Pentair Water
Commercial Pool and Aquatics™

PS Series™
In-Line Strainer

Installation Manual

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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IMPORTANT SAFETY PRECAUTIONS

Important Notice:

This guide provides installation and operation instructions for the PS Series™ In-Line Strainer. Consult Pentair Water Commercial Pool and Aquatics™ with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the product.

Attention User: This manual contains important information that will help you in operating and maintaining this strainer. Please retain it for future reference.

⚠ WARNING — Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

Consumer Information and Safety

The PS Series™ In-Line Strainers are designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the "⚠" symbol. Be sure to read and comply with all of the warnings and cautions.

⚠ WARNING — Never exceed the maximum operating pressure or temperature limits of the system components. Pumps installed with the PS Series™ In-Line Strainer Assembly should not be tested at a pressure that exceeds the value written on the PS Series™ In-Line Strainer. See the Owner's Manual that accompanies that product for more instructions. Insure that pressures higher than those required in the pressure test cannot inadvertently be applied to the circulation system. This may require the use of a pressure regulator between the water supply and the circulation system.

Changes in temperature or barometric pressure can cause the internal test pressure to increase or decrease over time once the system is isolated. A pressure relief device should be installed that would prevent the pressure from exceeding the intended test pressure. Exceeding these limits could result in a component failing under pressure. This instantaneous release of energy can cause failed components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

⚠ WARNING — Due to the potential risk that can be involved it is recommended that the pressure test be kept to the minimum time required by the local code. Do not allow people to work around the system when the circulation system is under pressure test. Post appropriate warning signs and establish a barrier around the pressurized equipment. If the equipment is located in an equipment room, lock the door and post a warning sign.

Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can result in a separation or failure of system components. This instantaneous release of energy can cause components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

SECTION I. GENERAL INFORMATION

This product is designed to be used with a Pentair Water Pool and Spa® series pump. This will provide filtration of debris that could damage the pump. The exact height at which a pump can prime depends on many installation and environmental factors.

The Pentair Commercial PS Series™ In-Line Strainer mechanically removes solids to protect your system components and equipment in the circulation system.

SECTION II. MECHANICAL INSTALLATION AND PRESSURE TESTING

A. MECHANICAL INSTALLATION

1. Carefully remove the strainer assembly from its shipping package.
2. Determine the installation location of the strainer assembly. Insure that adequate space and lighting is provided for routine maintenance.
3. It is good practice to install a valve on the suction line before this unit and on the return line after the pump so that both items can be isolated for routine maintenance.

It will be necessary to obtain the following hardware:

Model Designation		Connection Size (inlet x outlet)	Inlet		Outlet	
			Bolt Size	Number	Bolt Size	Number
PS6:		6 in. pipe X 6 in. pipe	none*		none*	
PS6X6	Plastic Flanged	6 in. ANSI x 6 in. ANSI	3/4 in.	8	3/4 in.	8
PS6X5E	Plastic Flanged Eccentric	6 in. ANSI x 5 in. ANSI	3/4 in.	8	3/4 in.	8
PS6X4E	Plastic Flanged Eccentric	6 in. ANSI x 4 in. ANSI	3/4 in.	8	5/8 in.	8
PS6X3E	Plastic Flanged Eccentric	6 in. ANSI x 3 in. ANSI	3/4 in.	8	5/8 in.	4
PS#X#E	Plastic Flanged Eccentric	Various Standard Reducers	various		various	
PS8:		8 in. pipe X 8 in. pipe	none*		none*	
PS8X8	Plastic Flanged	8 in. ANSI x 8 in. ANSI	3/4 in.	8	3/4 in.	8
PS8X6E	Plastic Flanged Eccentric	8 in. ANSI x 6 in. ANSI	3/4 in.	8	3/4 in.	8
PS8X5E	Plastic Flanged Eccentric	8 in. ANSI x 5 in. ANSI	3/4 in.	8	3/4 in.	8
PS8X4E	Plastic Flanged Eccentric	8 in. ANSI x 4 in. ANSI	3/4 in.	8	5/8 in.	8
PS#X#E	Plastic Flanged Eccentric	Various Standard Reducers	various		various	
PS10:		10 in. pipe x10 in. pipe	none*		none*	
PS10X10	Plastic Flanged	10 in. ANSI x 10 in. ANSI	7/8 in.	12	7/8 in.	12
PS10X8E	Plastic Flanged Eccentric	10 in. ANSI x 8 in. ANSI	7/8 in.	12	3/4 in.	8
PS10X6E	Plastic Flanged Eccentric	10 in. ANSI x 6 in. ANSI	7/8 in.	12	3/4 in.	8
PS10X5E	Plastic Flanged Eccentric	10 in. ANSI x 5 in. ANSI	7/8 in.	12	3/4 in.	8
PS#X#E	Plastic Flanged Eccentric	Various Standard Reducers	various		various	

