

TURBINATOR TECHNICAL INFORMATION



Turbinator by Knowsley SK Limited, the next generation in foam mixing technology



Turbinator is unique. From the outset it has been designed specifically as fire fighting equipment with due regard to the special needs and practices for fire fighting applications.



Knowsley SK Limited - Designer and Manufacturer of Fire Fighting Equipment & Systems

Strategic fire protection - when and where it's needed most





Established in 1896, Knowsley SK Ltd has an enviable reputation for manufacturing quality fire fighting equipment and systems for high-value asset protection that can be relied upon whenever danger strikes.

01 Product Overview

The Knowsley SK Turbinator is a positive displacement foam concentrate dosing machine which uses the firewater supply as a power source but which produces zero waste water. The Turbinator is in fact a progression from the highly successful original Knowsley 2P and 3P foam making systems.

The Turbinator is designed to accurately mix foam concentrate liquid with either freshwater or seawater and is suitable for use in fixed systems or in mobile units for portable use.

The Turbinator is available in a range of sizes.

The Turbinator comprises of two main parts: a water powered motor and a foam concentrate pump.

The motor and pump are close coupled and integrated within a single compact body and both are 'positive displacement' rotary devices. Consequently for every revolution of the water motor a fixed volume of water passes through the machine, and similarly for every revolution of the foam pump a fixed volume of concentrate is delivered. In this way the required water to foam mixing ratio is obtained regardless of operating pressure.

The unique design of the "Turbinator" makes the device inherently self priming. The gear type foam pump develops a strong inlet suction leading to a reliable and uninterrupted foam concentrate supply.

02 Features

- Can be used in hazardous areas
- Compact
- No external power source required
- Easy to use - No special start-up procedures
- Low pressure drop
- Variable flow
- Highly tolerant to overspeed
- Can be installed in vertical or horizontal pipes

Designed for:

- Low maintenance
- Fresh water and sea water versions
- Proportioning over a wide flow
- Available in 1% and 3% proportioning rates
- Resistant to debris in firewater
- CE Marked
- NFPA compliant for dry running
- Low noise emissions



Figure 1. Turbinator rotors



Our Century of experience, continuous product development and world-wide support network provides the confidence for clients to select Knowsley SK as their first choice for asset protection whatever, whenever and wherever the risk.



03 Materials of Construction

The Turbinator is available in two basic material selections:

- Freshwater Model: Ductile Iron.
- Seawater Model: LG2 Gunmetal.
- Rotors: Nitrile coated stainless steel SS316
- Gears: Bronze
- Gear Housing: High grade polymer
- Mechanical Seals: Stainless steel / Rubber
- Fasteners: Stainless steel SS316

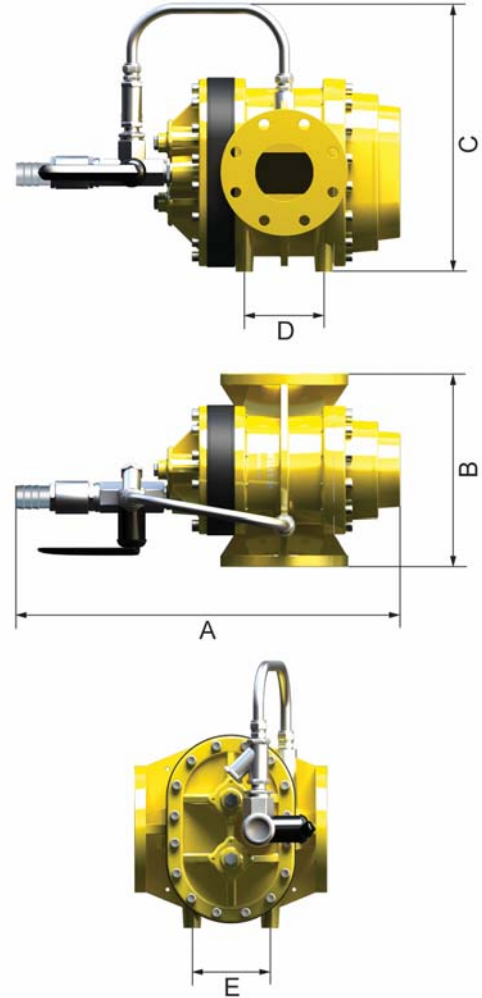


Figure 2. Dimensions (see table 1)

04 Certification

For the European market, the products will be CE Marked under the Machinery Directive 2006/42/EC and under the ATEX Directive 94/9/EC.

