The Economics of Mechanised Method Champenoise Bottling

Presented by

Horst J Klos

Marketing Director of Viniquip International Ltd

VINIQUIP

INTERNATIONAL LTD

There are 3 basic methods of producing quality style Sparkling wine:

1) The Traditional Style or **Method Champenoise**

2) The Production by **Transfer Method**

3) CHAMAT Process

The term ***Method Champenoise*** *may only be* applied to sparkling wine made in the Champagne region of France and accordingly those wines may also be called ***CHAMPAGNE***.

No other region may label their product CHAMPAGNE or Method Champenoise (it seems that the USA may be different in that) and therefore terms like Method Traditional, Classical Method, Bottle Fermented, etc. are used to describe the process of how the wine was made.

A subtle difference in wording is often found on bottles which have been made using the Transfer Method – instead of stating “bottle fermented”, words such as “fermented in a bottle” are often used.

VINIQUIP INTERNATIONAL LTD

Sparkling Wine by Method Champenoise Defined

Methode Champenoise (or traditional method of producing sparkling wine), is the Production of Sparkling Wine through the process of secondary fermentation within the same bottle purchased by the consumer.

The Champagne or Traditional Method usually takes
2 – 5 years of in-bottle maturation, depending on the style
of the House or Winery
(maturation of 30 years or longer is not un-common)

VINIQUIP
INTERNATIONAL LTD

HISTORICAL ARTIFACTS

VINIQUIP INTERNATIONAL LTD

Processes of Methode Champenoise

Phase 1 – Wine Preparation
Chardonnay, Pinot Meunier and Pinot Noir undergo a Primary Fermentation for the creation of a Base Wine.

Phase 2 – Blending
Base Wines are blended together (2 or more varieties or often as a single variety, e.g. Blanc de Blanc) and sugar and yeast is added to the blend for the preparation of the secondary Fermentation.

Phase 3 – Tirrage
The process of Bottling the blended Base Wine into pressure resitent Champagne Bottles which are then capped off with a crown cap.

VINIQUIP
INTERNATIONAL LTD

Phase 4 – Ageing
The capped bottles are stored lying down in dark and cool areas for anything from 9 months to a number of decades.

Phase 5 – Remuage or Riddling
The process in which residual yeast/ lees is moved mechanically (or by hand on riddling racks) towards the neck of the bottle.

Phase 6 – Neck Freezing
The lees/ yeast in the neck area is frozen in a special bath, made up of Glycol-Water or brine mix with a temperature of – 25° C, to form a frozen plug about 30mm long.

Phase 7 – Disgorging
The mechanical removing of the crown cap and the consequential expulsion of the frozen plug (the plug is forced out due to the pressure in the bottle) consisting mainly of the yeast and some wine.

VINIQUIP INTERNATIONAL LTD

Phase 8 – Emptying
The removal of a specified volume of wine from the bottle in order to provide a head space for the addition of liquor or cuvee.

Phase 9 – Dosage
The addition of a base wine (also know as *liqueur d'expedition*), usually sweetened to a specific ratio or to create a specific style of finished product.

Depending on the style, some wines are kept "bone dry" and no dosage is added.

Phase 10 – Topping Up
The process of adding back wine (previously removed during emptying or from previously opened bottles) in order to reach a perfect fill level on all bottles.

Phase 11 – Corking and Wiring
This phase is common in all processes of sparkling wine.

VINIQUIP
INTERNATIONAL LTD

Sparkling Wine Production by Transfer Method Defined

Sparkling Wine production whereby secondary fermentation is produced in individual bottles and, on completion of the fermentation process, the wine is decanted into a tank before this is filtered, recarbonated (often but not always) and bottled for the consumer.

Sparkling Wine made by Transfer method usually takes 90 – 360 days of in-bottle maturation, depending on the style of the Winery, prior to further processing.

VINIQUIP INTERNATIONAL LTD

TRADITIONAL METHOD CHAMPAGNE PRODUCTION

Traditionally, the traditional method of champagne production relied on the use of individual machines to perform the various functions.

Current Technology and equipment evolution has resulted in Monoblock type champagne machinery being available, resulting in the Reduction of overheads and operational costs.

Such a manufacturer is TALLERES URPINAS S.A. of Spain

URPINAS

VINIQUIP INTERNATIONAL LTD

HISTORY OF URPINAS & THE EQUIPMENT

Talleres Urpinas is a company that has been designing, constructing and maintaining industrial machinery since its beginning in 1948, especially in the cava sector (Spanish Sparkling Wine).

