



INDUSTRIAL VALVES MANUFACTURER

SHANGHAI YUANGAO VALVES INDUSTRY CO., LTD

Strainers Installation, Operation & Maintenance Manual



API 600



API 6D



API 624



API 607



CE 1155



2014/68/EU



ISO 9001

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INSTALLATION OPERATION & MAINTENANCE OF Y-STRAINER

PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING LEAD VALVES, STRAINERS, FILTERS, AND OTHER ASSOCIATED PRODUCTS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.

- Lead guarantees its products against defective material and workmanship only. Lead assumes no responsibility for damage or injuries resulting from improper installation, misapplication, or abuse of any product.
- Lead assumes no responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. Compatibility charts provided in Lead literature are based on ambient temperatures of 70F and are for reference only. Customer should always test to determine application suitability.
- Consult Lead literature to determine operating pressure and temperature limitations before installing any Lead product. Note that the maximum recommended fluid velocity through any Lead product is eight feet per second. Higher flow rates can result in possible damage due to the water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as operating temperature.
- Lead products are designed primarily for use with non-compressible liquids. They should NEVER be used or tested with compressible fluids such as compressed air or nitrogen.
- Systems should always be depressurized and drained prior to installing or maintaining Lead products.
- Temperature effect on piping systems should always be considered when the systems are initially designed. Piping systems must be designed and supported to prevent excess mechanical loading on Lead equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
- Because PVC and CPVC plastic products become brittle below 40F, Lead recommends caution in their installation and use below this temperature.
- Published operating torque requirements are based upon testing of new valves using clean water at 70F. Valve torque is affected by many factors including fluid chemistry, viscosity, flow rate, and temperature. These should be considered when sizing electric or pneumatic actuators.
- Due to differential thermal expansion rates between metal and plastic, transmittal of pipe vibration, and pipe loading forces **DIRECT INSTALLATION OF METAL PIPE INTO PLASTIC CONNECTIONS IS NOT RECOMMENDED**. Wherever installation of plastic valves into metal piping systems is necessary, it is recommended that at least 10 pipe diameter in length of plastic pipe be installed upstream and downstream of the plastic valve to compensate for the factors mentioned above.

SOCKET CONNECTION:

Socket end connections are manufactured to ASTM D2467-94. Solvent cementing of socket end connections to pipe should be performed per ASTM specifications D2855-87. Cut pipe square. Chamfer and deburr pipe. Surfaces must be cleaned and free of dirt, moisture, oil and other foreign material. Apply primer to inside socket surface of the strainer. Never allow primer or cement to contact sealing surfaces or the screen, as leaking may result. Use a scrubbing motion. Repeat applications may be necessary to soften the surface of the socket. Next, liberally apply primer to the male end of the pipe to the length of the socket depth. Again apply to the socket, without delay apply cement to the pipe while the surface is still wet with primer. Next apply cement lightly, but uniformly to the inside of the socket. Apply a second coat of cement to the pipe, and assemble the strainer to the pipe, rotating the strainer 1/4 turn in one direction as it is slipped to full depth on to the pipe. The strainer should be held in position for approx. 30 seconds to allow the connection to "set". After assembly wipe off excess cement. Full set time is a minimum of 30 minutes at 60 to 100 F. Full cure time should be based on the chart below.

JOINT CURE SCHEDULE:

The cure schedules are suggested as guides. They are based on laboratory test data, and should not be taken to be the recommendations of all cement manufacturers. Individual manufacturer's recommendations for their particular cement should be followed.

