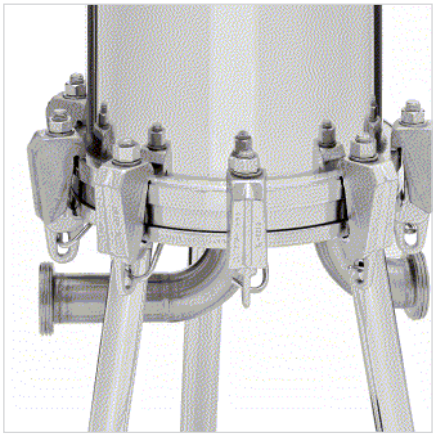
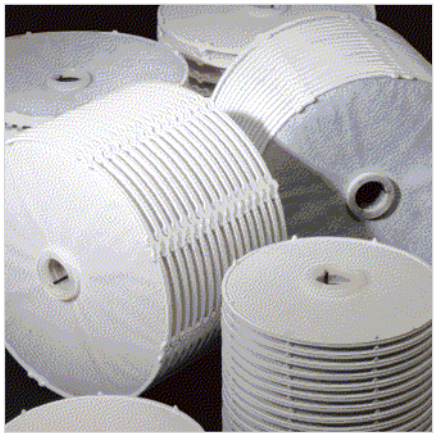
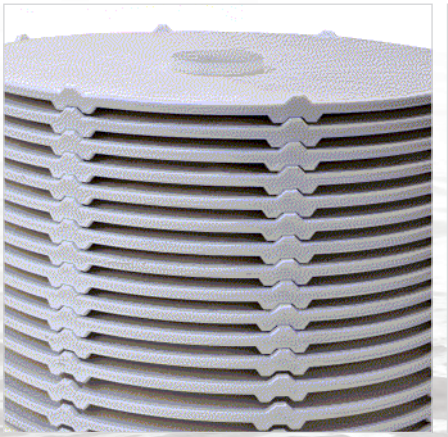
Purity through
quality™ since 1923

CARLSON FILTRATION







Carlent Filtration

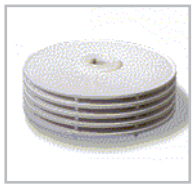
Total performance lenticular filter systems

DEPTH FILTRATION FOR VALUABLE LIQUIDS

Carlent Filtration

Total performance lenticular filter systems

LENTICULAR MODULE DESIGN



A displayed filter showing the different layers within each filter (standard)

Carlson lenticular filter modules are used in a broad range of applications. They find multiple applications in many beverage duties such as wine, beer, spirits and soft drinks. In common with filter sheets used in a filter press the grade of lenticular module is chosen to specifically suit the application.

The lenticular module concept offers a compact, self contained, liquid filtration solution utilising proven depth filter media technology.

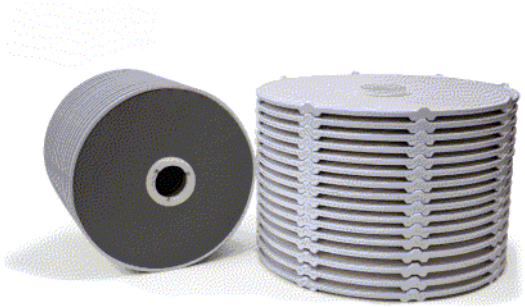
Carlson lenticular modules are essentially composed of Carlson depth filter media supported on a polypropylene skeleton and supplied in modular form. The lenticular modules are either nominally 12" (300mm) or 16" (400mm) diameter. Each module is made up of multiple cells, normally 16, but can be adjusted to suit specific requirements. Each cell consists of 2 discs of filter media formed around an internal all polypropylene matrix. The outer edges of the media are sealed with an injection moulded polypropylene strip. These modules can then be used in a single or multiple housing, stacked end to end up to 4 high.

- The system is pre-assembled and consequently significant productivity gains can be achieved due to shorter change out times.
- Pre-compression during manufacture to precise dimensions eliminates the need for additional tightening down procedures after wetting out.
- The range of filter media which can be incorporated in this design permits use of the lenticular system in a wide variety of applications.
- The totally enclosed construction of the system is ideal where hygiene is important or the conditions hazardous.
- The design of the Carlson lenticular gives improved lateral strength and rigidity.
- Heavy duty non-woven polyester outer scrim gives improved resistance to back pressure shock and much improved back washing capability in addition to the provision of an appreciable degree of pre-filtration prior to the depth filter medium.
- Advanced design of the polypropylene separator discs (matrix) promotes a more even liquid flow within each cell. This in turn reduces the pressure drop across the filter module, leading to longer filter life and filtration cycles plus more consistent filtrate quality.

