Monarch ESLC Series

Stainless Steel Industrial Liquid Filtration Housing User Guide

Contents

1 Description

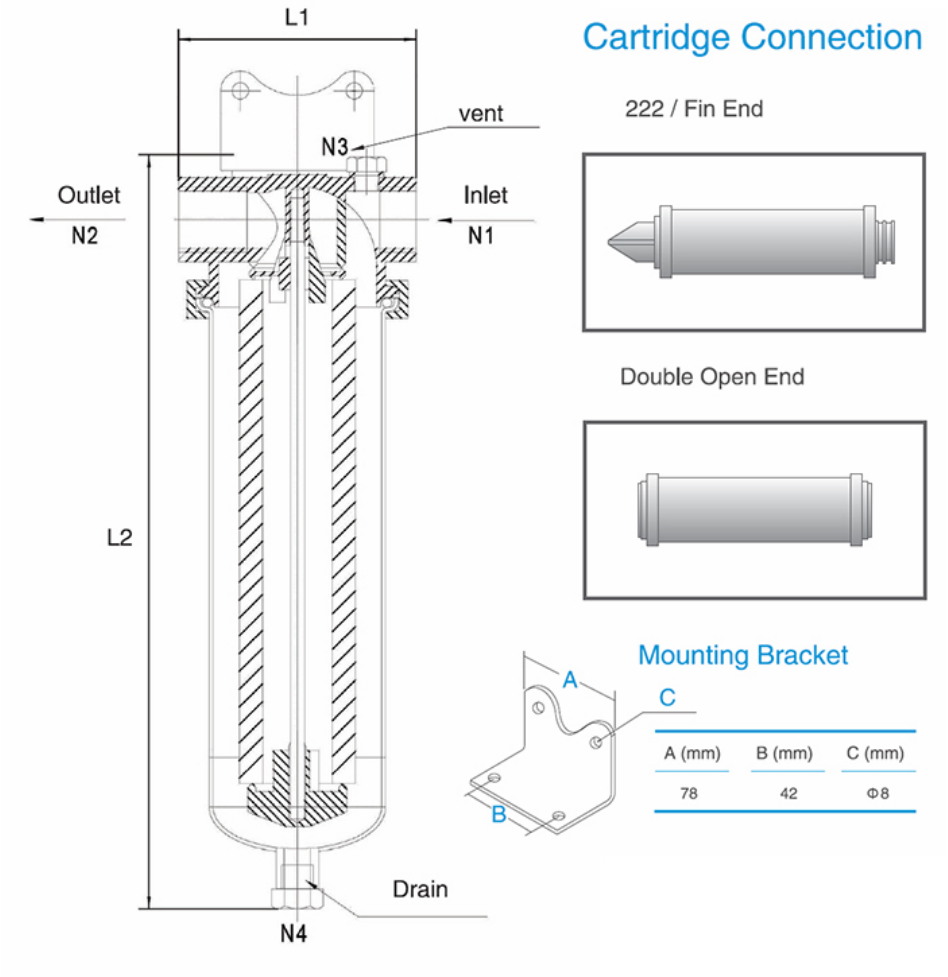
ESLC Series Filter Housing is specially designed for low flow rates and pressures up to 20 bar. With a single die-casted top piece design, the ESLC in-line filter can be easily connected to the pipeline directly. The filter element (sold separately) can be replaced by only removing the bottom housing, featuring simple maintenance with no leakage. A drain valve is located at the bottom for liquid discharge. Cartridge filter elements range from particle removal size of 1 Micron to 8mm perforated stainless steel.

2 Code Identification

ESLC	**E**	**10**	**7**	**B**	**20**	**25**	**B**
Model	Material	Length	Cart Connection	Type	Pressure	Inlet/Outlet	Seal
ESLC	E - 304	10 - 10”	6 - 222/Fin	N - NPT	20 – 20 bar	25 – 1”	B - Buna
	S - 316L	20 - 20”	7 - DOE	B - BSP			E - EPDM
							F - Viton
							S – Si. Rubber

