

## Filters & Strainers Technical

# Y Strainers



### Features - PVC Gray, PVC Clear & CPVC

Spears® Y-type sediment strainers are the perfect choice for in-line removal of suspended solids, sediment, dirt and debris. Convenient removable strainer basket allows quick cleaning with an assortment of screen mesh sizes to meet a variety of application needs. Spears® Y-Strainers are produced from PVC Gray, PVC Clear for fluid visibility and CPVC Gray for higher temperatures. Available with socket, Special Reinforced (SR) threads, flanged, or True Union socket and SR threaded end connectors in IPS sizes 1/2" - 4".

### Sample Engineering Specification

All sediment strainers shall be Y-type constructed from PVC Type I, ASTM D 1784 Cell Classification 12454 or CPVC Type IV, ASTM D 1784 Cell Classification 23447. All O-rings shall be EPDM or FKM. All Y-strainers shall have replaceable PVC, CPVC or Type 316 stainless steel screens and O-ring sealed drain plugs with magnetic drain plug option. All threaded Y-Strainers shall have Special Reinforced (SR) threads. All Y-Strainers, sizes 1/2"- 2" shall be pressure rated to 150 psi, sizes 3"- 4" to 90 psi for water at 73°F, as manufactured by Spears® Manufacturing Company.

- Provides In-line Protection of Process Equipment
- PVC, CPVC or PVC Clear Construction
- EPDM or FKM O-ring Seal
- Removable Strainer Basket with O-ring Sealed Drain Plug Allows Quick-Flushing or Bleed-Off Valve Connection
- Multiple Strainer Screen Options in PVC, CPVC, and Type 316 Stainless Steel (see Mesh Code table)
- Optional Magnetic Drain Plug for Ferrous Metal Pickup
- Suitable for Horizontal or Vertical Installation
- Sizes 1/2"- 2" Pressure Rated to 150 psi @ 73°F Sizes 3"- 4" to 90 psi @ 73°F
- Assembled with Silicone-Free, Water Soluble Lubricants

### Quick-View Y-Strainer Selection Chart

Valve Size	O-ring Material	PVC Material <sup>1,2,3</sup>						Pressure Rating
		Socket	SR Threaded	Flanged	Socket Union	Threaded Union	SR Threaded Union	
1/2	EPDM	YS22P_-005	YS21P_-005SR	YS23P_-005	YS2AP_-005	YS2BP_-005	YS2BP_-005SR	150 psi Non-Shock Water @73°F
	FKM	YS32P_-005	YS31P_-005SR	YS33P_-005	YS3AP_-005	YS3BP_-005	YS3BP_-005SR	
3/4	EPDM	YS22P_-007	YS21P_-007SR	YS23P_-007	YS2AP_-007	YS2BP_-007	YS2BP_-007SR	
	FKM	YS32P_-007	YS31P_-007SR	YS33P_-007	YS3AP_-007	YS3BP_-007	YS3BP_-007SR	
1	EPDM	YS22P_-010	YS21P_-010SR	YS23P_-010	YS2AP_-010	YS2BP_-010	YS2BP_-010SR	
	FKM	YS32P_-010	YS31P_-010SR	YS33P_-010	YS3AP_-010	YS3BP_-010	YS3BP_-010SR	
1-1/4	EPDM	YS22P_-012	YS21P_-012SR	YS23P_-012	YS2AP_-012	YS2BP_-012	YS2BP_-012SR	
	FKM	YS32P_-012	YS31P_-012SR	YS33P_-012	YS3AP_-012	YS3BP_-012	YS3BP_-012SR	
1-1/2	EPDM	YS22P_-015	YS21P_-015SR	YS23P_-015	YS2AP_-015	YS2BP_-015	YS2BP_-015SR	
	FKM	YS32P_-015	YS31P_-015SR	YS33P_-015	YS3AP_-015	YS3BP_-015	YS3BP_-015SR	
2	EPDM	YS22P_-020	YS21P_-020SR	YS23P_-020	YS2AP_-020	YS2BP_-020	YS2BP_-020SR	
	FKM	YS32P_-020	YS31P_-020SR	YS33P_-020	YS3AP_-020	YS3BP_-020	YS3BP_-020SR	
3	EPDM	YS22P_-030	YS21P_-030SR	YS23P_-030	YS2AP_-030	YS2BP_-030	YS2BP_-030SR	90 psi Non-Shock Water @73°F
	FKM	YS32P_-030	YS31P_-030SR	YS33P_-030	YS3AP_-030	YS3BP_-030	YS3BP_-030SR	
4	EPDM	YS22P_-040	YS21P_-040SR	YS23P_-040	YS2AP_-040	YS2BP_-040	YS2BP_-040SR	
	FKM	YS32P_-040	YS31P_-040SR	YS33P_-040	YS3AP_-040	YS3BP_-040	YS3BP_-040SR	