NOTE: **#** designation indicates optional available reducers.
Suffix **E** denotes Eccentric reducers. Suffix **C** denotes Concentric reducers.
Suffix E will be replaced with C if Concentric reducer is used.

4. Plan carefully the layout of adjacent plumbing, including cutting pipe to the exact length and ensuring that the flange will be aligned and square with the strainer. Note that the strainer must be installed so that water flow travels into the open top of the basket, then flows into the basket chamber and out through the small basket holes. Make sure that the arrow on the top of the strainer points towards the pump. ***Note:*** It is good practice to install a straight section of pipe (free of valves or fittings) that is at least 30 in. long on the inlet and exit sides of the strainer. Cement plumbing in place once you are certain that fit ups are correct.

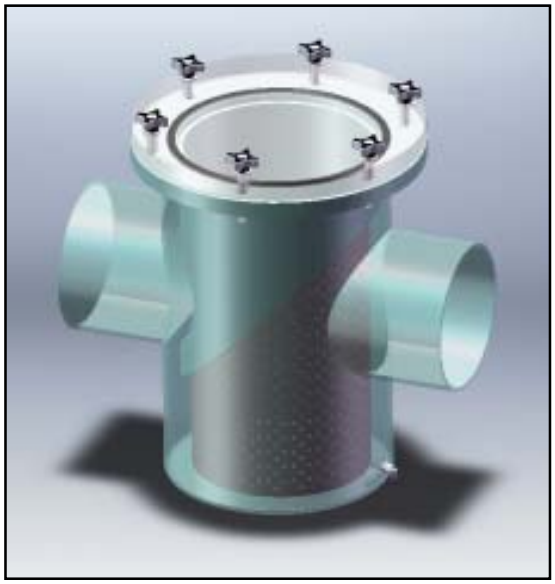


Figure 1.

⚠ CAUTION

Use large diameter flat washers between the hex nut and the strainer assembly flanges to properly distribute the clamping forces on the flanges. Tighten the flange bolts to 20 ft-lb. unless otherwise specified by the flange manufacturer. The use of AV flange gaskets is recommended.

⚠ CAUTION

Suction and discharge piping must be supported by an appropriate system of supports or hangers. Inadequately supported pipe can cause excessive loads to be transmitted to the strainer assembly resulting in a structural failure that could result in flooding and property damage.

B. PRESSURE TESTING

Certain local codes require that the circulation system be pressure tested with a proof pressure before being commissioned into service or before allowing construction to progress to the next stage.

⚠ WARNING

The PS Series™ In-Line Strainer is rated for a maximum pressure of 50 psi and a maximum temperature of 125° F. Exceeding the pressure or temperature rating during the pressure test can result in failure.

⚠ CAUTION

This product is shipped with a pressure relief valve. This device must be installed into the ¼" NPT drain opening before the strainer is pressure tested, if an installer's pressure test is required. This pressure relief device is not intended to replace a pressure regulator and cannot relieve the system of pressure if the installer over pressurizes the system rapidly during the pressure test process. The device is intended to function as a low volume pressure relief, should a gradual increase in pressure occur due to changes in temperature or atmospheric pressure once the test pressure is established.

