

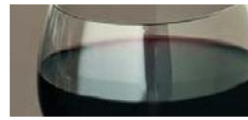
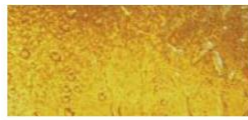
# DIYA TRADERS

*Filtration Made Simple*



**CARLENT**  
HIGH PERFORMANCE LENTICULAR FILTER SYSTEMS  
PURITY THROUGH QUALITY™





## INTRODUCTION

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

Carlson lenticular filters are essentially composed of Carlson depth filter media, supported on a polypropylene skeleton and supplied in modular form normally comprising 16 cells of either 12" (300mm) or 16" (400mm) diameter. They offer all the advantages of traditional sheet filtration, but in a totally enclosed, sterile, environment, thus eliminating product loss and external contamination. They are designed to fit industry standard housings incorporating 1, 2, 3 or 4 modules.



## PRODUCT BENEFITS



- The system is pre-assembled and as such is very convenient to use. Consequently significant productivity gains can be achieved due to shorter changeover times.
- 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 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.
- Pre-compression during manufacture to precise dimensions eliminates the need for additional tightening down procedures.
- Advanced design of the polypropylene separator discs and sealing rings 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.
- Both flat gaskets and double o-ring end fittings are available to fit all lenticular housings

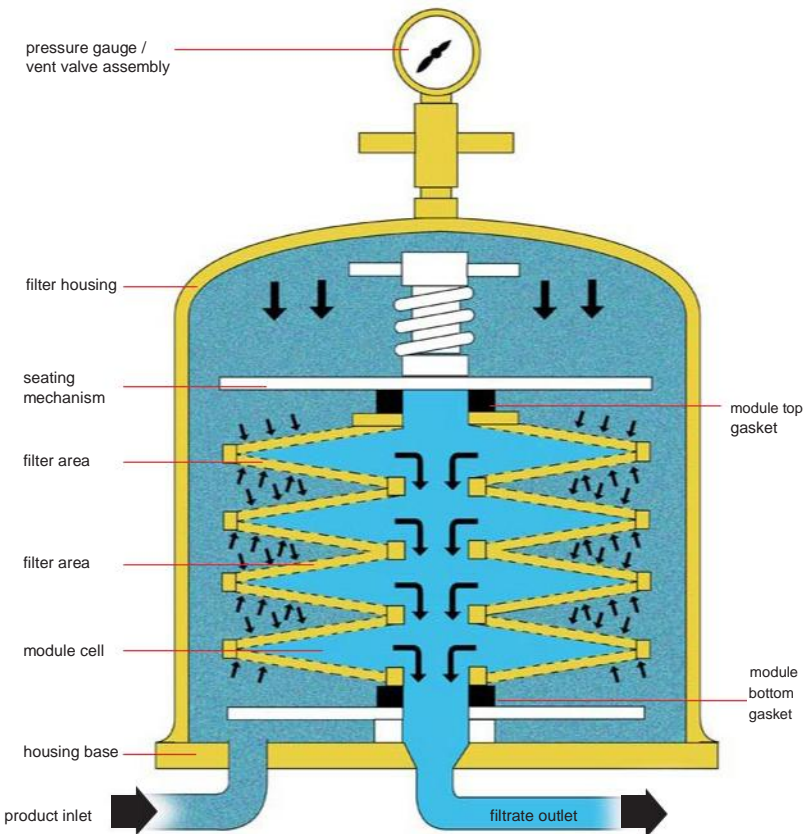


# TECHNICAL INFORMATION

The lenticular filter modules are of either 12" (300mm) or 16" (400mm) diameter, to match the appropriate housing. Each module is normally made up of 16 cells. Each cell consists of 2 discs of filter media formed around an internal, all polypropylene skeleton. The outer edges of the media are sealed with an injection moulded polypropylene strip. The complete filter module is assembled from up to 16 cells packed together with a special internal polypropylene structure allowing the formation of a completely sealed, pre compressed unit. These modules can then be used in a single or multiple housing, stacked end to end up to 4 high. End seal is via either flat gasket or double o-ring bayonet fitting.



## Lenticular Module flow diagram



### Specification for 12" lenticular module

Module Diameter	: 288mm +/- 2mm		
Quantity of filter cells	: 16 (standard)	: 9	: 2
Nominal filter area	: 1.8m <sub>2</sub>	: 1.0m <sub>2</sub>	: 0.2m <sub>2</sub>

### Specification for 16" lenticular module

Module diameter	: 401mm +/- 2mm		
Quantity of filter cells	: 16 (standard)	: 9	: 2
Nominal filter area	: 3.6m <sub>2</sub>	: 2.0m <sub>2</sub>	: 0.4m <sub>2</sub>

### Specifications applicable to both 16" and 12"

Compressed module height			
Including 2 flat gaskets	: 272 +/- 2mm	: 165 +/- 3mm	: 52 +/- 3mm

