



Large vacuum and recirculating pipework to platens and heads of a multiple platen machine.

Vacuum drying technology design and manufacture in Italy

Tannery machine development in Italy has been and largely still is located close to the country's historic leather manufacturing concentrations. One of the companies active in this field, Turato srl, has its roots in the Vicenza tannery cluster surrounded by some of the world's most famous leather makers. Turato, ever since its foundation in the late 1960s, became interested in leather vacuum drying technology, picking this up at a time when it had been developed and based on an American patent originally filed in 1950 but then remaining dormant for 10 years or more. At first a component supplier in this field Turato now also a vacuum drying machine builder is set apart offerings a range of vacuum dryers.

Licensed by the American patent holder, Italian Cartigliano and two other European tannery machine manufacturers developed the first practical vacuum dryers already during the early 1960s. (See also "Cartigliano just in time technology" on page xxx of this issue) Vacuum drying leather not only superseded a complicated and labour intensive process but also created an opportunity to create new specification leathers in volume production and of uniform characteristics and quality.

Tanneries around the world quickly and enthusiastically adopted the new technology even if the early machines were cumbersome and prone to problems. The method of drying

under reduced atmospheric pressure is still the cardinal feature of the system totally revolving around the essential vacuum pump. The piston/cylinder pump employed initially was soon replaced by the simpler and cheaper water ring pump. With ongoing development of vacuum drying machinery and drying technology, the performance of such pumps became inadequate. Over the last nine years Turato in particular has engaged in research, seeking a satisfactory solution to the problem of specifying suitable vacuum generating pumps capable of meeting the required output, together with an acceptable service life. Based on twenty years of experience in plastics processing, the company has developed a series of vacuum drying systems designed to cope with the problem.

Because it is the company's conviction that no single type of vacuum dryer can respond to the many varied requirements arising in leather production, six appropriate types of machine have been developed. Currently Turato is the only manufacturer capable of providing the world's tanneries with such a range of vacuum dryer models each designed to cover specific drying requirements. As a whole, this range can handle the full variety of the many types of leather and consists of the following models:

- The basic machine *Essenza*, either with a water ring pump and no heat recovery or with an oil pump and total heat recovery.



A multiple platen Turato vacuum dryer. Control panel is shown at the front with door open, electric motors seen directly behind the panel, drive the vacuum and recirculation pumps.

- The innovative design machine Innova offers two models, Kompressor and Secco. Both employ a new vacuum creation system using a Turato patented compressor. A triple suction port governs the degree of vacuum relating to a drying range between 60° and 40°C, all without a high capacity vacuum pump. The model Kompressor uses a water ring pump and the Secco has a dry screw pump. Low temperature drying, low environmental impact and less energy demand are the result of much development work.
- The Aetherna machine incorporates Innova-Secco technology and offers previously unknown solutions of satisfying difficult leather requirements such as those for automotive use. Air evacuation is provided by a single vacuum source via two separate condensation lines for dry air and saturated air streams produced during the drying cycle. This machine is unique in producing rapid platen cooling, allowing a temperature reduction from 65° to 45°C in fifteen minutes. A special feature of this machine is the possibility of programming, for example only using four platens out of the six available, in which case the vacuum pump will automatically adjust its output and thus reducing energy consumption. Both Innova and Aetherna types allow the user to specify the desired number of platens, their dimensions, surface finish as well as elements such as machine colours, a starter set of components and many others.

Completing the range there is also a laboratory vacuum dryer (Proton) available in three sizes that employs the Kompressor system and its associated systems.

Fundamental for Turato's expertise in this area is that it has been producing spares for all types of Italian made vacuum drying machines for forty years. It also has the ability to customise its machines to the individual needs of a specific customer. Of importance, too, is that Turato, still a family company, provides user clients of its vacuum dryers with the programming and control software of the installed systems, with their experience gained through providing worldwide assistance in this field. Today Turato maintains seven patents covering design and manufacture of its vacuum dryers in connection with dry vacuum and condensation systems. It is further evidence that the company intends to always stay technically a step ahead of the changing customers' requirements. ☉

Tannery machinery accessories and spare parts from Italy



Danese fleshings collector and mincer.

Providing the many leather producers clustered in the leather centres of Italy with a just-in-time specialist service, spares and an array of auxiliary devices has created a huge marketing opportunity for the small but technically qualified enterprise.

Amongst the companies satisfying this demand, Danese Srl is located in Arzignano, a hub of the Vicenza

Province tanning cluster. It was established in 1992 by Maurizio Danese and commemorated its 15th anniversary in January this year; a true family business with members playing active roles in sales and management. To ensure the satisfaction of customers' technical needs the team works directly with their clients. In major markets, such as China and India, agencies have been set up. Products are demonstrated at major exhibitions around the world.

As far as machines are concerned the company has directed its development onto material movement machinery and means of processing waste. Typical are machine loading conveyors, fleshings pumps and shavings compactors. Regarding consumable and repair parts, an extensive range used on tannery machinery is stocked ready for prompt delivery, and is principally exported to markets around the world. ☉



Danese loading gantry transferring skins to a fleshing machine.