Temperature	Test Pressures for Pipe		Test Pressures for Pipe		Test Pressures for Pipe		Test Pressures for Pipe	
Range During	<u>Sizes 1/2 to 1-1/4 In.</u>		<u>Sizes 1-1/2 to 3 In.</u>		<u>Sizes 4 to 5 In.</u>		<u>Sizes 6 to 8 In.</u>	
Cure Period(B)	Up to	Above 180 to	Up to	Above 180 to	Up to	Above 180 to	Up to	Above 180 to
°F(°C)	180 PSI	370 PSI (1240	180 PSI	315 PSI 1240)	180 PSI	315 PSI (1240	180 PSI	315 PSI (1240
	(1240 kPa)	to 2550 kPa)	(1240 kPa)	to 2170 kPa)	(1240 kPa)	to 2170 kPa)	(1240 kPa)	to 2170 kPa)
60 to 100 (15 to 40)	1 h	6 h	2 h	12 h	6 h	18 h	8 h	24 h
40 to 60 (5 to 15)	2 h	12 h	4 h	24 h	12 h	36 h	16 h	48 h
20 to 40 (-7 to 5)	6 h	36 h	12 h	72 h	36 h A	4 days A	3 days A	9 days A
10 to 20) (-15 to 7)	8 h	48 h	16 h	96 h	72 h A	8 days A	4 days A	12 days A
Colder than 10 (-15)	Extreme care should be exercised on all joints made where pipe, fittings or cement is below 10°F.							

A: It is important to note that at temperatures colder than 20°F on sizes that exceed 3 in., test results indicate that many variables exist in the actual cure rate of the joint. The data expressed in these categories represent only estimated averages. In some cases, cure will be achieved in less time, but isolated test results indicate that even longer periods of cure may be required.

B: These cure schedules are based on laboratory test data obtained on Net Fit Joints (NET FIT=in a dry fit the pipe bottoms snugly in the fitting socket without meeting interference).

THREADED CONNECTION:

Threaded end connections are manufactured to ASTM specifications D2464-88, F437-88 and ANSI B2.1. Wrap threads of pipe with Teflon tape of 3 to 3-1/2 mil thickness. The tape should be wrapped in a clockwise direction starting at the first or second full thread. Overlap each wrap by, 1/2 the width of the tape. The wrap should be applied with sufficient tension to allow the threads of a single wrapped area to show through without cutting the tape. The wrap should continue for the full effective length of the thread. Pipe sizes 2" and greater will not benefit with more than a second wrap, due to the greater thread depth. To provide a leak proof joint, the pipe should be threaded into the end connection "hand tight". Using a strap wrench only. (Never use a stillson type wrench) tighten the joint an additional 1/2 to 1-1/2 turns past hand tight. Tightening beyond this point may induce excessive stress that could cause failure.

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FLANGED CONNECTION:

Flange bolts should be tight enough to slightly compress the gasket and make a good seal, without distorting or putting excessive stress on the flanges. Suitable washers should be used between the bolt head and flange and the nut and flange. Bolts should be tightened in alternating sequence.

RECOMMENDED FLANGE BOLT TORQUE. USE WELL LUBRICATED METAL BOLTS AND NUTS. USE SOFT RUBBER GASKETS.

FLANGE SIZE	BOLT DIA.	TORQUE FT. LBS.	FLANGE SIZE	BOLT DIA.	TORQUE FT. LBS.
1/2	1/2	10-15	2	5/8	15-25
3/4	1/2	10-15	2-1/2	5/8	20-25
1	1/2	10-15	3	5/8	20-25
1-1/4	1/2	10-15	4	5/8	20-25
1-1/2	1/2	10-15	6	3/4	30-40

INSTALLATION:

It is recommended that these strainers be installed no closer than 10 pipe diameters from a pump. At least 5 pipe diameters should be between these strainers and an elbow.

As in all plastic piping the maximum fluid velocity is 8 feet per second. This velocity minimizes the effects of valve closure and pump start up or shut down.