⚠ WARNING

Improperly pressure testing a circulation system can involve significant risk of property damage or severe personal injury or death. Circulation systems store energy when pressure tested due to the elastic nature of the materials used in construction and due to the compressibility of air that may be contained in the system. These instructions should be considered a guide only. Each installation should be considered a unique situation that should be carefully investigated for risk.

⚠ WARNING

Never test this equipment with air pressure even if specified by the local code. Even low levels of air pressure result in tremendous storage of energy that can instantaneously be released if a system failure occurs. This instantaneous release of energy can cause failed components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

1. Understand the local code. The intent of the code may be to insure that the piping system, with its many bonded joints, is leak free. Do not include this product in the pressure test unless the code specifically requires this.
2. Verify that each component in the system is designed to meet the local code test pressure. Most components should be marked with a maximum operating pressure. If a component is not marked, consult the Owner's Instructions that came with the component or consult the Manufacturer.
3. Verify that the pressure test will be conducted within the operating temperature listed on the components that make up the circulation system. If no maximum operating temperature is listed, then it may be necessary to review the Owner's Manual or contact the Manufacturer for this information. It is common practice for plastic components to be pressure rated at 72° F. and then derated for temperatures greater than this.
4. Use only a high quality pressure gage that is certified to be accurate for the pressure for which the test is going to be conducted. Do not rely on the pressure gage included with the filtration system as it may not be sufficiently accurate to conduct a pressure test for the system. Please note that the pressure in the system will vary depending on where the pressure is taken due to the weight of the water.
5. Insure that all air will be evacuated from the system when the water pressure is applied to the system. This will require that all air bleeders on any equipment are open. It also may be necessary to remove some lids or covers on system equipment such as the pump strainer lid to prevent air from being trapped in the system. In addition, there may be other areas of the circulation system where air may be trapped. Do not connect water pressure to the system until you are certain that air will be totally evacuated.
6. Determine the appropriate location in the system to apply the test water pressure. Consider the place in the system that will best insure that all air will be displaced when water is introduced.

⚠ WARNING

Never exceed the maximum operating pressure or temperature limits of the system components. Insure that pressures higher than those required in the pressure test cannot inadvertently be applied to the circulation system. This may require the use of a pressure regulator between the water supply and the circulation system.

Changes in temperature or barometric pressure can cause the internal test pressure to increase or decrease over time once the system is isolated. A pressure relief device should be installed that would prevent the pressure from exceeding the intended test pressure. Exceeding these limits could result in a component failing under pressure. This instantaneous release of energy can cause failed components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

7. Slowly apply the water pressure and allow the water to flow out all of the openings intended for air to escape. Close the openings beginning at the lowest level first and progressing to the highest level. Do not close any opening until you are sure that the air is completely out of that part of the system.
8. Allow the pressure to slowly build once all of the air openings are closed. Close the valve between the water supply and circulation system to isolate the system from the supply pressure.
9. Monitor the system pressure for a few minutes to ensure that it is stabilized.

⚠ WARNING

Due to the potential risk that can be involved, it is recommended that the pressure test be kept to the minimum time required by the local code. Do not allow people to work around the system when the circulation system is under pressure test. Post appropriate warning signs and establish a barrier around the pressurized equipment. If the equipment is located in an equipment room, lock the door and post a warning sign.

Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can result in a separation or failure of system components. This instantaneous release of energy can cause components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

10. It is normal for the test pressure to drift down slightly during the first few minutes as the circulation system expands under pressure.
11. If the system pressure continues to fall, then bleed off the remaining water pressure in the circulation system and inspect the system for leaks. Look for water on the floor and feel around joints for moisture.
12. Insure the system is not under pressure before attempting any system adjustments or repairs.
13. Repeat the pressurization sequence once the system leaks have been corrected.

