WMG , 258 Bird Street, Stellenbosch

7600 South Africa

Verona, September 11, 2023

For the kind attention of Nick Furness

Offer no. IV23-07 rev.01

NEXTMF10 AUTO

VINEXT MF10

Cross-Flow Microfiltration Plant

Automatic version

VINEXT S.r.l.
Sede Legale: Stradone S. Fermo, 26 |37121 Verona, Italy |Cod.Fisc. P.IVA 04353750237 | n. REA VR 413258 |Cap. Soc. 50.000€
Sede Oper.: Viale dell'Industria, 1/b | 37036 S.Martino B.A. (VR) Italy | tel. +39 045 8581990 | **www.vinext.it - info@vinext.it**

Not representative picture

1. GENERAL DATA

The VINEXT MF10 plant unit subject to the listing is a cross-flow microfiltration system based on hollow fiber membrane modules in high permeability polypropylene, specifically designed for the clarification and microbiological stabilization of wines.

The system has been specifically designed to filter musts or wines without causing stress to the product, working with low operating pressures and low installed powers, in order to avoid overheating.

This reduction in the power used is due to the fact that pumps with different functions for handling the must / wine are housed on the plant:

1. *self-priming load pump controlled by VFD*, to ensure the load of the wine to be filtered into the service tank on board the machine;
2. *recirculation pump with low rotation speed,* to ensure the tangential speed necessary for cleaning the filter modules inside the recirculation loop;
3. *backwash pump,* to carry out an optimal washing counterflow during production and washing cycles.

In addition, the passage hole of the product to be treated inside the hollow fibers that make up the microfiltration modules is of optimized size, which allows, with the same tangential speed inside the fibers and filtering surface, a lower recirculation rate.

All this translates into a lower input of energy into the circuit and consequently in a negligible increase in temperature.

The operation of the system is managed in the different phases by means of a PLC with a touch screen operator panel. The supply flow rate is controlled continuously, acting on the control inverter of the feed pump through a control loop based on the flow rate of clarified product and on the calculation of the transmembrane pressure (effective pressure for filtration purposes).

The working pressure and differential pressure on the MF modules are continuously controlled by means of pressure transmitters; a specific adjustment loop intervenes when the maximum pressure in feed to the MF modules is exceeded, limiting the rotation speed of the feed pump, in order to avoid excessive fouling of the membranes.

The washing/rinsing of the system is carried out at the end of each processing cycle, or when required by operating conditions. The operator starts the washing cycle according to the desired recipe; The washing then proceeds automatically until the final rinsing.

The system is compact and easy to install, as on a single frame there are all the equipment components of the system, including the electrical command and control panel and the chemical washing tank.

2. PROJECT DATA

2.1 Project data

Model	--	Vinext MF10 AUTOMATIC
Fluid to be treated	--	Juice/Wine
Working period (including washing)	h	24
Average hourly plant production: - Dry White wine - Dry Rosé wine - Dry Red Wine - Juice	hl/h	 12.000 10.500 9.000 6.500
Average transmembrane pressure (TMP)	bar	0,5-1,5
Operating temperature	°C	15
Typology of membrane installed	--	hollow polypropylene fiber
N° of membrane modules	--	10
Filtering surface / module	m^2	15,2
Installed power	kW	7,5
Average power consumption	kW	6,0

2.2 Main characteristics of the system

The VINEXT MF10 microfiltration system includes:

- support frame;
- volumetric type load pump and safety filter;
- membrane circuit with circulation pump;
- backwashing circuit;
- washing tank;
- hot and cold water supply lines with filters;
- dosing pumps for detergent products;

- pneumatically and manually controlled pipes and valves;
- main electrical panel with PLC and touch-screen operator panel.

2.3 Dimensions

The entire system is supplied completely mounted on a frame, in order to facilitate transport operations and speed up assembly on site.

The frame is entirely made with tubular and profiles in AISI 304.

Overall dimensions of the structure:

length	mm 3.300
depth	mm 1.500
height	mm 2.300

2.4 Necessary utilities

The following utilities will be required for the operation of the plant:

- cold water;
- hot water;
- compressed air;
- Power supply line appropriate to the installed power.

2.5 Important note

To ensure a high operating life of the membranes, it is essential to comply with the following recommendations.
The product to be treated must not contain bentonite or other clarifying agents of a mineral nature.

Washing water must have the following characteristics:

- iron<0.05 ppm
- calcium, magnesium <25 ppm
- absent colloidal silica

Water must be free of suspended solids, fats and oils.

3. DESCRIPTION OF THE DELIVERY

The plant is basically composed of:

3.1 stainless steel washing tank

3.2 stainless steel preload pump for wine picking, complete with 1.8 kW electric motor, controlled by VFD

3.3 Stainless steel safety filter, complete with washable stainless steel cartridge, porosity 50 microns

3.4 Stainless steel centrifugal pump for product circulation on membrane elements, complete with 4,5 kW electric motor with low rotation speed

3.5 n° 10 MF modules consisting of stainless steel container and PP hollow fiber membranes, filtering surface 15,2 m2/each

3.6 backwash system complete with stainless steel centrifugal pump, electric motor 0.75 kW

3.7 Stainless steel hydraulic interconnections with DIN type food fittings

3.8 Support structure made of stainless steel

4. INSTRUMENTATION

The plant is equipped with the following instrumentation:

4.1 Feed flow meter

4.2 Clarified wine flow meter

4.3 Membrane inlet and outlet pressure gauges

4.4 temperature meter

Pressure gauges are also provided in the field.

5. ADJUSTMENTS AND LOCKS

The system involves the use of a control valve and an inverter to adapt to different supply and recovery conditions.

5.1 Control valve on concentrate

5.2 Inverter on the load pump

The protection of the circulation pump is guaranteed by a minimum pressure switch located on the suction.

6. ELECTRICAL COMMAND AND CONTROL PANEL

The supply includes an electrical command and control panel, made of stainless steel profiles and sheets, in accordance with EC requirements. The picture will be complete with all the necessary protection, command and signalling equipment, relating to the various users of the plant.

The logic for the automatic control of both the operation of the various units and the sequences of the washing operations is managed by PLC. The system is complete with operator panel, by means of which you can access the adjustment parameters, for setting and adjusting the working conditions. The operator panel also serves as a terminal for indicating the conditions of service and / or anomalies and is equipped with datalogger functionality with storage of:

- operating parameters;
- totalization of the treated product;
- total operating hours.

The low voltage FM distribution network between the switchboard and the utilities is made by means of electrical cables of adequate section and characteristics, laid in channels fixed to the metal structures of the various sections of the plant.

The final connection to the utilities is guaranteed by means of a flexible watertight sheath

7. ECONOMIC OFFER

Price List NEXTMF10 AUTOMATIC **€ 146.000,00**

7.1 Terms and conditions of payment

Method of payment: to be agreed

Delivery: ex works San Martino B.A. (VR) – Italy

Delivery: to be agreed

Validity offer 90 days. from the date of this

We remain at your disposal for further clarification, and we extend our best regards.

Verona, September 11, 2023

For acceptance of this
valid as order confirmation

(Stamp and signature)

VINEXT S.r.l.
Salvatore Vignola

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