Pressure 20 bar @ 80°C
Elements sold separately

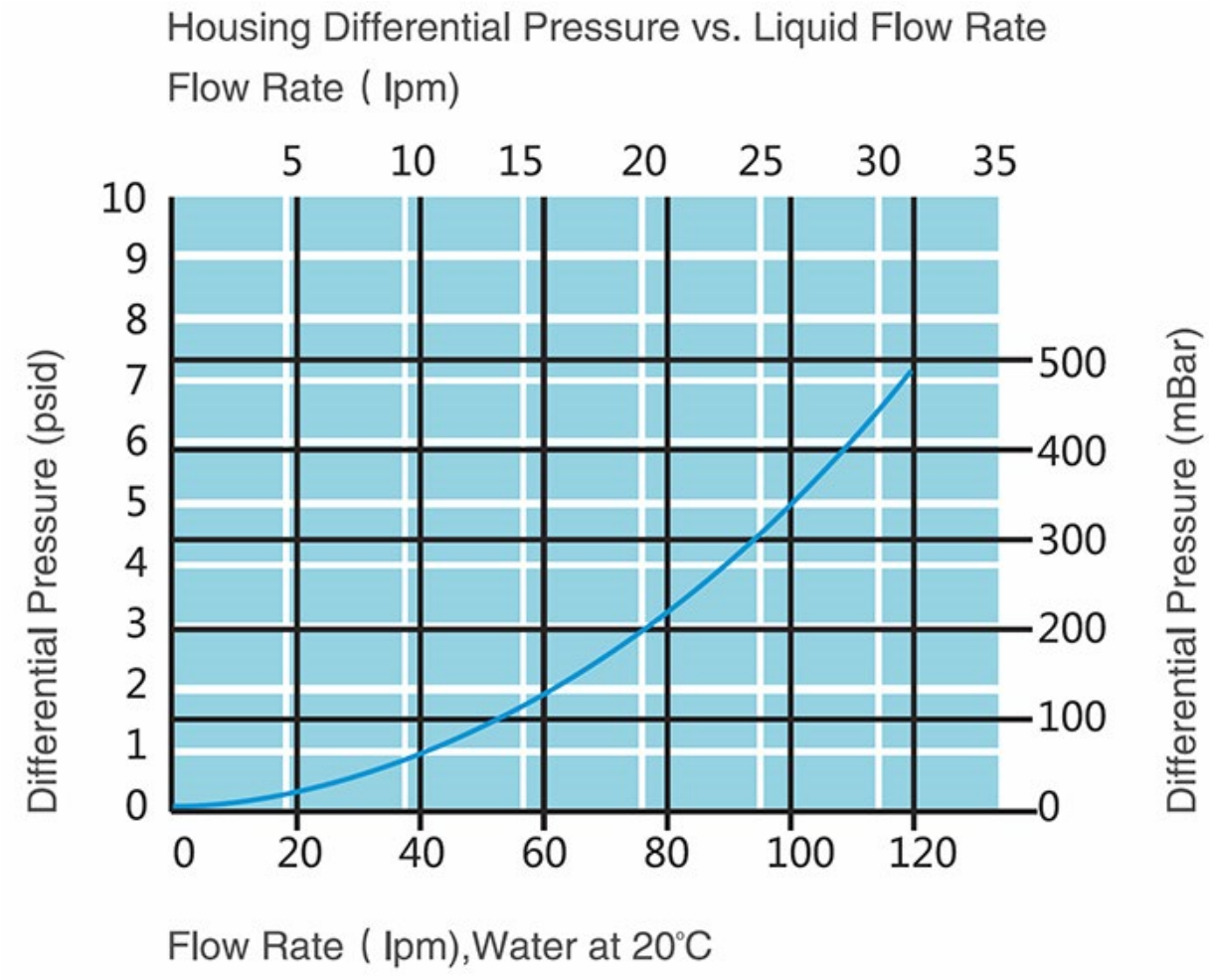
3 Dimensions



Dimensions

Model	**Length**	**L1**	**L2**	**Weight (empty)**
ESLCE10	10”	122mm	380mm	4.75 kg
ESLCE20	20”	122mm	634mm	6 kg

4 Flow/Differential Pressure Chart – Vessel



The chart indicates the Differential pressure for the housing only. Please refer to the specific cartridge data sheet for differential pressure limitations and recommendations.

