

Concentration and desulphurization Note Books



Cadalpe spa 31028 Vazzola (TV) Italy - Via C. Battisti, 87 - Tel. +39 0438 441570 (r.a.) Fax +39 0438 441577 - e-mail: info@cadalpe.com - sito web: www.cadalpe.com



Vacuum concentrators



Desulphurizers







The distinguishing feature of Cadalpe Spa on the national and international panorama is its commitment to constant research into technological innovation.

Our strength lies in our long experience and competence, which has made our company one of the most important in the sector. We specialize in designing wine processing machines that cover all aspects of production: cooling, filtering, heat exchange, stabilization, concentration and distillation.

Cadalpe Service, founded soon after the main company, meets the demand for tanks and fermenters for storage, conditioning and vinification. Cadalpe manufactures efficient avant garde machines that for years have made an important contribution to the evolution of the industry by constantly perfecting performance, adding exclusive elements often covered by international patents, and achieving new original solutions.

Characteristics of the company are customized design to meet all customers' requirements, the provision of an integral work cycle, from raw materials, selected and bought in directly, to assembly and the final approval testing stage, and the best quality: price ratio.

Our after-sales service, available throughout Italy and abroad, allows us to solve any problem promptly.

Cadalpe machines are at work all over the world: we export more than 50% of our production, to practically every country that grows grapes and produces good wine.

A range of ideal solutions for all needs

Cadalpe's vast experience in the field of must concentration, together with knowledge of the product and its behaviour in this delicate process, have led to the realization of a range of reliable effective equipment, provided with our own exclusive devices that guarantee high level advantageous performance.

In the Cadalpe family of concentrators producers will find the ideal solution for their wineries, with the required evaporation capacity, from a few hundreds to 10,000 litres/hr. All our systems come with the most up-to-date instruments and ensure continuous work cycles, the main steps of which are controlled by a series of automatic devices, with integrated running of alarm warnings and self-diagnosis.



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Heat pump vacuum concentrator

C38



Model 02 can be used to work at half capacity, reducing energy consumption.



Incomparable performance

loss of aroma.

Heat pump vacuum concentrator

C19



A delicate effective solution

- on a fraction of the must in transit.

Model		01	02
Nominal evaporation capacity	lt/h	100	200
Concentrated must from 18° to 40° Brix	Kg/h	75	142
Concentrated must from 18° to 65° Brix	Kg/h	26	50
Installed power	kŴ	18	34
Frigorific output (evap. 15°- cond. 45°C)	kW	65	130
Power input	kW	15	28
Dimensions			
Length	mt	1,9	2,9
Width	mt	1,2	1,2
Height	mt	2,8	2,8
Net weight	Kg	1.000	1.550

on the full mass of must to reach a given concentration, or on a fraction

of the must in transit, resulting in a concentrate of 60-65° Brix to be used later for

sugar adjustment. This method is to be recommended as it considerably reduces

Model		03	04
Nominal evaporation capacity	lt/h	300	460
Concentrated must from 18° to 40° Brix	Kg/h	221	342
Concentrated must from 18° to 65° Brix	Kg/h	79	123
Installed power	kŴ	89	145
Frigorific output (evap. 15°- cond. 45° C)	kW	196	321,5
Power input	kW	68	119
Dimensions			
Length	mt	5,00	5,00
Width	mt	1.47	1.47
Height	mt	3.90	3.90
Net weight	Kg	3.600	4.080

Well-known by wine producers who wish to maintain uniform quality unaffected by the vagaries of the climate, this equipment is used to:

• Treat clean unprocessed must without the problem of clogging and the formation of foam, adopting technical solutions exclusive to Cadalpe.

• Ensure extreme delicacy in treating the product.

• Exchange energy between the heat pump and concentrator through a water circuit so that the heating unit can be used alternatively for other purposes.

• Operate with a closed loop cycle, with reduced flow rate, on the full mass of must or

• Optimize the use of energy; the only water consumed is that for periodic washing out.