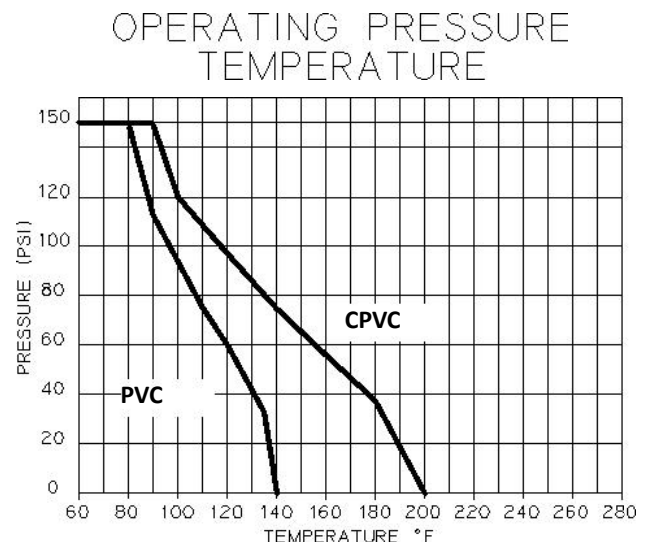
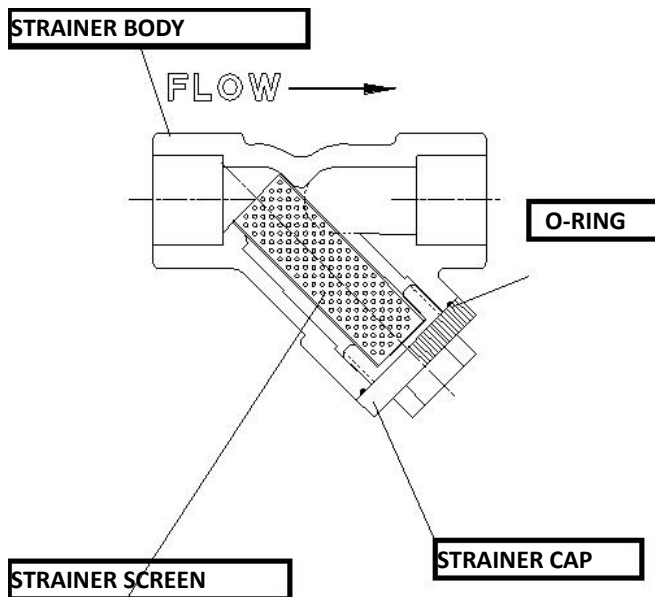
SCREEN CLEANING:

EXTREME CAUTION MUST BE TAKEN WHEN WORKING ON THIS STRAINER.

THE PIPING SYSTEM MUST BE DEPRESSURIZED AND DRAINED. PROPER CARE MUST BE TAKEN. CONSULT M.S.D.S.

(MATERIAL SAFETY DATA SHEETS) INFORMATION REGARDING YOUR SPECIFIC APPLICATION.

When the pressure drop across the strainer is in excess of 5 PSI the screen requires cleaning. To clean the screen remove the screen cap nut from the strainer by turning counter clockwise. The collected debris should be removed with the screen. Clean the screen. **DO NOT POUND OR DEFORM THE SCREEN.** Insert the screen back into the strainer with the flange, if one is on the screen into the body first. Install the o-ring in the body groove. Use a non-petroleum base lubricant to lubricate the o-ring and thread, and re-assemble the cap to the strainer.



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Standard Strainer Features

Size

The size of the product is considered in inches and/or millimeters. Sizes available are per ANSI pipe specification.

Pressure Class

The product is designed to retain pressure & temperature per pressure class 125, 150, 300, 600, 900, 1500, 2500 lbs.

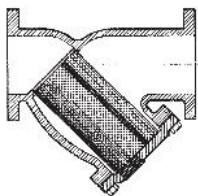
End Connection

All piping components have to conform to required end connections to assemble in pipe line. The end connections are prepared to appropriate ANSI specifications so that the customer can purchase any component from any manufacturer in the industry.

Self-Cleaning – Self Cleaning is accomplished by opening the valve or plug connected to the blowoff outlet.

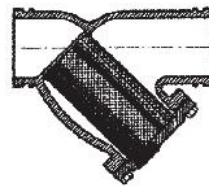
Testing

Every unit is hydrostatically tested to 1.5 times CWP.