5 Important Safeguards

- Use the filter only as described in this manual.
- The filter is for use on liquids only.
- Operators should be suitably trained.
- A competent qualified person should undertake installation and maintenance.
- Do not attempt to maintain, repair, or adjust the filter whilst it is pressurised. Doing so may result in property damage, personal injury, or even death.
- If the fluid to be filtered is in any way hazardous, toxic or flammable, or is at a temperature above ambient, the operator and environment should be suitably protected. Extreme care should be exercised if the fluid, at maximum operating temperature, but at room pressure, is above its boiling point. Unless specifically stated otherwise strainers that are offered only for fluids (not gases). A fluid whose vapour pressure at the maximum allowable temperature is greater than 1.5 barg must be treated as a gas. Always refer to MSDS prior to handling any liquid for correct PPE.
- The maximum operating pressure for the standard filter structure is 20 barg at 80ºC. The maximum working pressure reduces as the temperature increases.
- Ensure the inlet pressure and temperature is less than that shown on the filter.

- The filter body material and seal temperature limits are: -
    - Housing design pressure/temperature: *Pressure 20 bar @ 80°C* (Lower pressure at higher temperatures)
    - Nitrile or Buna N (NBR) seals: -35ºC to +120ºC
    - Viton (KPM) seals: -20ºC to + 200ºC
    - EP or EPDM seals: -50ºC to + 150ºC
    - FEP encapsulated seals: -55ºC to + 260ºC
    - The seal temperature limits assume complete chemical compatibility with the fluid. Care should be taken with any fluid at elevated temperature, especially above 100ºC. Do not allow the fluid to freeze in the filter.

- The filters, when shipped, do not contain substances specifically hazardous to health. However, the filter may have a thin coating of oil based corrosion preventative on some of it's surfaces. Care should be taken should this be unacceptable in the given application.
- If a used filter is to be stored or transported, ensure that the filter is clean, suitably protected (including corrosion protection if appropriate) and does not contain substances that could be hazardous to health.
- If the filter has been subjected to overpressure, mechanical damage, corrosion or erosion, or any form of abuse that may reduce it's strength, the filter should be scrapped or returned for examination and if practical repair and re-test.
- Use only the manufacturers recommended attachments and genuine spares.
- Retain this Manual for future reference.

Do not attempt to maintain, repair, or adjust the filter whilst it is pressurised. Doing so may result in property damage, personal injury, or even death.

Always refer to MSDS prior to handling any liquid for correct PPE.

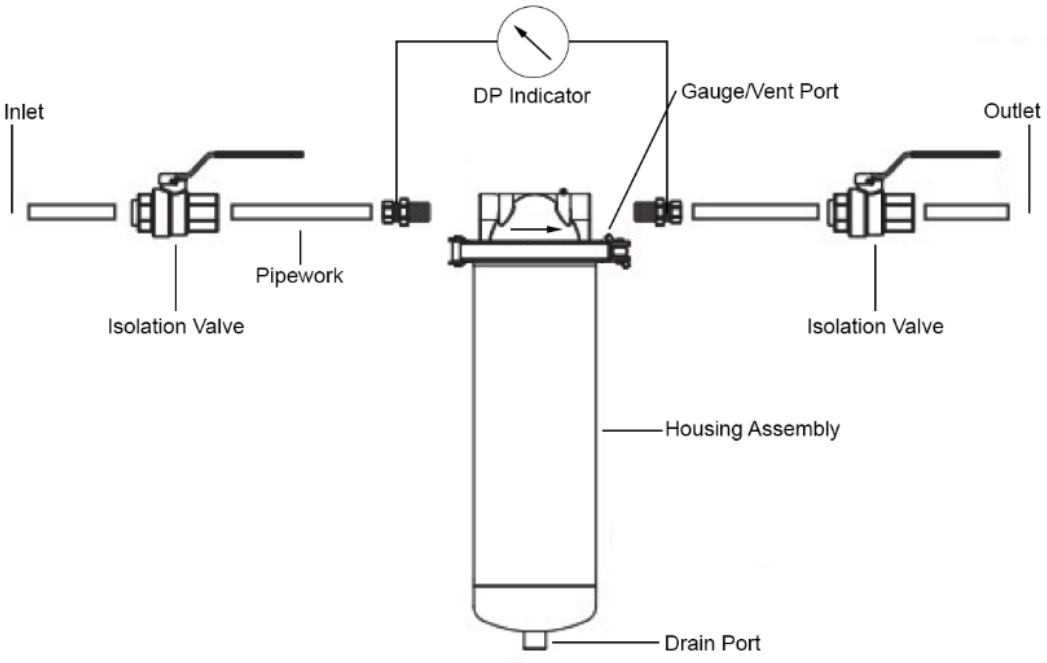
6 Installation

Install the filter in the pipeline using appropriate seals and attachments that comply with the relevant codes.