SECTION III. INITIAL OPERATION

Verify that the following tasks are completed before energizing the circulation pump:

1. Fill the strainer with as much water as it will hold.
2. Position the basket correctly into the strainer body so that the flow direction is into the open basket, see Figure 2. Do not force the basket. It fits only one way against the diagonal ledge. Verify that the handle target is perpendicular to the incoming flow, see Figure 3.
3. Inspect the lid gasket to make sure that it is clean and properly positioned in the groove.
4. Install the lid into the strainer so that the detent on the lid is properly seated in the receptacle in the strainer body.
5. Secure the lid in place by *hand tightening* the knob style closures, see Figure 4. Do **NOT** force the knob style closures with tools, such as a hammer or a pipe extension. Such actions can result in breaking the knob style closures.

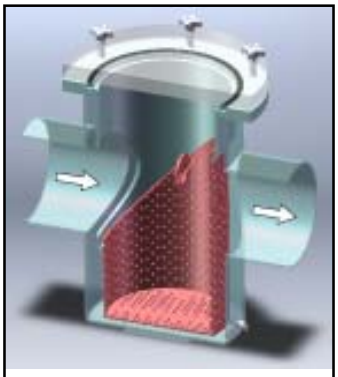


Figure 2.

Figure 3.

⚠ WARNING

The strainer may be at a pressure that is higher or lower than the atmospheric pressure. Always open the drain plug on the strainer pot and allow for the pressure to equalize before removing the cover.

⚠ WARNING

DO NOT open the strainer if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the strainer pot may cause serious personal injury. In order to avoid personal injury, make sure the strainer temperature has cooled to room temperature. Carefully remove the drain plug on the strainer pot and allow the pressure to equalize before removing the cover.

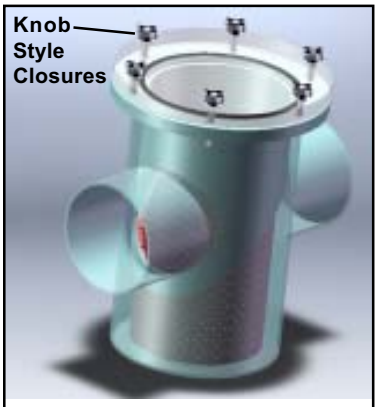


Figure 4.

SECTION IV. CLEANING THE PS SERIES™ IN-LINE STRAINER BASKET

1. A routine inspection should be done by visually looking through the strainer lid for debris while the pump is in operation. The strainer basket should be cleaned when it is approximately 25% blocked. Allowing the strainer basket to become excessively blocked will diminish water flow, reduce pump efficiency, cause pump cavitation and may damage the basket or other pump components.
2. Disconnect power to the pump before cleaning the basket.
3. Close isolation valves on the suction and discharge lines if necessary to prevent flooding.

⚠ WARNING

The strainer may be at a pressure that is higher or lower than the atmospheric pressure. Always open the drain plug on the strainer pot and allow for the pressure to equalize before removing the cover.

⚠ WARNING

If the pump has been energized for a period greater than 45 minutes without water flowing through the pump for any reason, the water in the strainer pot may be hot. Attempting to remove the cover without removing the drain plug in the pot and allowing the pressure to equalize may result in the hot water rapidly escaping and causing severe personal injury. To reduce the risk of being injured by hot or scalding water, allow the strainer to cool to the ambient temperature before removing the drain plug.

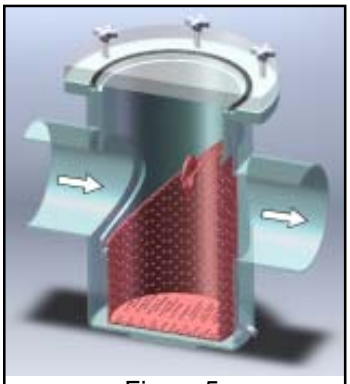


Figure 5.

4. Open the drain plug in the strainer and allow the pressure to completely stabilize.
5. Remove the lid from the strainer.
6. Remove the basket and dispose of the debris. Use a water hose and a brush to remove debris blocking the openings in the basket if required.
7. Replace the basket making sure it is properly oriented. Insert the basket into the strainer body so that the flow direction is into the open basket, see Figure 5. Do not force the basket. It fits only one way against the diagonal ledge. Verify that the handle target is perpendicular to the incoming flow, see Figure 6.

