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JB MACMAHON
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WINERY ENGINEERING ASSOCIATION
- LIMITED -
ANNUAL CONFERENCE – NURIOOTPA–
22nd & 23rd June 2011

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Since 1880
Technology for Ambient
Filling Of Sparkling Wine

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THE ADVANTAGES OF THIS TYPE OF OPERATION ARE THE ON-GOING ENERGY SAVINGS FOR CHILLING THE PRODUCT BEFORE FILLING AND WARMING IT BEFORE LABELLING.

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IN ADDITION SAVINGS WILL BE MADE ON THE CAPITAL COST OF MACHINERY TO CHILL AND RE-WARM THE SPARKLING WINE PRODUCT.

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CLASSIFICATION OF THE WINE

CLASSIFICATION OF WINES

	CO2 [g/l]	Pressure [bar at 20°C]	Dry [sugar g/l]	Semi-dry [sugar g/l]	Semi-sweet [sugar g/l]	Sweet [sugar g/l]
still wine	< 2	< 0.5	< 4	4 - 12	12 - 50	> 50
light sparkling wine	< 5	> 1 bar < 2.5 bar				
			Brut [sugar g/l]	Extra-dry [sugar g/l]	Dry [sugar g/l]	Sweet [sugar g/l]
sparkling wine	> 9	> 3 bar	<15	17 - 20	17 - 35	> 50

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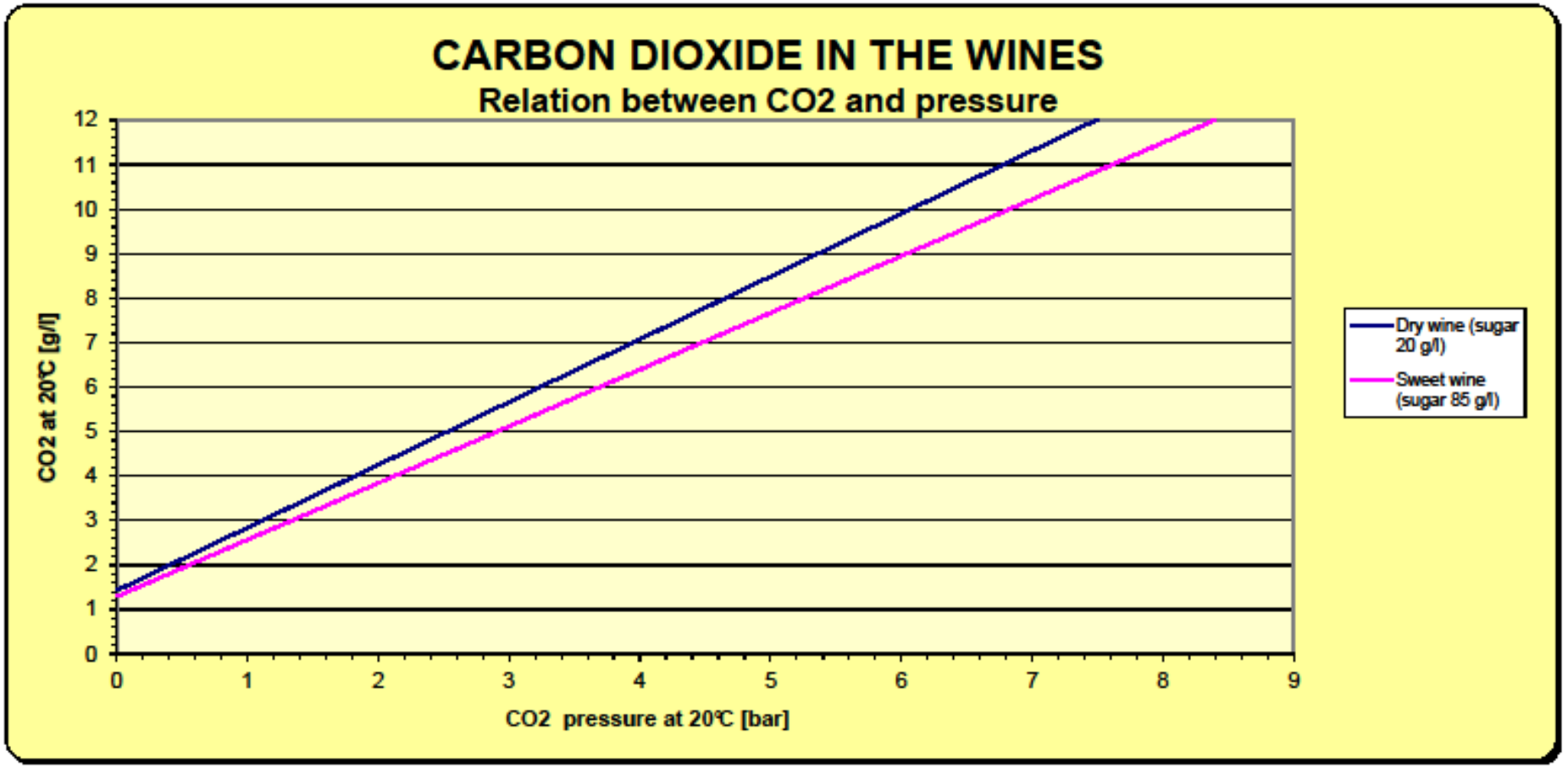
CARBON DIOXIDE IN THE WINE