Multiple effect vacuum concentrator

C19

Ideal for small-medium producers

The C 19 double effect concentrator operates in a vacuum and is the result of studies based on specific operating needs. It provides performance comparable with the most sophisticated multiple effect descending film equipment.

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Ideal for wine producers who wish to focus on quality which is not affected by the vagaries of the climate, this concentrator employs an oenological practice highly suitable for not only enriching sugar content, but also for maintaining the balance of components in the must unaltered, guaranteeing the typical characteristics of the wine.

The following are the significant advantages:

- . As energy needs are halved, so too is the unit cost of the evaporate due to heat recovery from the process steam of the first step.
- It works with clean unprocessed must without the problems of clogging and the formation of foam, adopting technical solutions exclusive to Cadalpe.

The work cycle is continuous, and the various steps of the process are controlled by a series of automatic devices, with integrated running of alarm warnings and self-diagnosis.

Model		1
Nominal evaporation capacity	lt/h	1.000
Concentrated must from 18° to 40° Brix	Kg/h	776
Concentrated must from 18° to 65° Brix	Kg/h	280
Condensate (nominal)	lt/h	1.000
Heating water at 75° C max	Kcal/h	335.000
Condensation water at 23° C	Kcal/h	295.000
Topping-up water for tower	lt/h	1.000
Concentration cooling water at +7° C	Fr/h	16.000
Installed power	kW	12,6
Dimensions		
Length	mt	2,60
Width	mt	1,83
Height	mt	3,90
Net weight	Kg	2.700

Multiple effect vacuum concentrator with primary desulphurization

C19



The certainty of sure results

With performance comparable to that of the most sophisticated multiple effect descending veil equipment, this concentrator is ideal for small to medium sized wine producers who wish to maintain quality that is not affected by the vagaries of the climate.

- eliminating sulphur dioxide from mute must.

Model		1
Nominal evaporation capacity	lt/h	1.000
Concentrated must from 18° to 40° Brix	Kg/h	776
Concentrated must from 18° to 65° Brix	Kg/h	280
Condensate (nominal)	Kg/h	1.000
Heating water at 98° C max	Kcal/h	400.000
Condensation water at 23° C	Kcal/h	295.000
Topping-up water for tower	Kg/h	1.000
Concentration cooling water at +7° C	Frig/h	16.000
Calcium hydroxide Ca (OH)2 powder	Kg/h	3,3
Installed power	kW	16,50
Dimensions		
Length	mt	5,25
Width	mt	1,70
Height	mt	5,10
Net weight	Kg	4.100

• An efficient scraped body heat exchanger is used in the final stage of the process to reduce the concentrate temperature to the ideal value, both in the case of storage or when adding the must immediately to the mass.

• Special stripping column with specially designed plates which allow greater flexibility in output of both must and process steam. This helps to achieve the best results in

• Chamber for the absorption and neutralization of the sulphur dioxide in the condensation liquid, provided with a special device to limit lime consumption, avoids sulphite pollution of the discharged water.

• Washing system that employs chemicals or plain water, makes it possible to periodically clean the components without dismantling them.



Iriple effect model		3	4	6	8	
Evaporation capacity	lt/h	3.000	4.000	6.000	8.000	
Sulphurized must at 10° Bé	Kg/h	4.110	5.482	8.220	10.964	
Concentrated must at 36° Bé	Kg/h	1.110	1.488	2.220	2.964	
Motor steam at 5 bar	Kg/h	900	1.200	1.800	2.400	
Condensating water at 15/18°C	HI/h	380	500	760	1.000	
Installed power	kW	25	32	46	56	
Dimensione						
Dimensions						
Length	mt	7,50	8,00	9,50	10,50	
Length Width	mt mt	7,50 3,50	8,00 3,70	9,50 4,00	10,50 4,40	
Length Width Height	mt mt mt	7,50 3,50 9,50	8,00 3,70 9,50	9,50 4,00 9,50	10,50 4,40 9,50	

Reduced energy costs

need with excellent solutions that achieve:

- Better quality of the concentrated product (minimum contact time, small temperature differences between heater and processed product).
- Lower unit cost of water evaporation than by other concentrators (process steam recovery and reutilization by thermal compression, heat recovery from concentrated product and vapour condensation).
- heating).
- Considerable savings on water, which is recycled through cooling towers free from pollutants (e.g. sulphur dioxide) owing to a surface condenser.

process steam.