Figure 6.

8. Replace the lid making sure the lid gasket is clean and is properly located in its groove.
9. Secure the lid in place by *hand tightening* the knob style closures, see Figure 7. Do **NOT** force the knob style closures with tools, such as a hammer or a pipe extension. Such actions can result in breaking the knob style closures.

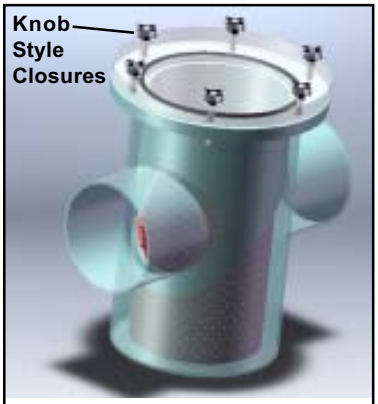
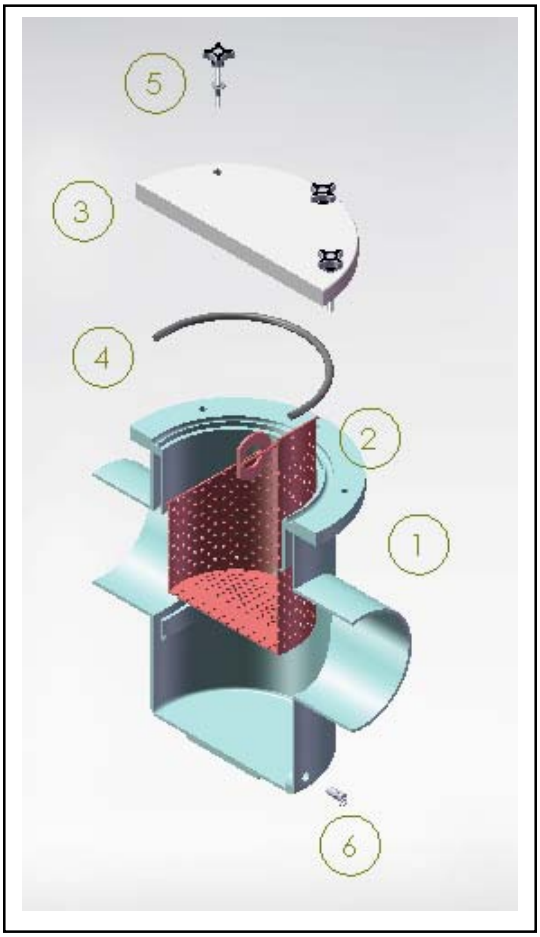


Figure 7.

⚠ WARNING

It is recommended that only water and a soft cloth be used to clean the clear lid lens. Cleaners may contain chemicals that could damage or weaken pump components causing them to fail and allowing an instantaneous release of energy. This instantaneous release of energy can cause components to be accelerated to high velocities and to travel distances of 100 feet or more. These components could cause severe personal injury or death if they were to strike a person.