Confirm:
- That the flow direction is correct (as shown by the arrow filter head unit).
- There is enough space around the filter for maintenance and routine operation.
- That there are no leaks and the cartridge element is fitted.
- Housing/Vessel Design Pressure and Temperature cannot be exceeded.

NOTE: Ideally it should be possible to isolate the filter. (Refer to Typical Installation Diagram)

For efficient operation, it should be possible to determine the pressure drop across the filter. The pressure drop across the element should not exceed 1.5 bars. (Refer to Section 7.4 for more information). It is recommended that pressure gauge/s be fitted. (Refer to Typical Installation Diagram)



Typical Installation Diagram – Cartridge Filter

7 Operation

7.1 Description

As fluid passes through the housing assembly:
The cartridge element will retain the filtered debris on the external surface of the cartridge element. Cleaning or disposal of the cartridge will be necessary to ensure the recommended pressure drop level is maintained or not exceeded. Cleaning and reuse of an element will depend on the type selected.

⚠	Cartridge Disposal: Refer to MSDS for correct handling and disposal method Always refer to MSDS prior to handling any liquid for correct PPE.

7.2 Start-up

The air can be removed from the filter by the use of the bleed screw. (if fitted) It is recommend that a bleed screw or bleed valve be fitted to manually purge air from the system.

7.3 Cleaning or changing the cartridge element

Stop the flow, relieve any pressure, and drain the cartridge chamber via the bottom drain bung or valve. Slacken the cover retaining V Clamp, remove the body to expose the cartridge element. Loosen and remove bottom nut which retains the cartridge.

Take care not to damage the fine mesh lining if fitted. After cleaning or replacing the cartridge complete reverse of the above, making sure all seals are fitted and in good condition.

Warning: Do not overtighten cartridge retaining nut. The nut should be tightened enough to create a seal. Overtightening may cause damage to the cartridge or moulded end caps.

⚠	Do not attempt to maintain, repair, or adjust the filter whilst it is pressurised. Doing so may result in property damage, personal injury, or even death. Always refer to MSDS prior to handling any liquid for correct PPE.

7.4 Differential Pressure (DP)

Differential pressure is the difference in pressure between the inlet and outlet side of the straining element. Initially the differential pressure is at its lowest because the element is clean and has its maximum open area. As particulate covers the element surface, the available open area is reduced, thereby reducing the flow through the element. Thus the downstream side pressure of the pipeline strainer is increasingly less than the upstream side.

Please note:
Filter element integrity is limited by Differential Pressure and not the pressure rating of the filter housing.

When Fitted with Monarch Stainless Steel Cartridge Elements

It is recommended that the total differential pressure does not exceed 1.5 bar (22 psi) and not to exceed 2 bar (29 psi). The element should be cleaned or replaced when the total differential pressure is 1.5 – 2 bar. Damage to the element may occur when exceeding 2 bar.

When fitted with Melt Blown or Pleated Cartridges

Please refer to the manufactures data sheet for differential pressure limitations and recommendations.

7.5 Routine Maintenance

Leakage:
Any leakage should be cured immediately. Components should be checked for wear, corrosion or deterioration and replaced as necessary.

Threads:
Visually check treads for any wear or signs of over tightening. If damage is present, remove filter from service and replace. Damage to threads can affect safe operation of the housing.

7.6 Residual hazard due to corrosion or chemical effects

In general filters are used to filter many different types of liquids. The user must take into consideration the effects of the liquid being filtered on the filter housing and accessories. These effects may include corrosion, dissolving or weakening of the filter housing. This applies to all material in contact with the liquid being filtered, especially parts under pressure. This includes gaskets, seals, shaft bushings and bolted connections. The user must select an appropriate housing material for the intended use and confirm its suitability. Regular inspections must be performed while the equipment is in service.