Since 1996 URPINAS have been developing machines for disgorging, liquor-dispensing and filling of cava bottles, with special emphasis on the classic problems of this type of equipment and processes, such as the following:

- Excessive bottle emptying during disgorging due to the hammer blow and the subsequent entry of oxygen from the air that passes into the gas in the upper section of the bottle
- A large number of disgorging machines with their high maintenance and adjustment costs.
- Impacts between bottles and the exit of carbon dioxide with foam formation.
- The lack of precision in the amount of liquor dispensed in each bottle.
- Poor dispensing in nervy wines, because of the reaction produced when the liquor enters, the internal pressure lifts the dispenser piston with a corresponding dispensing error.
- Equal product levelling in all the bottles, without having to reduce production or having an employee topping up low bottles.
- Complex system of CIP with poor cleaning/ disinfecting of the product and liquor circuits.
- Very high maintenance costs because of the number of specially constructed moving parts and seals.

VINIQUIP INTERNATIONAL LTD

The uniformity in product quality is ever-increasingly becoming an important factor for the development of traditional sparkling wine producers and maintaining a constant style requires perfect control of each individual operation in order to achieve finished product quality.

The systems designed and patented by URPINAS are intended to provide solutions to the described problems in order to achieve product quality and uniformity in relation to the following points.

- Disgorging/ Crown cap removal **without** striking the bottle.
- Bottles are always guided to prevent any impact/contact between the bottles
- Liquor Dispensing system with high precision.
- Preventing the formation of foam in the neck of the bottle so that any trapped air is not enclosed when corking
- Equal level in all bottles.
- Simple, efficient cleaning and disinfecting systems.
- Low maintenance costs.
- Energy savings.

VINIQUIP
INTERNATIONAL LTD

NECK FREEZING

VINIQUIP
INTERNATIONAL LTD

VINIQUIP
INTERNATIONAL LTD

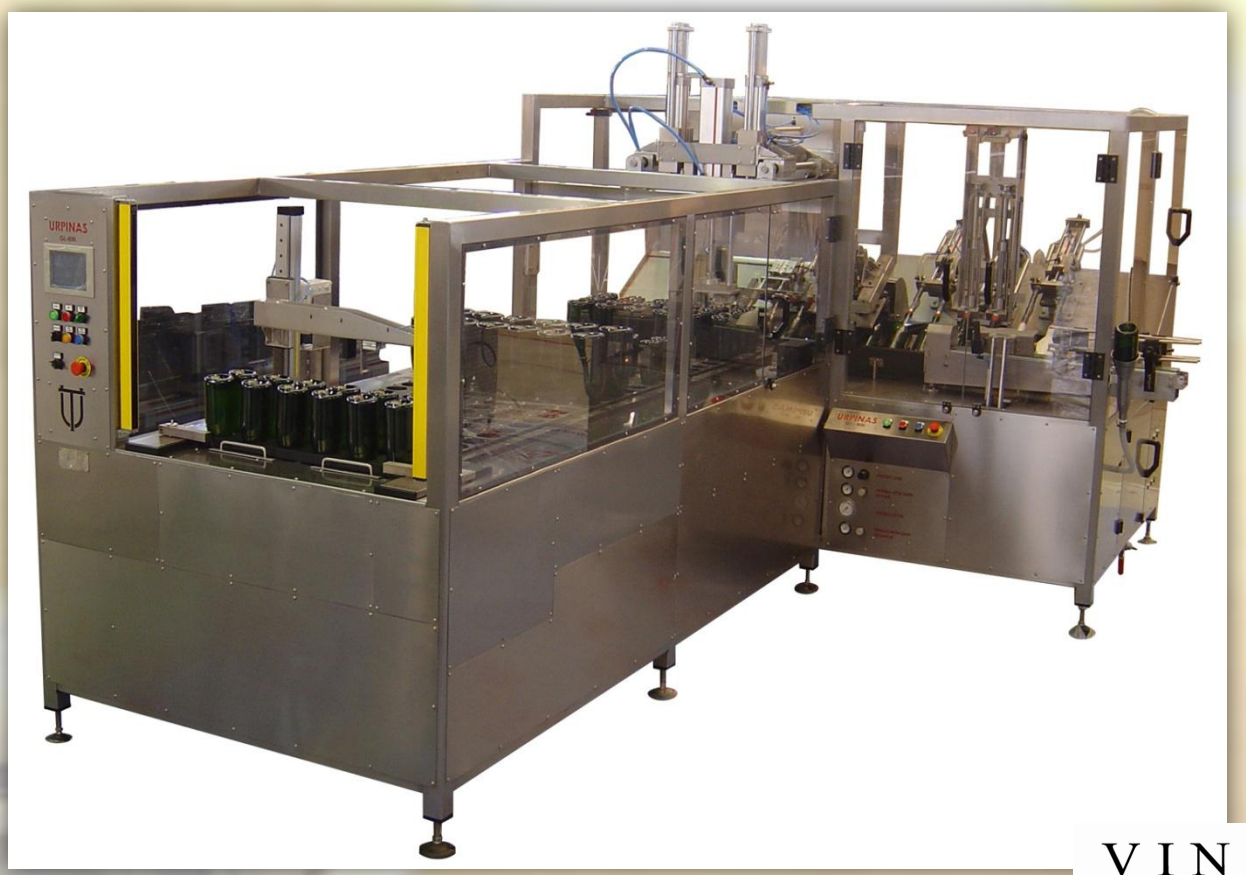
ROBOTICS

VINIQUIP
INTERNATIONAL LTD

Introduction to the machines

All machines are constructed to order in several formats, which depend on the production volume required by the customer, but **always** as a monoblock in order to maintain control of the bottles and thereby preventing impacts/ contact between the bottles.

