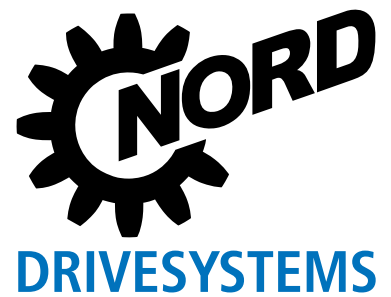


DRIVE SYSTEMS FOR FILTRATION SYSTEMS

CASE STUDY: TMC1



Authentic Flavor Guaranteed
With new filtration systems



Cross-flow Filtration Technology
The most advanced filtration



Optimized Efficiency
Limiting energy use during
partial load operations



Adjustable Process Parameters
Intelligent operation



NORD Parallel Shaft Gearmotors
With integrated AC drives



Novel filtration systems developed by TMCI Padovan help an Italian producer make highly authentic, full-flavored fortified wines. These innovative systems rely on distributed NORD products for their highly efficient operation.

PROJECT CHALLENGE



Beverage Industry
Filtration systems



Geared Motors
CLINCHER™ - Parallel
shaft gear units



AC Vector Drives
SK 200E

Intent on replacing conventional vacuum filters and their frequent cleaning requirements, a renowned Italian producer of vermouth fortified wines sought to find an innovative filtration solution that would yield a more streamlined production process. Given the tremendous volumes involved with this application, a very reliable and energy-efficient machine was required. After their successful trial phase, beverage industry specialist TMCI Padovan was employed to supply products from their new Dynamos line-up – hygienic, enclosed systems with a small footprint that were easy to install and parameterize as needed.

New spin on the process – The Dynamos system is the world's first cross-flow filter with a calibrated back-pulse system for expelling the filtrate. This design has been hailed as the most advanced filtering system for a high level of suspended solids that does not utilize either filter aids nor

modifying agents. The system filters the materials via porous ceramic disks that are spinning inside a sealed chamber. The closed device provides excellent protection against oxidation for musts and juices during the process. The gentle operation of the system along with the lack of filtering agents assures that very minimal color compounds are lost in the final product.

Optimized efficiency. – Previous filtering systems had been fitted with belt drives which are ill-equipped to achieve advanced levels of efficiency and availability. In order to keep energy consumption to a minimum and establish excellent reliability, the TMCI filtering system was to be complemented with an equally advanced drive solution.

FOCUS ON THE CUSTOMER



A leading manufacturer of machines for the food and beverage sector, TMCI Padovan Group is a notable player in the wine industry in particular. The company's product portfolio includes a versatile range of machinery from clarification and filtration solutions, to pasteurization technology, to fermentation tanks. TMCI Padovan's new Dynamo systems won the prestigious Innovation Award at the 2011 SIMEI show in Milan as well as the Palmarès de l'Innovation 2013 at the SITEVI in Montpellier.





“These drive solutions have given us greater energy savings, enhanced system reliability and availability, a simplified machine design, and substantially greater safety in the workplace.”

NARCISO GATTI, TMCI PADOVAN PURCHASE AND OPERATIONS MANAGER

APPLICATION SOLUTION

The novel filter system is equipped with compact, integrated drive systems consisting of a geared motor and an intelligent AC vector drive. Depending on the size, each Dynamos system contains multiple parallel shaft integral gearmotors – one per shaft, up to 16 shafts – that rotate the filtration disks. In addition, every system has one or two tanks for the finished material, both equipped with four drive units each. Each unit is an integral drive solution fitted with a motor-mounted SK 200E series AC vector drive, which enables highly precise speed control without the need for sensor feedback. One more NORD drive operating the circulation pump completes the distributed drive setup.

Lower energy consumption. – The AC vector drives’ field-oriented control technology allows for the adjustment of magnetic fluctuations in the motor during partial-load operations which limits the consumption

of energy to a fraction of the rated power. The drives provide networking capabilities to accommodate the fieldbus of choice. For cost-saving networking, up to four AC drive units are able to communicate with the PLC using an optional connection to each other via the integrated, CANopen-based system bus. Safety features for SIL 3 applications in accordance with EN 61508 are also available on request.

Tried and tested cooperation. – NORD and TMCI Padovan have collaborated on a number of projects over several years. NORD has previously supplied multiple drive solutions for other TMCI Padovan machines, such as vacuum filter systems, vegetable oil processing machines, and tunnel pasteurizers.



Adaptive –
Integrated NORD drive systems conserve energy while running under partial load.

FOCUS ON THE PROJECT

The innovative filtration technique devised by TMCI Padovan for the Dynamos systems allow for very easy cleaning and ensure a particularly gentle treatment of the aromatic and color compounds in the process. NORD’s intelligent electromechanical drive systems achieve optimal efficiency and highly reliable operation even during:

- long filtration cycles of up to 72 hours without interruptions
- high flow rates between 25 and 50 l/m²h.



MORE REFERENCES AND CASE STUDIES MAY BE FOUND AT :

▪ www.nord.com/references



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Global Vision, Local Support

NORD makes its wide product range easily available through a global network that includes representation in over 60 countries. By providing all of our customers with prompt delivery, and expert support services, we are firmly committed to exceeding customer expectations and being responsive to the ideas and specifications of every customer, anywhere in the world.