Table 1. Product Details

MODEL		Turbinator MIDI	Turbinator MIDI-PLUS	Turbinator MAXI
Nominal Size		4"	6"	8"
Flow Range (l/min)		500 - 3000	600 - 7000	1200 - 14000
Water Connection		4" ANSI 150# Flange	6" ANSI 150# Flange	8" ANSI 150# Flange
Foam Connection		1.1/2" BSP	2" ANSI 150# or 2" BSP	2.1/2" BSP or 3" ANSI 150#
Dimensions (mm)	A	695	857	1045
	B	350	400	500
	C	485	493	600
	D	150	200	250
	E	150	200	270
Foot Holes		M10	M12	M16

Temperature range 5 °C to 50 °C



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05 Technical Information

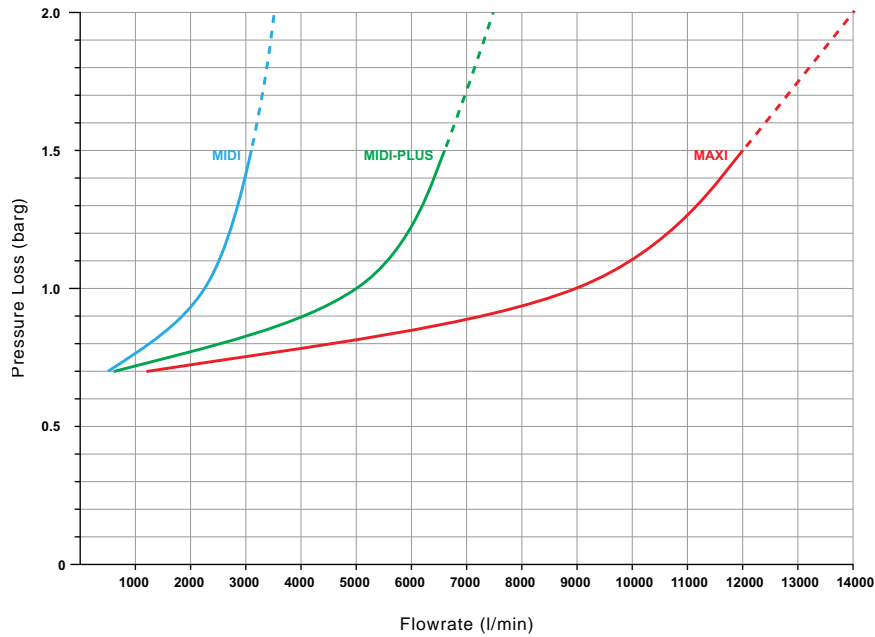


Figure 3. Graph of Pressure Loss vs Flowrate

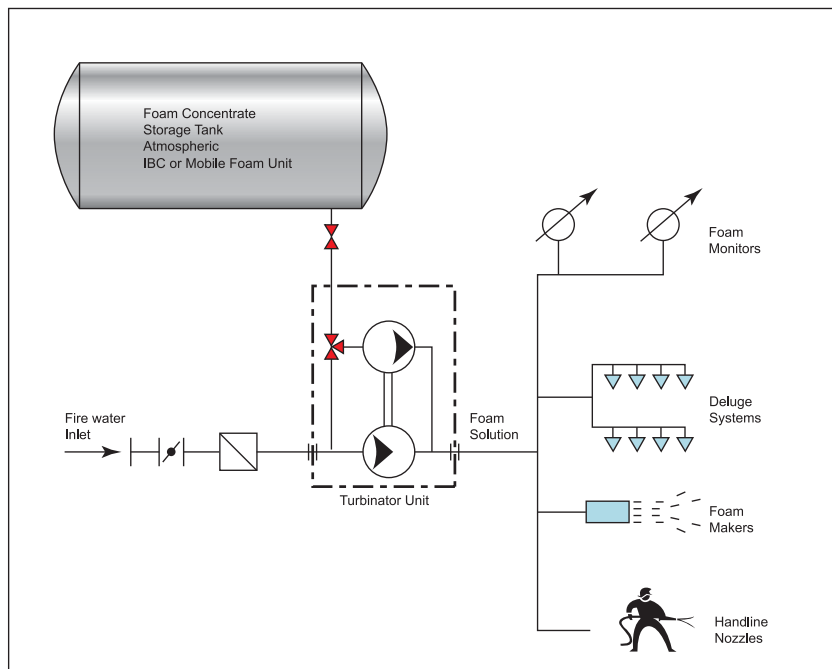


Figure 4. P&ID of typical Turbinator Installation

The Turbinator provides a very versatile solution and can be integrated into any foam system. Due to the wide operating range each model can feed a variety of discharge devices either simultaneously or individually as illustrated in Figure 4.