SECTION V. PS SERIES™ IN-LINE STRAINER REPLACEMENT PARTS

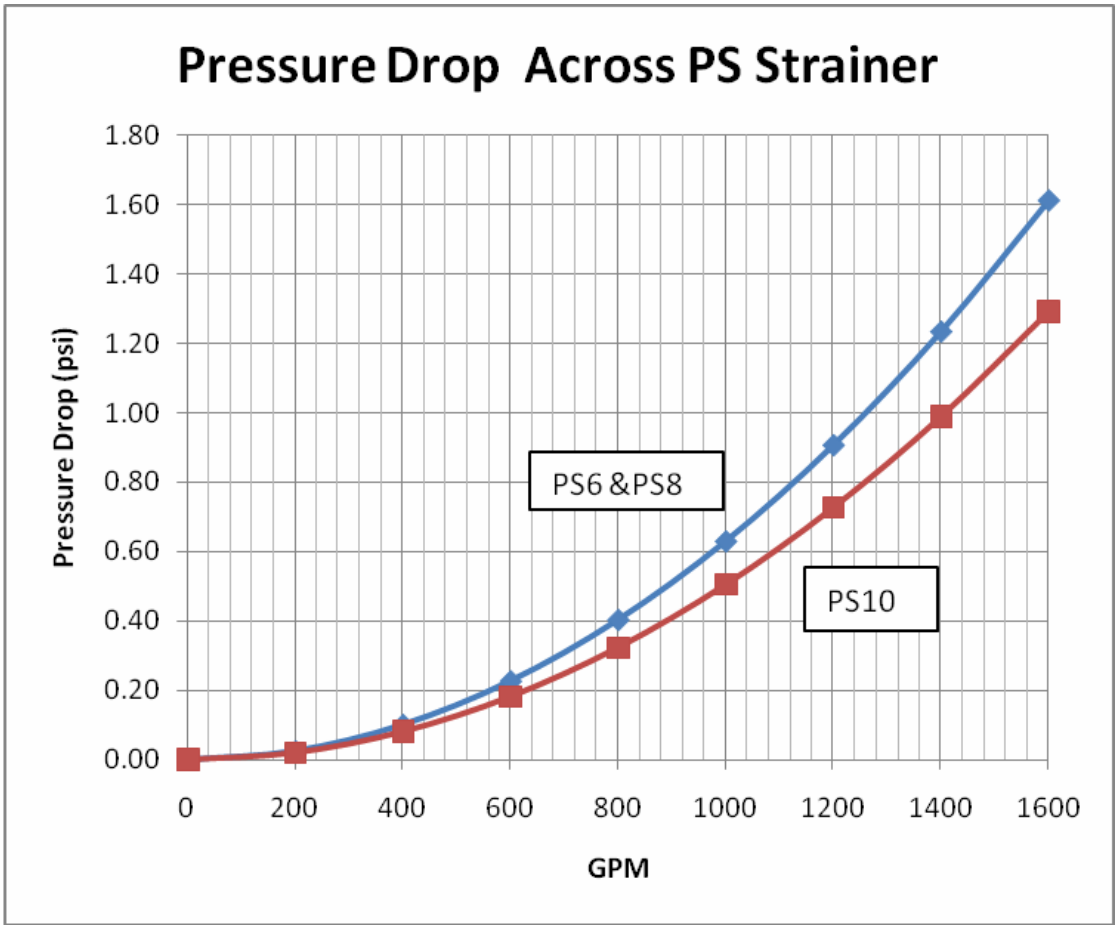


Model Designation		Body	Basket	Cover	O-Ring Seal	Knob Closure	Pressure Relief
		Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
		(1) Req'd	(1) Req'd	(1) Req'd	(1) Req'd	(6) Req'd	(1) Req'd
PS6:		PS6X6BODY	67150	67101	67250	23325	67350
PS6X6	Plastic Flanged						
PS6X5E	Plastic Flanged Eccentric						
PS6X4E	Plastic Flanged Eccentric						
PS6X3E	Plastic Flanged Eccentric						
PS#X#E	Plastic Flanged Eccentric						
PS8:		PS8X8BODY					
PS8X8	Plastic Flanged						
PS8X6E	Plastic Flanged Eccentric						
PS8X5E	Plastic Flanged Eccentric						
PS8X4E	Plastic Flanged Eccentric						
PS#X#E	Plastic Flanged Eccentric						
PS10:		PS10X10BODY	67152				
PS10X10	Plastic Flanged						
PS10X8E	Plastic Flanged Eccentric						
PS10X6E	Plastic Flanged Eccentric						
PS10X5E	Plastic Flanged Eccentric						
PS#X#E	Plastic Flanged Eccentric						

NOTE: **#** designation indicates optional available reducers.
Suffix **E** denotes Eccentric reducers. Suffix **C** denotes Concentric reducers.
Suffix E will be replaced with C if Concentric reducer is used.