Double	effect model	
Evapora	ation capacity	
Sulphu	rized must at 10° Bé	
Concer	ntrated must at 36° Bé	
Motor s	steam at 5 bar	
Conder	nsating water at 15/18°C	
Installe	ed power	
Dimen	sions	
Length		
Width		
Height		
-		

Multiple effect vacuum concentrator with hard primary desulphurization

C19

- Nowadays and much more in the future, the reduction of energy and concentration costs is a binding condition for manufacturers and producers.
- The C 19 multiple effect vacuum concentrator with descending film meets this
- Maximum exchange coefficient (high speed descending film and quick product
- The continuous work cycle is controlled by a central control board and automated during the most important stages, particularly discharge.
- There is an optional special stripping column for preliminary desulphurization using

	1,5	2	3	4	6	8
lt/h	1.500	2.000	3.000	4.000	6.000	8.000
Kg/h	2.055	2.741	4.110	5.482	8.220	10.964
Kg/h	555	741	1.110	1.488	2.220	2.964
Kg/h	750	1.000	1.500	2.000	3.000	4.000
HI/h	285	375	570	750	1.140	1.500
kW	12	16	20	24	36	45
mt	6,00	6,50	6,50	7,00	8,00	9,00
mt	3,20	3,50	3,50	3,70	4,00	4,40
mt	9,50	9,50	9,50	9,50	9,50	9,50

Vacuum Desulphurizer

C37



Hi tech performance

The technical solutions adopted are designed to achieve the best results in eliminating sulphur dioxide from mute must, avoiding sulphite pollution of outlet water, limiting energy consumption and conserving the chemical, physical and organoleptic characteristics of the product.

The distinguishing features of the system are:

- Descending veil evaporator ensures brief contact times, excellent heat output and less contamination from dirt.
- Stripping column with plates specially shaped to be extremely flexible in output of both process liquids and steam.
- without removing them.
- main stages of the process.



Model for treatment of mute must	Kg/h	5.000	7.000	10.000
Sulphur dioxide content of the mute must	mg/kg		1.500/2.000	
Sulphur dioxide content of the treated must	mg/kg		< 80	
Input temperature of mute must	C°		20	
Output temperature of desulphurized must	°C		25	
Primary steam at 0,5 bar	Kg/h	1.070	1.500	2.150
Condensation water at + 15° C	m³/h	26	36	52
at + 28° C	m ³ /h	114	160	229
Installed power	kW	14,5	15,80	17,3
Dimensions				
Length	mt	4,30	4,60	5,00
Width	mt	2,60	2,75	3,00
Height	mt	8,20	8,30	8,50
Net weight	Kg	6.500	7.850	9.600

Model for treatment of mute must	Kg/h	5.000	7.000	10.000
Sulphur dioxide content of the mute must	mg/kg		1.500/2.000	
Sulphur dioxide content of the treated must	mg/kg		< 80	
Input temperature of mute must	°C		20	
Output temperature of desulphurized must	°C		25	
Primary steam at 0,5 bar	Kg/h	1.070	1.500	2.150
Condensation water at + 15° C	m³/h	26	36	52
at + 28° C	m³/h	114	160	229
Installed power	kW	14,5	15,80	17,3
Dimensions				
Length	mt	4,30	4,60	5,00
Width	mt	2,60	2,75	3,00
Height	mt	8,20	8,30	8,50
Net weight	Kg	6.500	7.850	9.600

- Sulphur dioxide absorption and neutralizing chamber with special patented devices which limit consumption of lime and ensure reduced quantities of waste solids such as calcium sulphite, which are insoluble and easily disposed of.
- Washing system with chemicals or water to periodically wash the parts involved

• Central control panel with electronic instruments for the automatic running of the