For small productions of up to 1,200 bottles per hour, the machines are constructed as LINEAR type machine (the process is in-line), with the disgorging system, emptying and filling valves prepared for medium 500ml, standard 750 ml, 1,5l magnum and customised bottles.



VINIQUIP
INTERNATIONAL LTD

For medium productions of 1,500 to 3,500 bottles per hour, the machines are a monoblock construction with two rotary sections:

- one for disgorging with a dual pneumatic systems and
- another compact rotary section for emptying, dispensing and filling.

VINIQUIP
INTERNATIONAL LTD

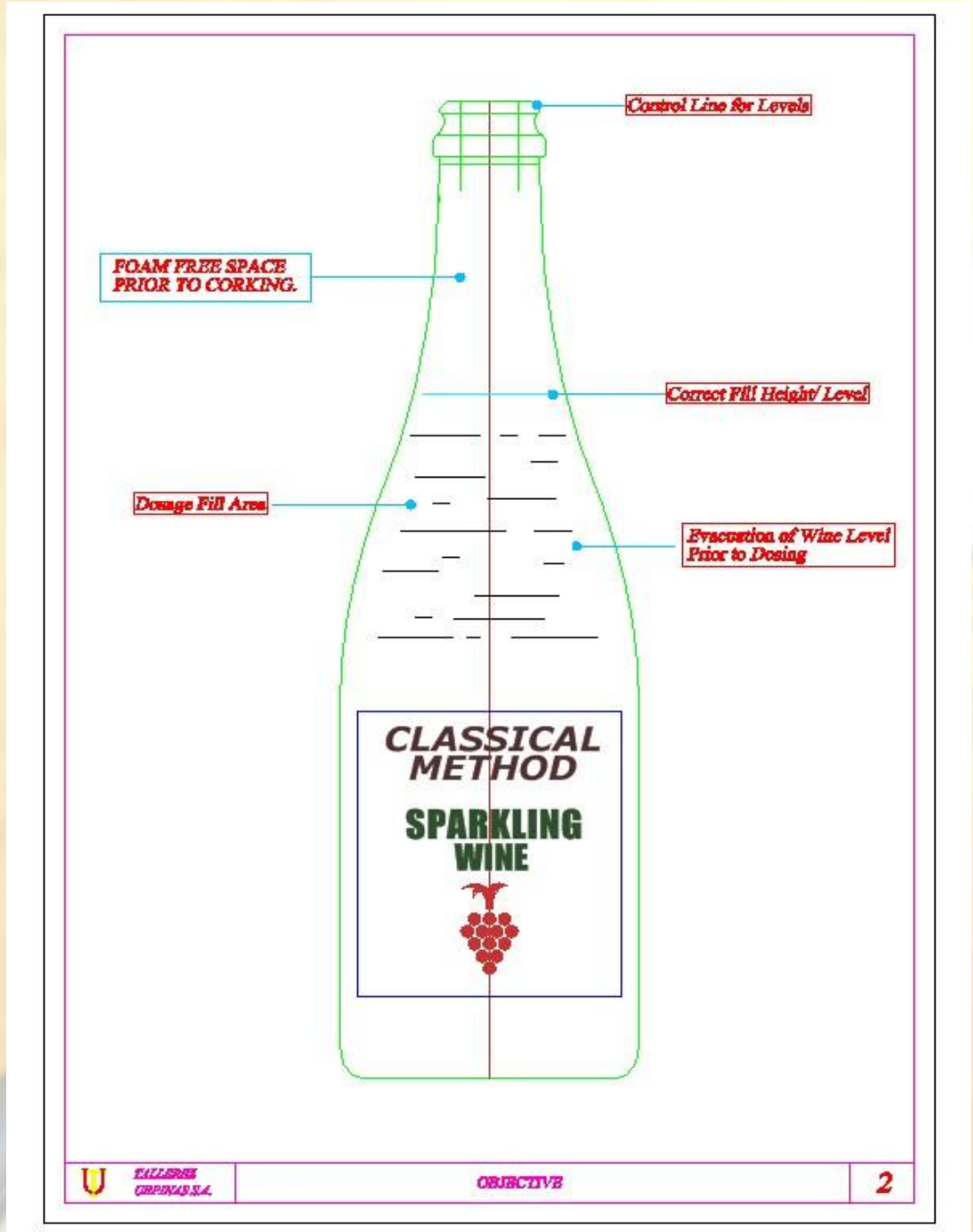
For the larger 5.000 to 12.000 bottle-per-hour productions, the machines are constructed in four sections, neck-breaking, emptying, dispensing and filling – but still as a monoblock (single machine). The disgorging section includes a main rotary cap removal system plus a 2nd back-up system to ensure that all caps have been removed.