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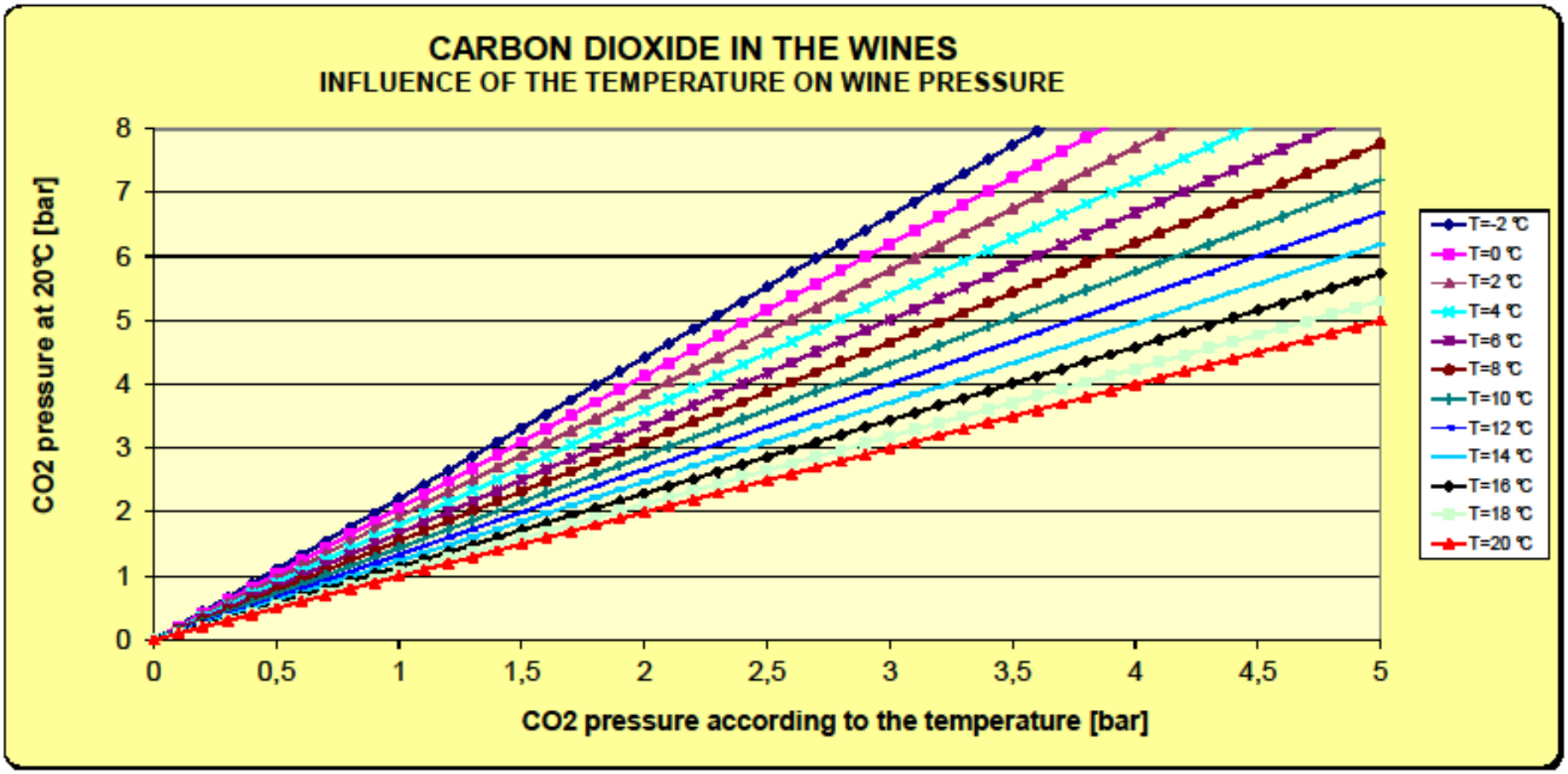