DIMENSIONS

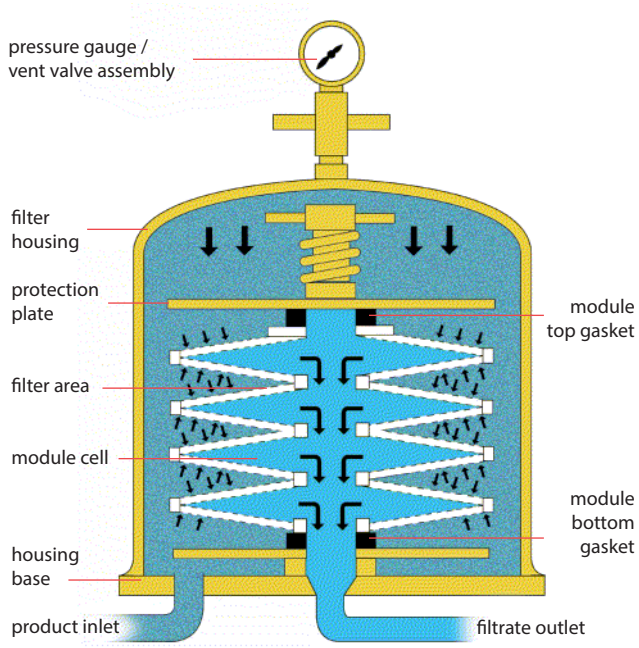
Dimensions	12"	16"
Diameter (mm)	290 +/- 3	400 +/- 3
Compressed modules height including 2 flat gaskets (mm)	275 +/- 3	275 +/- 3
Compressed module height bayonet	330 +/-3	330 +/- 3
Quantity of cells (standard)	16	16
Filter area/module (m2)	1.8	3.6

Other variations are available. Full technical specifications are available from your Carlson representative



Lenticular filters and Carbon filters

LENTICULAR MODULE FLOW DIAGRAM



Lenticular modules are available in the full range of Carlson depth filtration media from coarse filtration through to sterile filtration. Specialist grades such as the XS range for Spirits and the Carlcarb Activated Carbon grades can also be incorporated in the modular format.

Carlson lenticular filter housings are available in 12" and 16" diameter, single or multi module versions, either free standing or multiple skid mounted to suit a wide range of applications from laboratory and pilot scale to large scale continuous production.

The standard housings are designed to hold 1,2,3 or 4 modules – 12" and 16" diameter – with flat gasket or double o-ring bayonet adaptor. All housing internal parts in contact with the product to be filtered are mechanically polished to a high degree (roughness < RA 0.8um) enabling ease of washing and sterilisation during cleaning operations and are also compliant with health and sanitation standards. The bell housing locking system is secured by bolt clamps which allows for quick release but also offers security if the housing is not vented properly when opened.

The housing comes complete with drain and sample values, sight glass, vent valve and pressure gauge assembly as standard.

Housing Operating Parameters	
Max operating pressure at 20°c	8 bar
Max operating pressure at 95°c	6 bar
Max operating temperature with EP seal	120°c
Max operating temperature with silicone seal	145°c

Housing Technical Specification	
Housing material	AISI 316L
Type of seal	EP (standard)
Polishing	Standard mechanical
	Electropolish on request

Lenticular Module Operating Parameters	
Max Operating Temperature	95°c
Max Δ Pressure	2.5 bar
Max Back Δ Pressure	0.5 bar
Steam sterilisation temp/time (max)	120°c for 20 min
Steam cycles	5 max
Hot water temp/time	80°c for 20 min
Hot water cycles	30 max

Carlent Filtration

Total performance lenticular filter systems

RINSING THE LENTICULAR MODULE

In most applications the assembled lenticular filtration unit is flushed with clean, cold water to ensure that any contaminants entrained during the preparation for filtration are removed. This is done in the forward direction typically for 10 minutes

Hot water/chemical sanitation and steam sterilisation

Lenticulars are designed to be hot water/chemical sanitised and steam sterilisable. The duration of this sanitation/sterilisation procedure and the maximum number of sterilisation cycles is dependent upon application.

After flushing and sanitation/sterilisation the lenticular system is now ready for the filtration of the product. Filtration flow rates and differential pressures achievable will be dependent on product and lenticular grade.

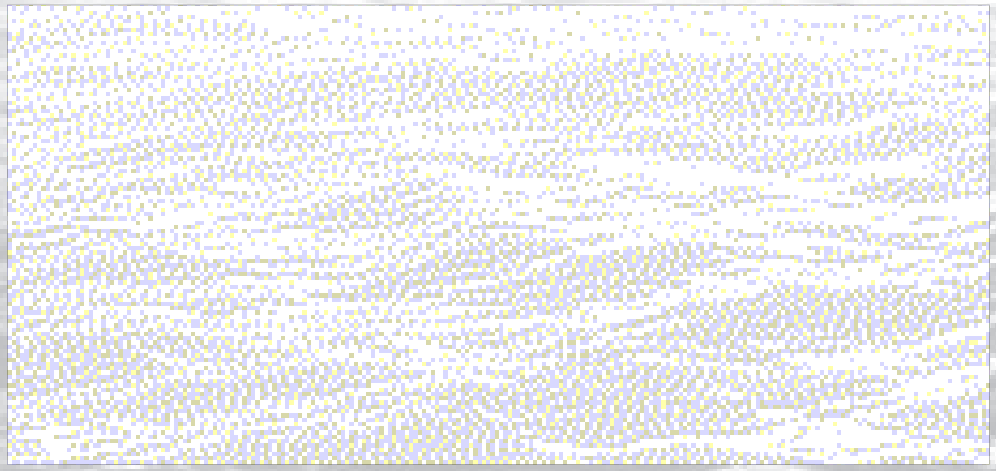
Filtration ends when either the batch is completed or when high differential pressure is reached (1.5 bar typical).

Hot water cleaning/back flushing

Post filtration the lenticular can be forward flushed with cold/hot water. In some applications back flushing can also be beneficial, again with hot or cold water.

Storage

When not in use modules can be stored in certain sanitising liquids either in or out of the housing.



Filtration stages