3 additional rotary stations provide the function of emptying, dosing and topping up. Again, star-wheels and worms ensure there is never any contact between the bottles until they leave the machine.

The various machine models are intended to carry out the operations with a minimum bottle opening time and are fitted with all necessary means of safety and control for problem-free production and maximum guarantees of accurate dispensing and filling.

VINIQUIP
INTERNATIONAL LTD

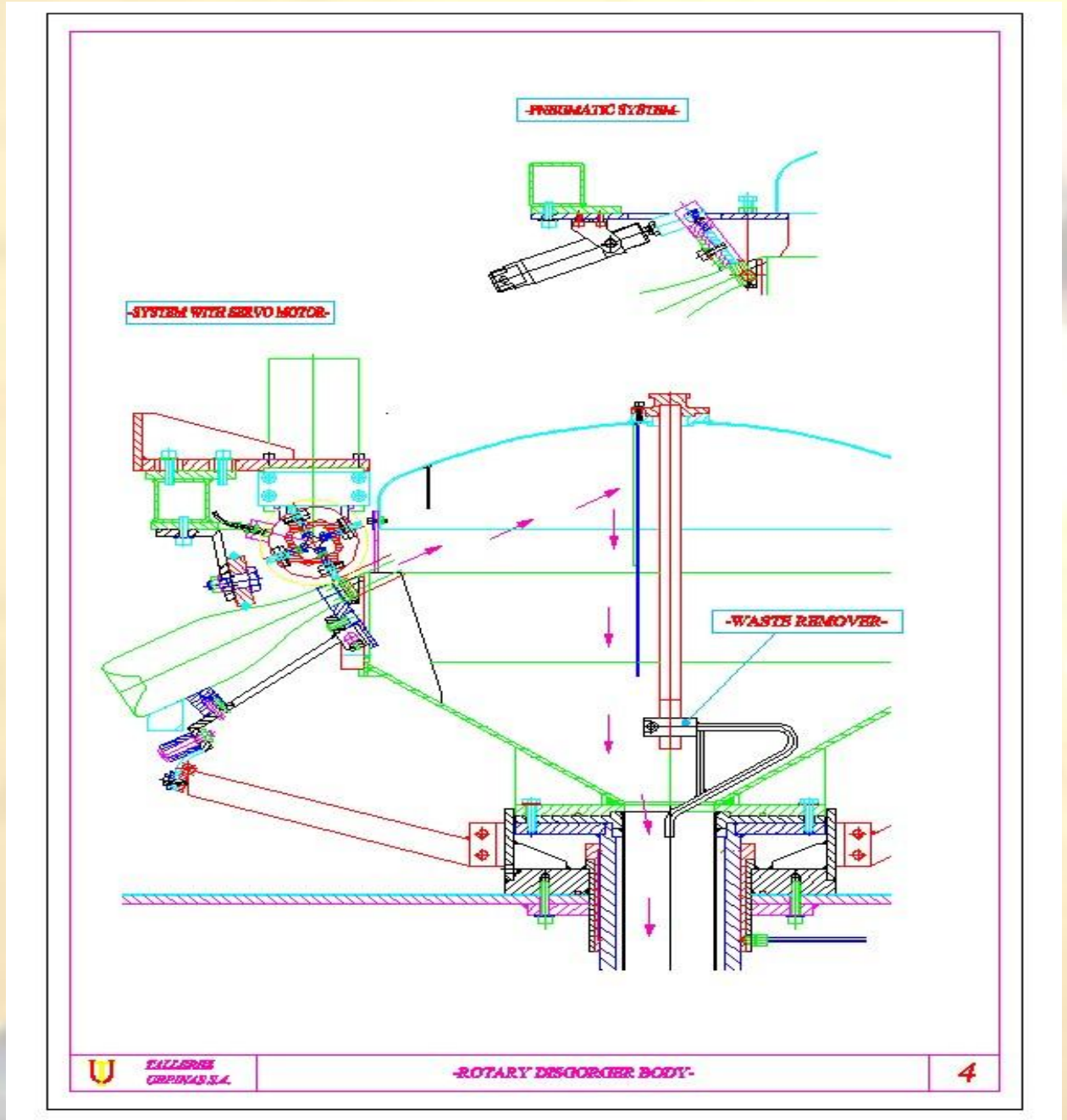