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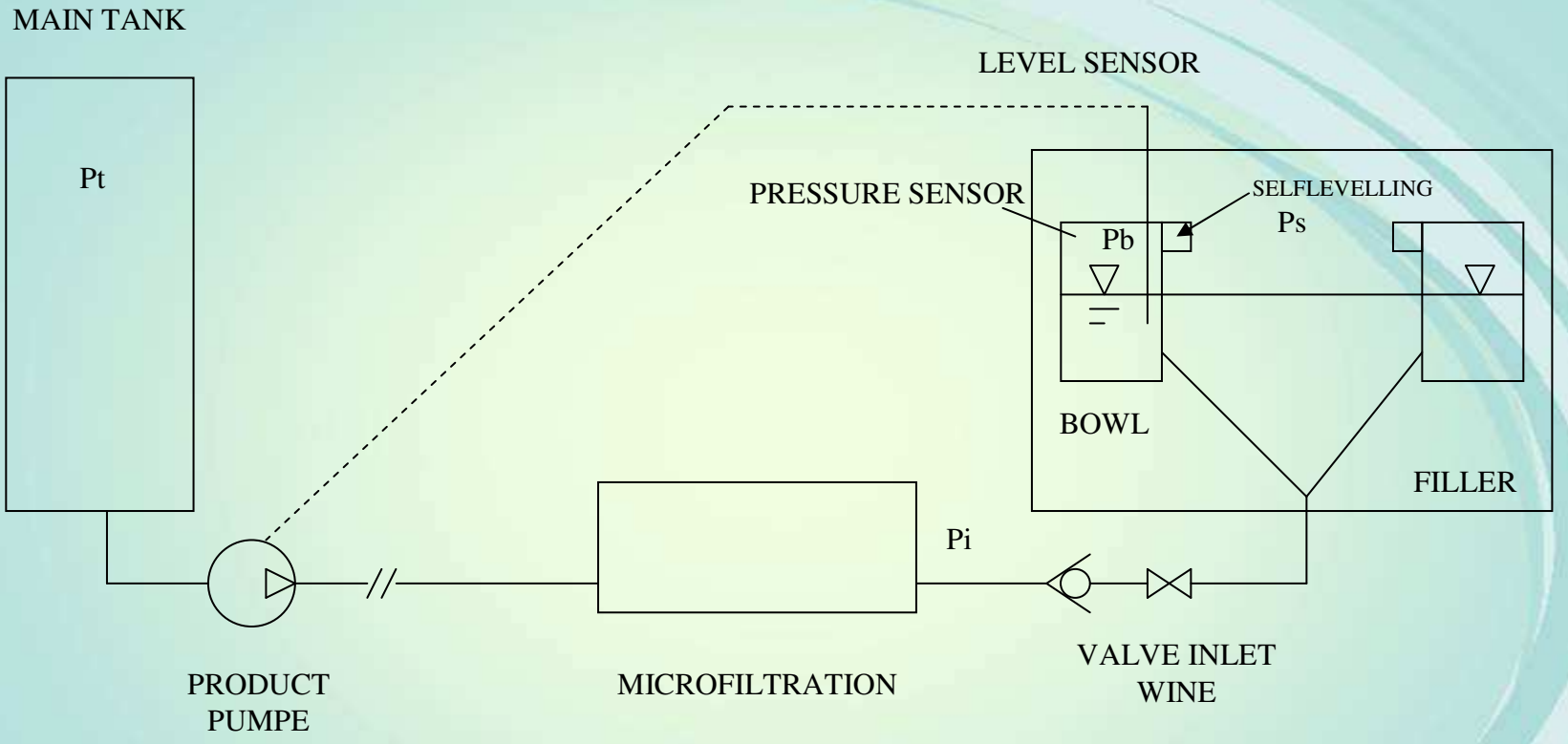
Parameters affecting the filling of products with CO2

- CO2 quantity inside the product (g/l)
- Sugar quantity inside the product (g/l)
- Bottling Temperature (°C)
- Temperature variation between the wine tank and the filler bowl (DeltaT)
- Working pressure in the filler (bar)
- Pressure in wine tank (bar)
- CO2 stability in the product prior to filling (pressure, temperature and storage time)
- Size of pipes and microfiltration circuit (that affects the product speed)
- Shape and volume of the bottle to be filled

PLANT WITH PRODUCT PUMPE



Ps = Pb + 0.2…0.5 bar

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PRODUCT PUMP SIZE

Volumetric lobular pump

Still wine: max. flow rate * 1.2 (+ 20%)