SECTION VI. PS SERIES™ IN-LINE STRAINER ASSEMBLY TECHNICAL DATA

A. FRICTION LOSS CURVE

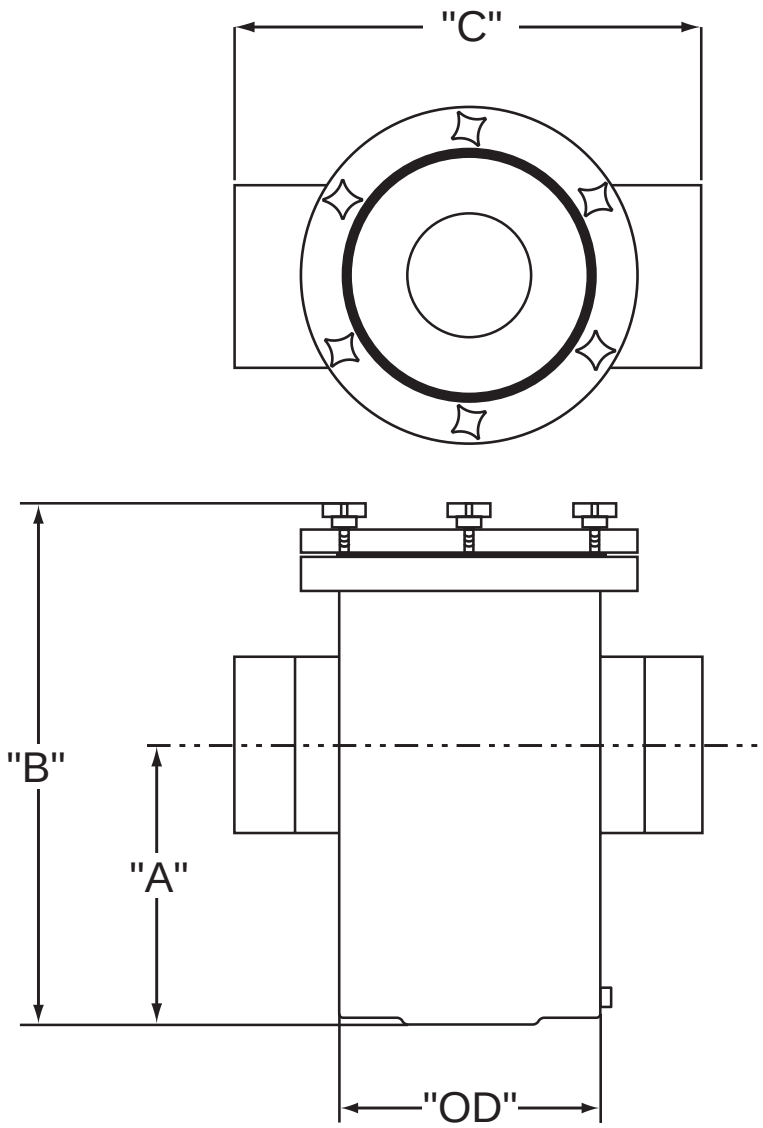


B. ENGINEERING SPECIFICATIONS

Model	PS6	PS8	PS10
Inlet Pipe Size	6 in. (DIN 150)	8 IN. (DIN 200)	10 in. (DIN 250)
Maximum Pressure	50 psi (345 kPa)	50 psi (345 kPa)	50 psi (345 kPa)
Maximum Temperature	125° F. (50° C)	125° F. (50° C)	125° F. (50° C)
Maximum Flow Rate	540 GPM (2040 LPM)	930 GPM (3520 LPM)	1470 GPM (5560 LPM)
Basket Open Area	224 sq. in. (1445 sq. cm)	224 sq. in. (1445 sq. cm)	335 sq. in. (2161 sq. cm)
Cover Material	Clear Acrylic	Clear Acrylic	Clear Acrylic
Basket Material	Stainless Steel	Stainless Steel	Stainless Steel
Body Material	Engineered Fiberglass	Engineered Fiberglass	Engineered Fiberglass

C. DIMENSIONAL DATA

Non-Flange Strainer Dimensions



Strainer Size	"OD"	"A"	"B"	"C"
6	12.8	13.6	25.5	22.8
8	12.8	13.6	25.5	22.8
10	12.8	20.6	32.5	22.8

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