- Matrix, end cap, sealing ring : Material :-  
Natural Polypropylene.
- Outside sealing of filter discs : Complete and regular injected  
polypropylene outer seal of filter discs.
- Materials: Fixing straps : 304 stainless steel (standard) or  
hastalloy or polypropylene.
- Flat gaskets : Silicone (standard), nitrile, PTFE  
Viton or EPDM.
- O-ring seal : Silicone (standard), EPDM or Viton.
- Scrims : Non woven polyester

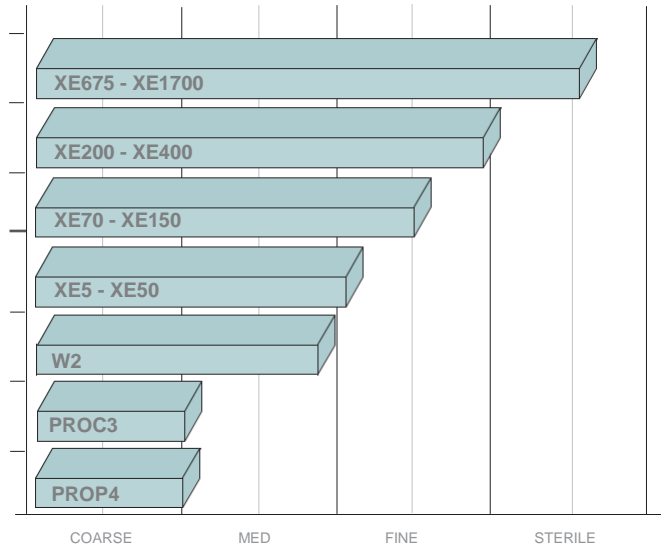


## RANGE AVAILABLE

The range of depth filter media available in lenticular format includes:

- W2 filter aid support grades for DE filtration or coarse filtration.
- Medium grades ie XE5 through to XE50 for coarse filtration.
- Clarification and polishing grades ie XE70 through to XE400.
- Sterilising grades to remove bacteria and some viruses ie XE675 through to XE1700.
- Low pyrogen, low ion and low calcium grades for use in Pharmaceutical and other applications.
- Specialist grades ie Carcarb Proc3 Activated Carbon grades and Prop4, Carlson's PVPP grade.

## Range Indicator



For more information on the grades of media please see the appropriate product leaflets.





# LENTICULAR FILTER MODULE HOUSINGS

## Filter housing for 12" and 16" lenticular module

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



## Basic Model

Designed to house 1, 2, 3, or 4 modules - 12" and 16" diameter - with flat socket or double o-ring bayonet adaptor. All internal parts in contact with the liquid to be filtered are mechanically polished to a high degree (roughness <math><Ra 0.8\mu m</math>) enabling ease of washing and sterilisation during cleaning operations and also to comply with health and sanitation standards. The bell housing locking system is secured by bolt clamps, which also allow quick release. This type of clamp arrangement eliminates risk of injury or damage due to un-vented housing pressure.



The lowest part of the inlet bend is equipped with a  $\frac{1}{2}$ " BS threaded male fitting, where a drain valve can be fitted.

The housing cover has a  $\frac{1}{4}$ " BSP-M fitting for sight glass/pressure gauge and vent valve assemblies.

## Advanced Model

Similar to the basic model, with the addition of a drain ball valve to allow for quick and complete drainage of the housing.

This valve also acts as a steam trap and condensation drain during sterilisation procedures. The lowest part of the outlet bend is equipped with a sanitary valve for sampling. Inlet and outlet come complete with butterfly valves.

On top of the housing cover is a venting assembly made up of the following:

- Stainless steel 100mm, glycerine filled pressure gauge, 0-6 bar
- Sight glass
- Vent ball valve with hose adaptor, 12 mm diameter
- Gas inlet valve with  $\frac{1}{4}$ " BS threaded female fitting

The 'M' option is available on both the Basic and Advanced models and consists of a stainless steel 100mm, glycerine filled pressure gauge, 0-6 bar, fitted on the outlet bend.

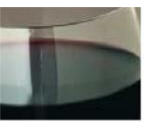
### Operating Parameters for 12" and 16" housings, basic and advanced models

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

### Technical specification for 12" and 16" housings, basic and advanced models

Housing material	AISI 316L
Type of seal	EP (standard)
Polishing	Standard mechanical, electropolish on request.





## GENERAL INFORMATION

### Lenticular Module Operation Parameters

Max Operating Temp	65 °C
Max Pressure	2.5 bar
Max Back Pressure	0.5 bar
Steam sterilisation temp/time	120° C for 20 min (max)
Steam cycles	5 Max
Hot water temp/time	80° C for 20 mins (max)
Hot water cycles	30 Max

### 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.



### Filtration stages

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

Filtration ends when either the batch is completed or when high differential pressure is reached.

### Hot water cleaning/back flushing

Post filtration the lenticular can be forward and reverse flushed with hot/cold water.

### Storage

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

Dealer stamp

### Carlson Production Facility



Purity through quality™ since 1923



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