Head: 2-3 bar

Max. revolution number: 300-350 RPM

Champagne and sparkling wine: max. flow rate * 1.4 (+ 40%)

Head: 3 bar

Max. revolution number: 200-250 RPM

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WORKING PRESSURES

- **still wine**: 0 - 2 g/l CO2 a 20°C

  P = 0,2 – 0,5 bar (T = 16-20°C)

- **light sparkling wine**: 2.8 – 5 g/l CO2

  P = 3.5 –5 bar (T = 5-18°C)

- **sparkling wine**: 9 – 12 g/l CO2 --- 17 – 110 g/l Sugar

  P = 5.5 – 7.5 bar (T = 0-16°C)

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Advantages of the electronic pressure filler

Maximum flexibility in filling products with different characteristics

Able to achieve a higher filling speed than the traditional mechanical version

Reduction of washing times after the filling process

Reduction of setup times

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Objectives of the electronic pressure filler

IMPROVEMENT OF THE FILLING QUALITY

- Minimum oxygen pickup
- Foaming reduction
- Guarantee of a constant set cycle at any operational condition
- More precise pressure control in filler bowl, and bottle
- Reduction of gasket quantity
- Gas consumption reduction

Counter pressure filler Elettra

Filling valve opening electro-pneumatically controlled

Electro-pneumatically operated membrane valves

Automatic centralized filling level adjustment with 80 mm range

Electronic pressure control in the bowl to maintain constant the pressure during all the filling phases

Automatic pre-setting of the filling cycle according :
- Product type
- The filling temperature
- Bottle size

Simplify washing cycle feasible also with stopped machine

g1 gcreston, 10/10/2008

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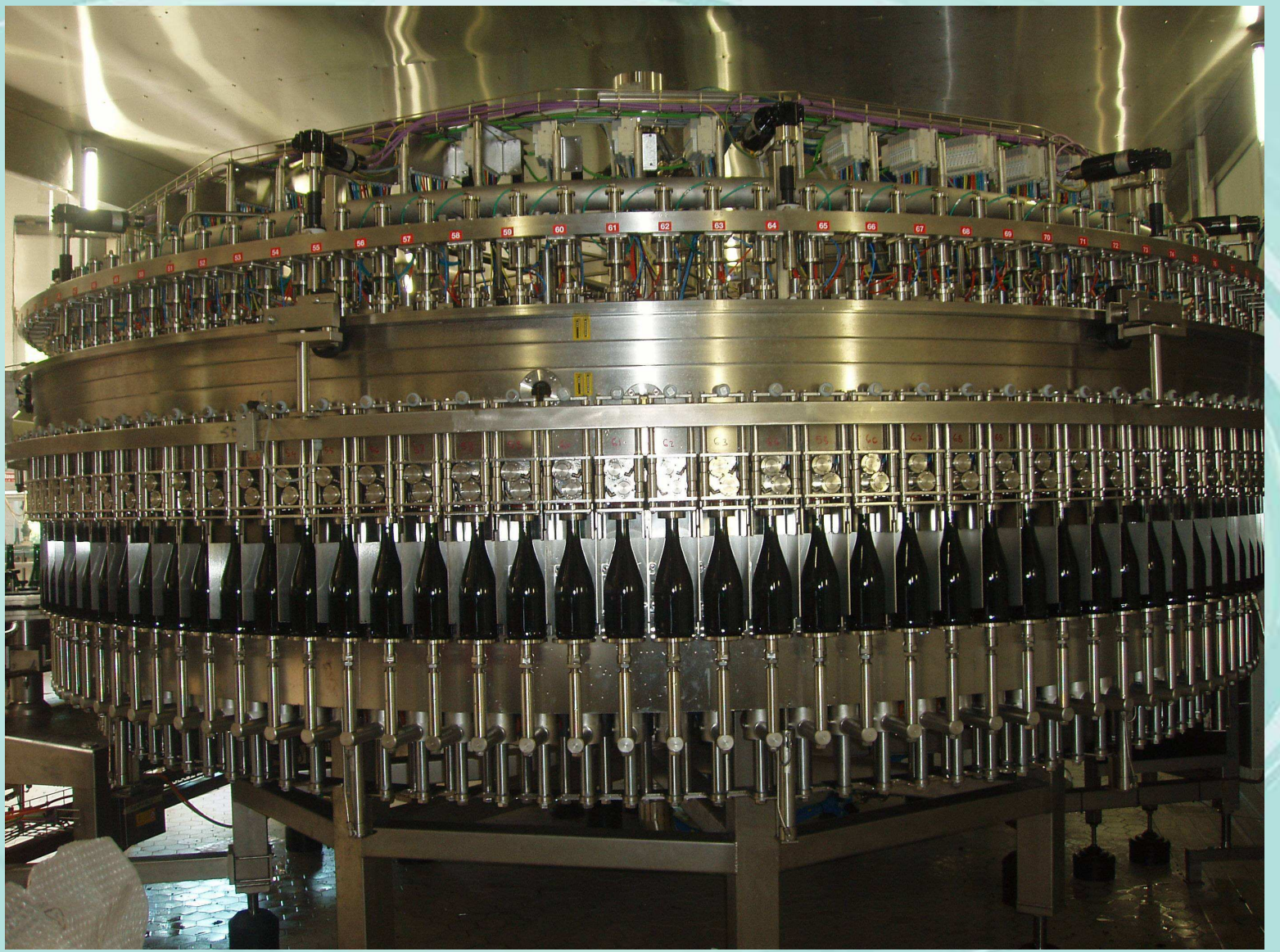
ELETTRA FILLER