URPINAS



OBJECTIVE

VINIQUIP INTERNATIONAL LTD

URPINAS

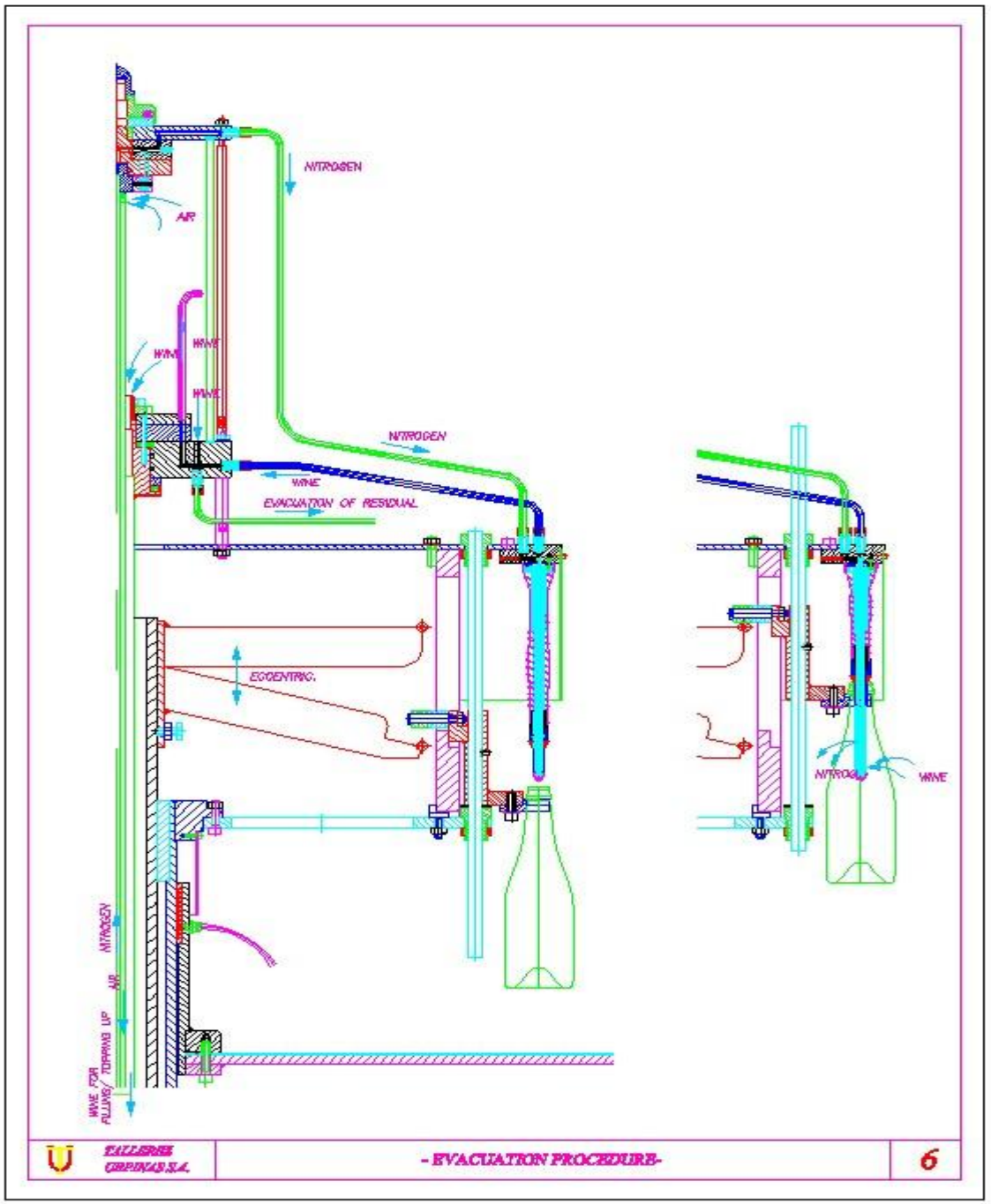


ROTARY DISGORGING

VINIQUIP INTERNATIONAL LTD

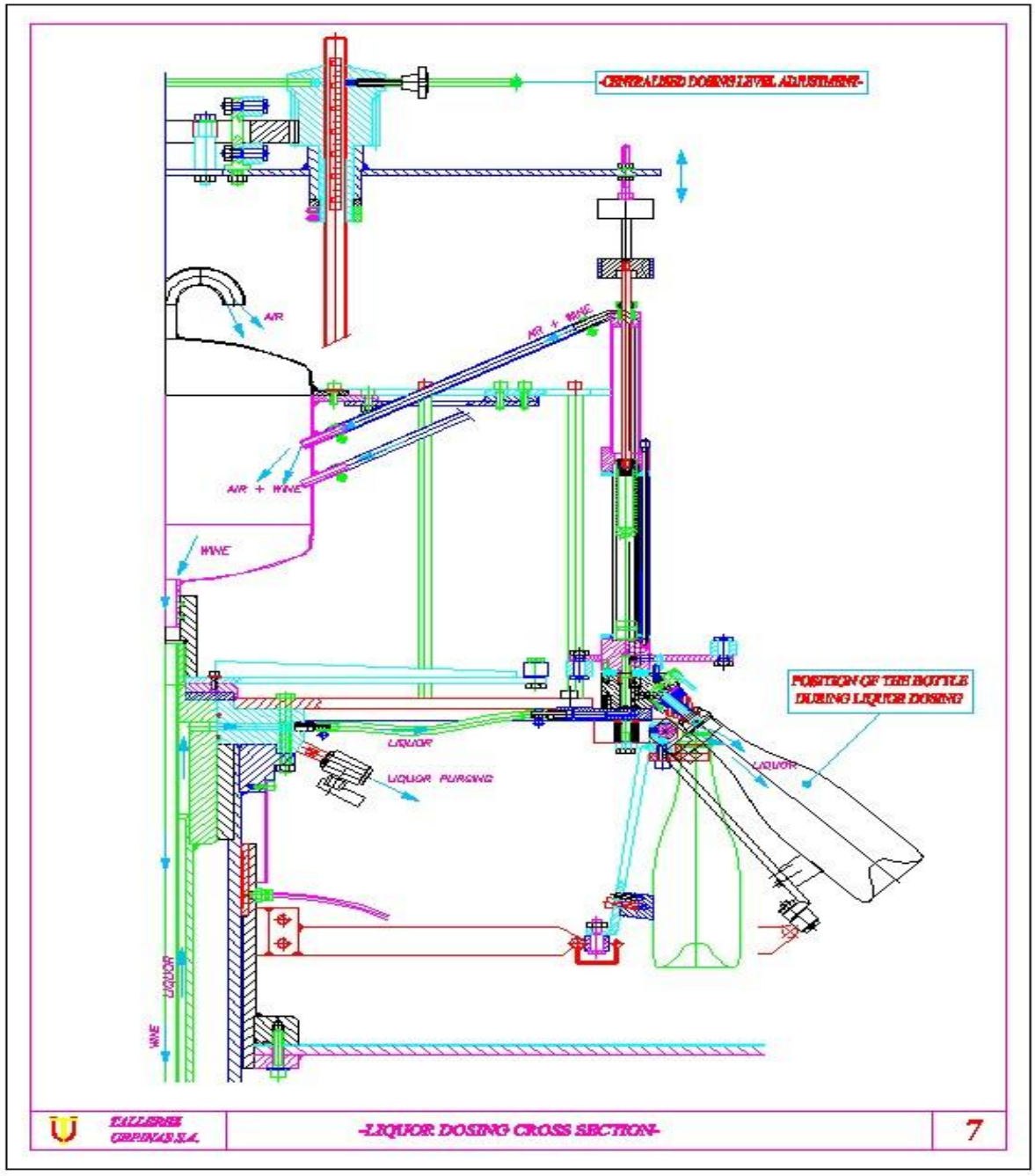
URPINAS

WINE REMOVAL/ EVACUATION PROCEDURE