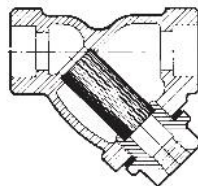
Flanged End

Cast Iron	ANSI B16.1
Steel	ANSI B16.5
Bronze	ANSI B16.24



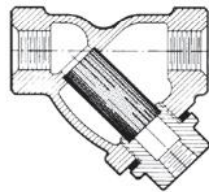
Grooved End

Victaulic Spec



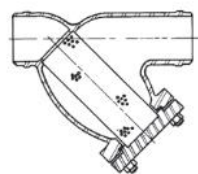
Socket Weld

Steel	ANSI B16.11
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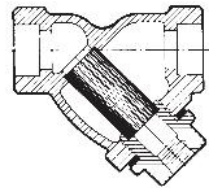
Threaded End

Cast Iron	ANSI B16.4
Steel	ANSI B16.11
Bronze	ANSI B16.15



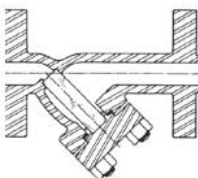
Butt Weld End

Steel	ANSI B16.34
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Solder Joints

Bronze	ANSI B16.18
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Ring Type Joint (RTJ)

Steel	ANSI B16.20
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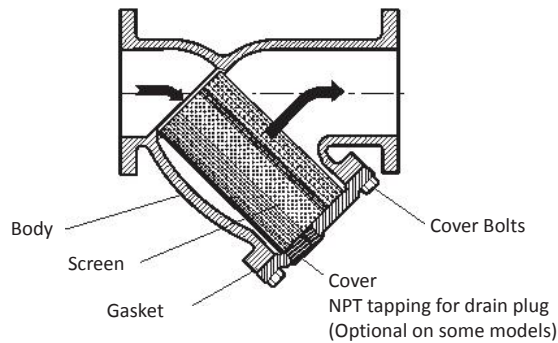
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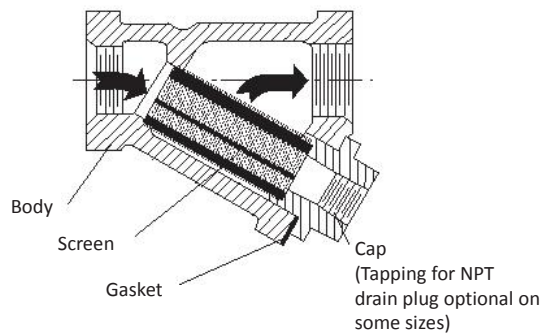
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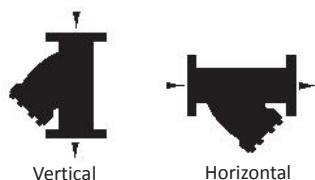
Typical flanged end "Y" strainer



Typical threaded "Y" strainer



Mounting Positions



The cover of the "Y" side should face down

"Y" Strainers

Before installing the "Y" strainer, be sure its pressure rating is correct for the system. If the end connections are threaded or designed for soldering or brazing, be sure the piping is straight and not at an angle or offset. If the strainer has flanged ends, be sure the flanges of the connecting piping are square with the pipe so that no undue stresses are put on the strainer or piping when tightening flange bolts. Tighten in sequence, crossing to opposites.

For maximum efficiency, a differential pressure gauge installed across the inlet and outlet will indicate pressure loss due to clogging and may be used as a guide to determine when cleaning is required. Normally, when differential pressure reaches 5–10psi, screen must be cleaned. If the strainer is equipped with a blow-down valve, open and flush out until any sediment is removed. If the strainer is not fitted for blow-down cleaning, (strainer must be off line), remove the cover or cap and clean the screen. Reinstall the screen in the strainer in the same position as before and tighten cover or cap. Replace the gasket if necessary.

Keeping a spare, clean screen will minimize shut down time.

Warning

Individuals performing removal and disassembly should be provided with suitable protection from possibly hazardous liquids.

Note: Large size "Y" strainers are supplied with Breech-Lok screens. To remove screen, rotate screen 45°, Breech-lok will disengage.

Spare Parts

To order replacement screens or gaskets, which are the only items normally required, you should specify the following:

- A. Size and model number of strainer or casting number as it appears on the body of the strainer
- B. Specify the type of service. For example: water, steam, gas, oil, air. The working pressure and temperature of the system and the particle size to be strained out should also be specified.



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