSIDIARIES AND A STRONG RETAILER NETWORK



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LEADER GROUP



















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