VINIQUIP INTERNATIONAL LTD

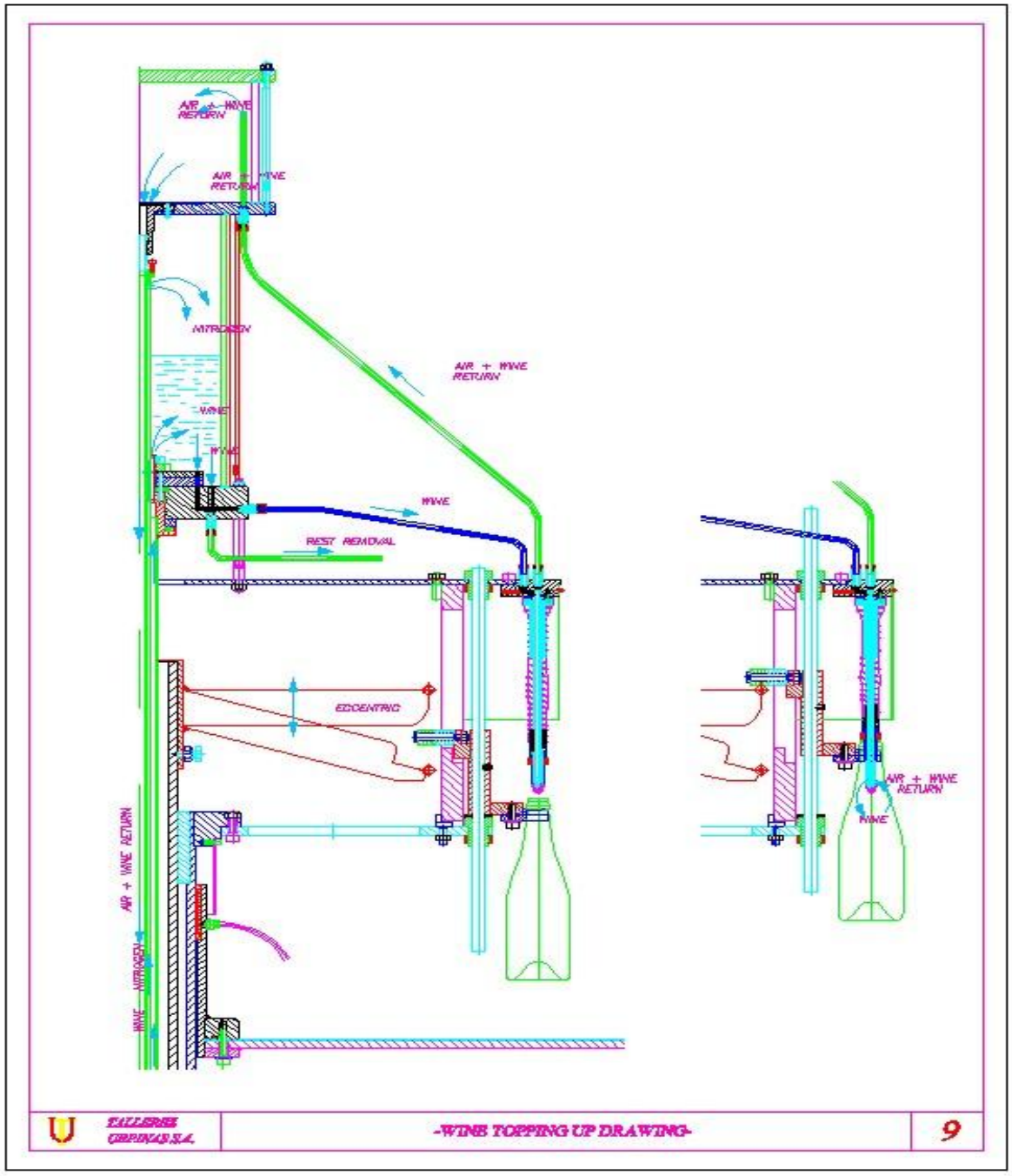
URPINAS



LIQUOR DOSING PROCEDURE

VINIQUIP INTERNATIONAL LTD

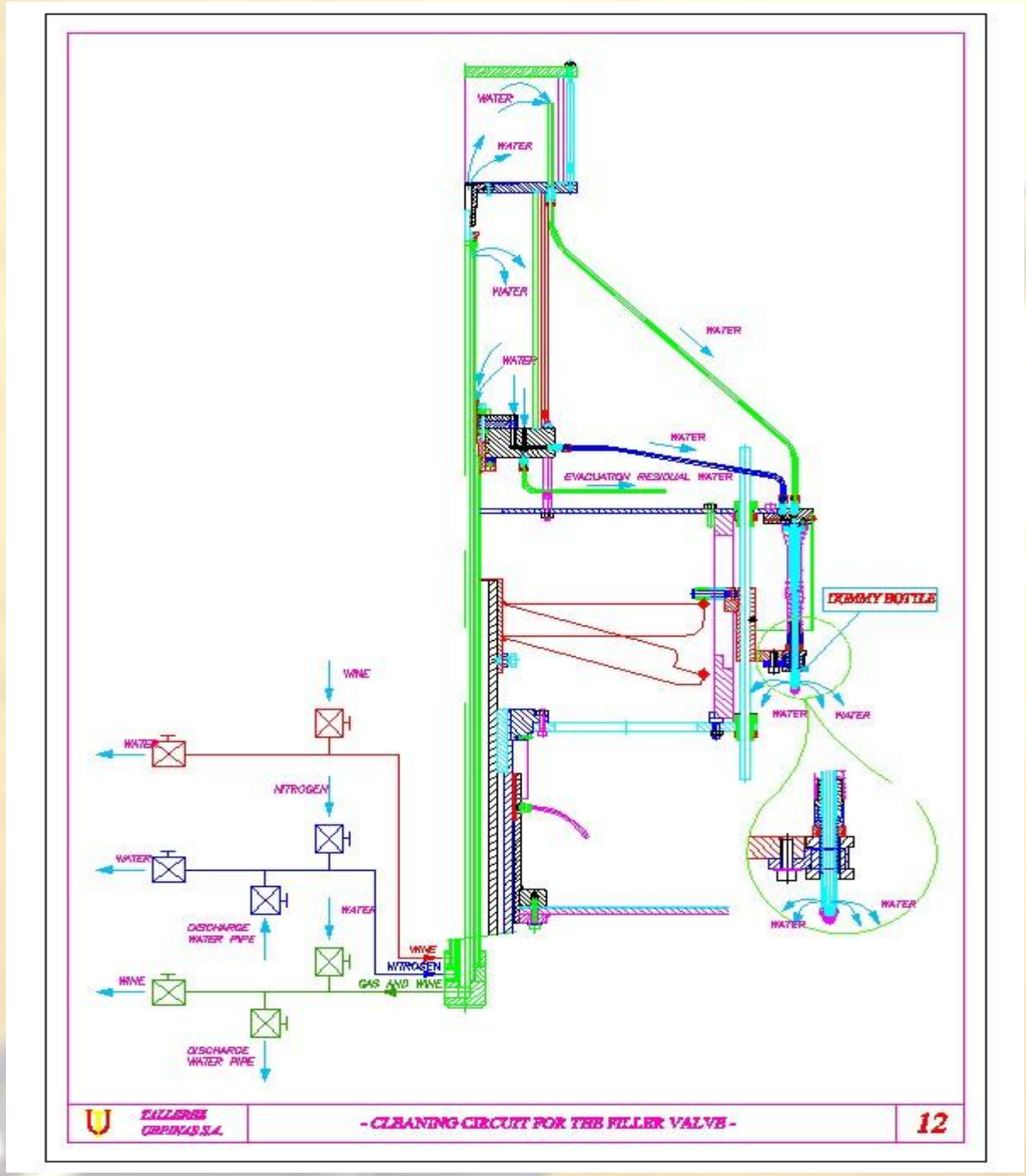
URPINAS



FILLING/ TOPPING UP

VINIQUIP INTERNATIONAL LTD

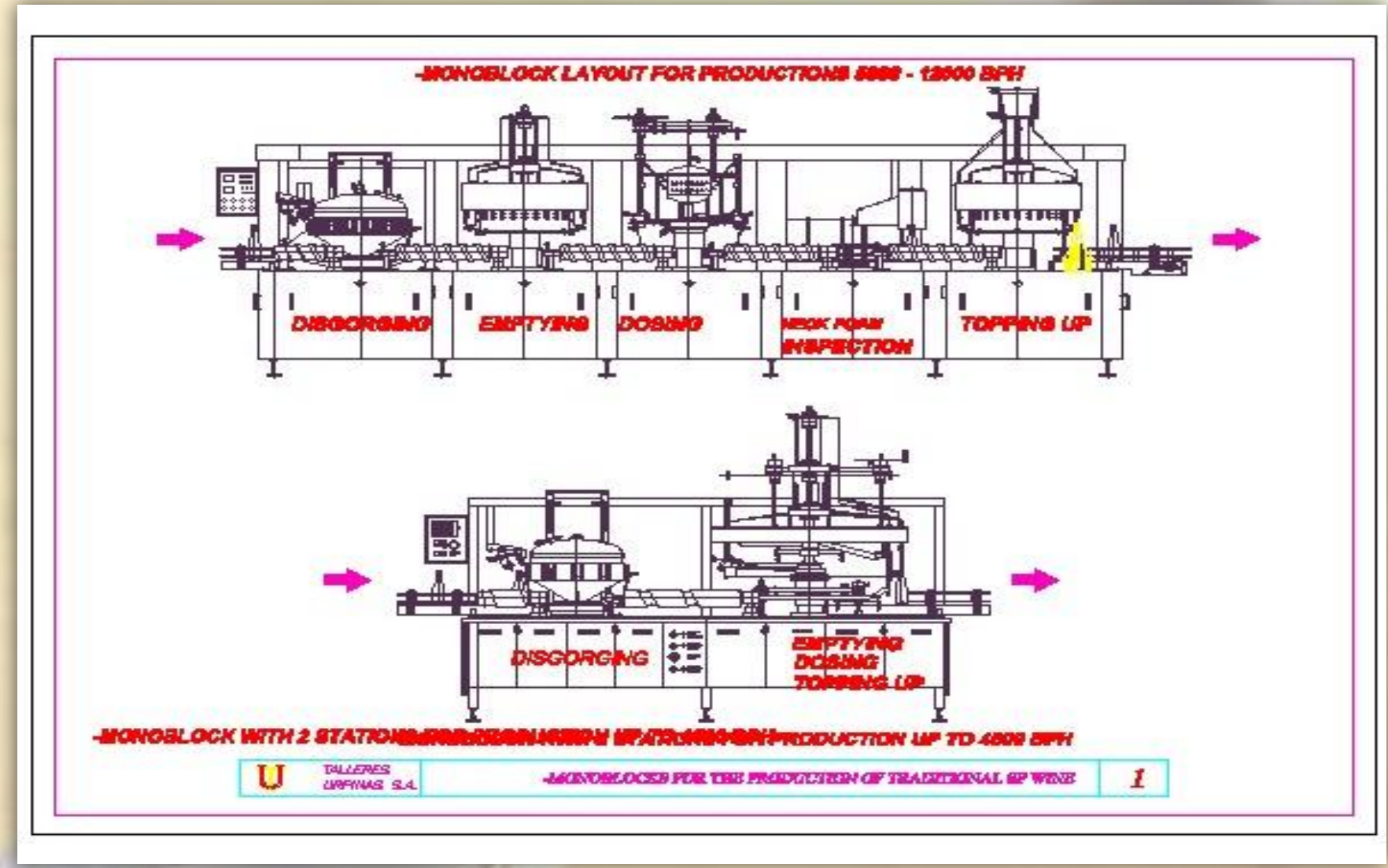
URPINAS



CLEANING IN PLACE SYSTEM

VINIQUIP INTERNATIONAL LTD

URPINAS



VINIQUIP INTERNATIONAL LTD

URPINAS

MORE INFORMATION GO TO THE FOLLOWING WEBSITES:

www.viniquip.co.nz

www.urpinas.es

Thank you

VINIQUIP INTERNATIONAL LTD