



TANK PRESSURE UNIT TPU 500



THE INNOVATIVE TANK OVERPRESSURE SYSTEM FOR THE PROTECTION OF LIQUID FOODSTUFFS IN SILOS

The production of milk, cream and dairy liquids or raw juices and beverages with low sugar content is a sensitive process. The products often need to be stored in silos for days before further processing takes place. Pressure equalization takes place during both the storage and discharge processes, resulting in unfiltered outside air passing through open tank areas such as vents. In this way, undesirable microorganisms enter the tank and result in product contamination, which reduces the shelf life of the end products.

The Viledon® solution

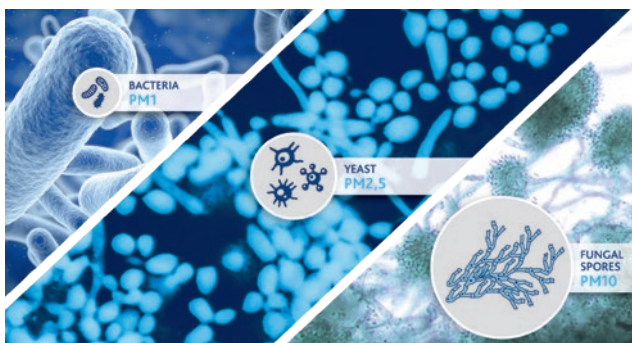
With the TPU 500 tank overpressure system (Tank Pressure Unit), Freudenberg Filtration Technologies has solved the contamination problem associated with silos containing liquid foodstuffs. The modular fan unit creates a contamination-free air blanket above the liquid. A slight overpressure in this air blanket ensures that no outside air can penetrate, even when the silo or storage tank is being emptied. This reliably protects against contamination caused by bacteria, yeasts and molds. This is particularly beneficial for heat-treated products such as milk or cream, where both quality and shelf life are significantly increased.

The TPU is equipped with a volume flow control. This ensures that the volume flow remains constant at the preset value throughout the entire operating time – regardless of external influences.

Through the use of a tank overpressure system, the quality and shelf life of liquid products can be increased and waste can be reduced. All of this contributes to optimized production processes and results.



Examples of liquid food stored in silos and tanks



Examples of micro-organisms grouped according to PM fractions that can contaminate liquid food and trigger subsequent contamination

USING OVERPRESSURE TO PROTECT AND PROLONG PRODUCT LIFE

Two filter stages for controlled, hygienic air quality

Developed for air quality control in silos, tanks and small filling plants in the food and beverage industry, the TPU 500 tank overpressure system features multi-stage filtration consisting of a prefilter (MV HSN NanoPleat or MaxiPleat series cassette filters, from filter class ISO ePM 2,5 65% upwards), followed by an EPA/HEPA filter for final filtration (filter classes E 11 to H 14). All three filter series are harmless in contact with food and meet the highest standards of food conformity according to EC No. 1935/2004, EU No. 10/2011 as well as ISO 846:2020. This means that they also comply with the recommendations of EHEDG Doc. 47.

Filter configuration can vary depending on the application. Working together with the user, our experts analyze the on-site process situation and recommend the appropriate filtration concept.



FILTER STAGE	FILTER TYPE	FILTER CLASS	CHARACTERISTICS
1. Prefilter	MV HSN NanoPleat or MaxiPleat cassette filter 	ISO ePM2,5 65% to ISO ePM1 85% (ISO 16890)	<ul style="list-style-type: none"> Hybrid Synthetic Nonwoven medium or micro-glassfiber paper (MaxiPleat) Robust, water repellent, moisture resistant, microbiologically inactive Easy installation, mechanically stable
2. Final filter	EPA, HEPA filter with aluminum frame 	E 11 to H 14 (EN 1822:2019)	<ul style="list-style-type: none"> MiniPleat technology with high separation micro-glass fiber papers Stable, moisture resistant and microbiologically inactive for safe, leak-free operation Easy installation

The modular structure consists of fully welded stainless steel housing parts that are connected with locking latches. This makes it easy and safe to change filters. The support frame of the TPU can be flexibly adapted to the respective tank size or shape. To maintain a constant flow rate, each system has an automatic flow control unit that adjusts the speed of the motor as required. The pressure switches indicate the status of the two filter stages and trigger a visual signal or, if necessary, an alarm when the designated final pressure drop of the filters is reached.

FEATURES		TPU 500
Housing		Austenitic stainless steel
Clean air supply	m³/h	500
Fan and motor unit		Centrifugal fan with backward curved blades, EC motor
Fan control		Automatic volume flow control
Pressure switch		Separate display for pre-filter and fine filter
Tank connector	NB	200 or as specified by the customer
Dimensions (H×W×D)	mm	1,800×900×650 (incl. support frame)
Weight	kg	approx. 145

The benefits of using the TPU 500 at a glance

- Less product waste thanks to constantly controlled air quality
- Longer shelf life of raw, intermediate and finished products – especially pasteurized liquid foods
- Higher, hygienic air quality in all process phases and over the entire storage time of the liquid products
- Optimized production performance thanks to higher-quality base products
- Certified filter quality according to recognized industry standards

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