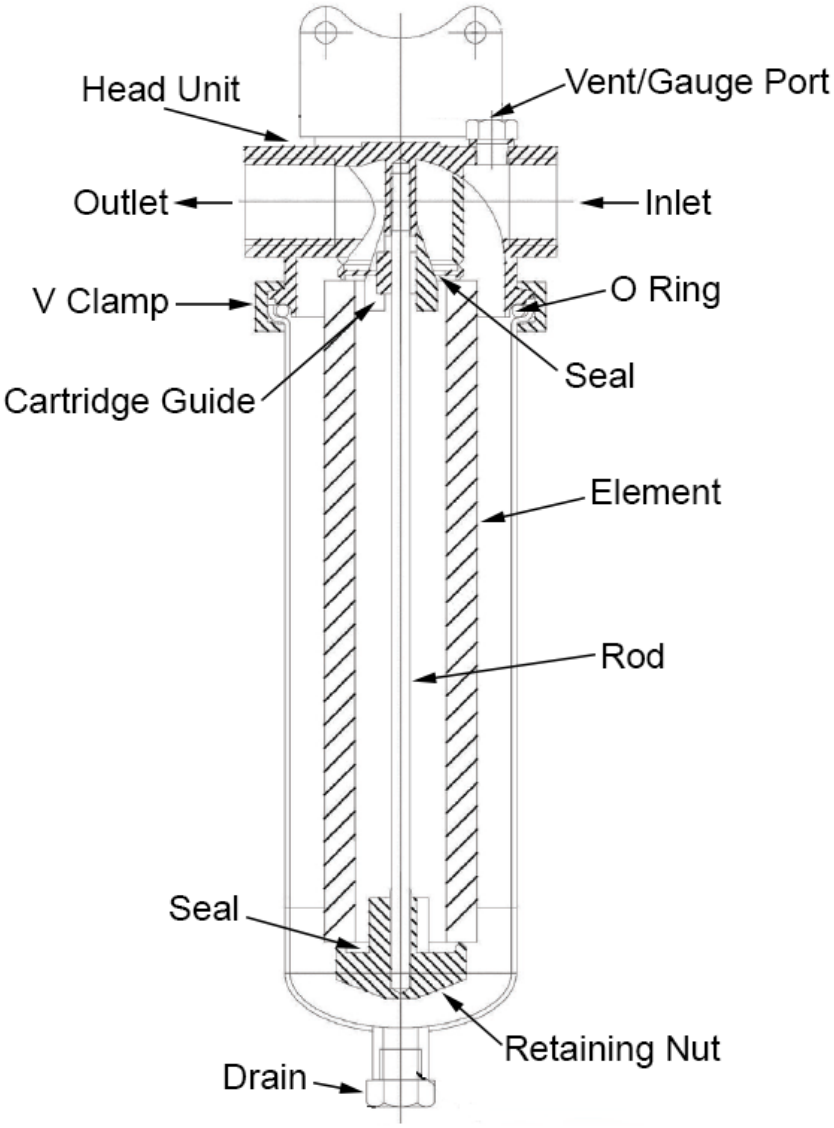
Always refer to MSDS prior to handling any liquid for correct PPE.

7.7 Water Hammer

Water hammer is the more commonly known term for the phenomenon called hydraulic shock or hydraulic surge. The water hammer effect results from a water pressure surge in the pipes, often occurring after an abrupt direction change, burst from a previously clogged pipe or a sudden valve shutdown from within the plumbing system.

Open and close valves upstream and downstream of the Filter slowly. Rapid increases in pressure or flow can create excess water hammer effect, resulting in property damage, personal injury, or even death.

8 Parts Identification



9 Acronyms and Glossary

DP Indicator	Differential Pressure (DP) gauges measure the difference between two pressures. They are suitable for the monitoring of filter contamination,
MSDS	Material Safety Data Sheet
PPE	Personal Protective Equipment (PPE) is clothing or equipment designed to be worn by someone to protect them from the risk of injury or illness.

10 Warranty

Monarch ESLC Series Strainers and cartridge elements manufactured by Monarch Industrial Products are warranted against defects in material or workmanship for a period of one year from date of shipment.

Our sole obligation under this warranty is to repair or replace, at our option, any product or any part or parts found to be defective.

Exclusions
Damage to filter elements, filter baskets or filter media due to excessive differential pressure, mistreatment or aggressive cleaning practices is not covered by any warranty. Please refer to operating instructions. Damage due to the housing or cartridge elements caused by overtightening or mistreatment is not cover by any warranty.

MONARCH INDUSTRIAL PRODUCTS MAKES NO OTHER REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The warranty set forth above is the only warranty applicable to Monarch Industrial Products products and in no event shall Monarch Industrial Products be liable for any delay, work stoppage, cartage, shipping, loss of use of equipment, loss of time, inconvenience, loss of profits of any direct or indirect incidental resulting from or attributable to a breach of warranty.

The remedies under this warranty shall be the only remedies available. OUR MAXIMUM LIABILITY SHALL NOT IN ANY EVENT EXCEED THE CONTRACT PRICE FOR THE PRODUCT.

11 Contact Details

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