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Stainless steel open frame with glass safety guards

Counter pressure filler Elettra

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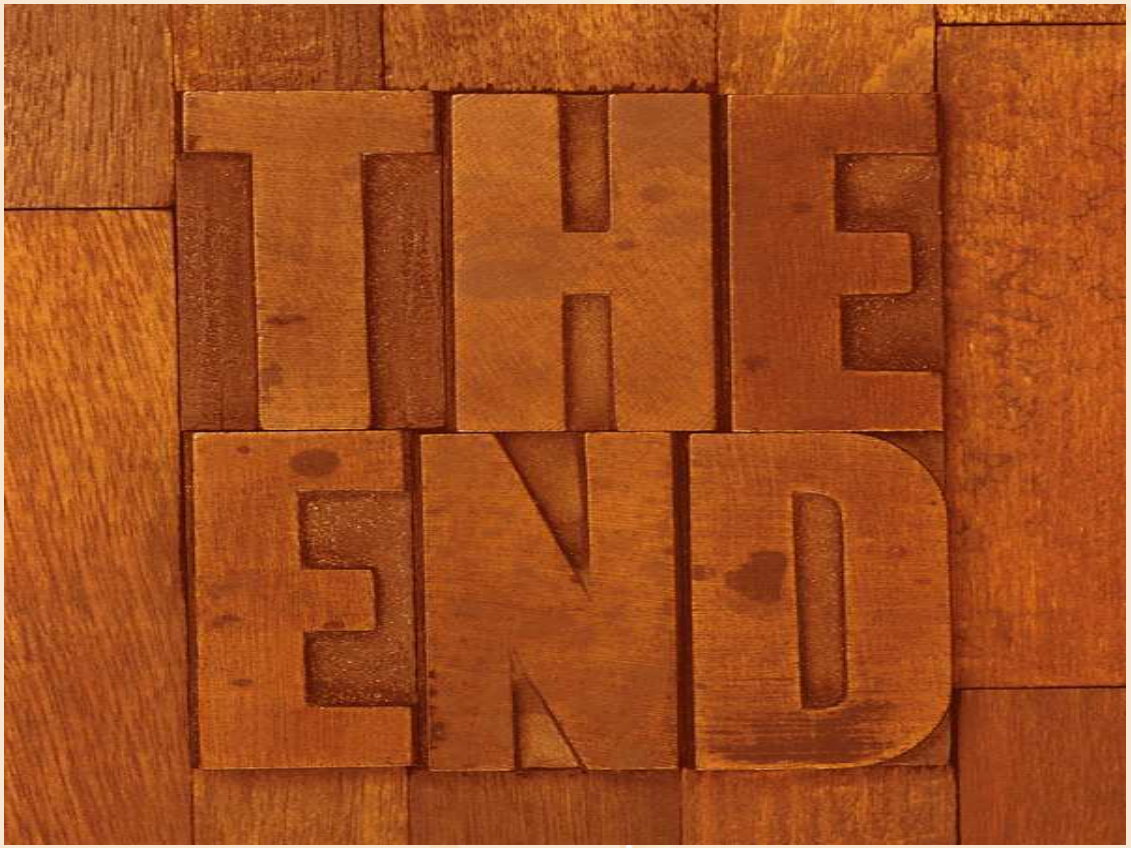
ELETTRA REFERENCES:

Bertolaso has been successfully manufacturing ambient temperature electronic counter pressure fillers for over 4 years. There are a number of world wide references available upon customer request. Please contact J B Macmahon for detailed information.

Thank you for your attention