Enter Mesh Code in part number blank as specified in table. (Contact Spears® for additional strainer sizes).

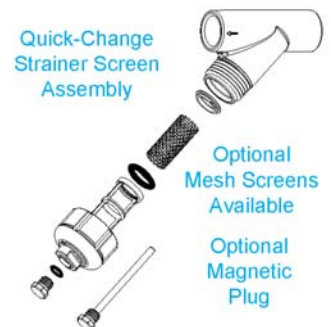
1. For CPVC body & strainer screen unit, replace the letter "P" before the dash separator with the letter "C" and add the letter "C" to the part number (e.g., YS22C8-020C)
2. For stainless steel strainer screens, replace the letter "P" (or "C") before the dash separator with the letter "S" (e.g., YS22S8-020)
3. For PVC Clear Y-Strainer, add the letters "CL" to the part number (e.g., YS22P8-005CL)

**Note:** End connections for PVC Clear threaded and flanged Y-strainers are PVC Gray components.

### Mesh Codes for PVC, CPVC & SS

Mesh	Sieve Opening Size (in.)	Mesh Code
8 Mesh	0.094	8
12 mesh	0.062	12
20 Mesh	0.033	20
30 Mesh	0.024	30

Additional Stainless Steel screens available to 320 mesh, custom ordered.

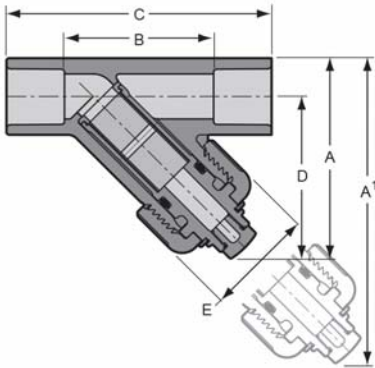


Made in the U.S.A.

Suitable for Oil-Free air handling to 25 psi, not for distribution of compressed air or gas  
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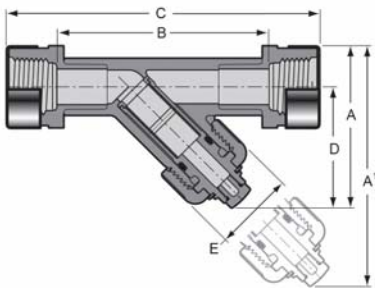


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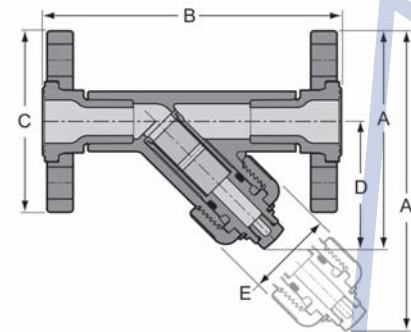
### Socket Y-Strainer Dimensions & Weights

Nominal Size	Dimension Reference (inches, ± 1/16)						Approx. Wt. (Lbs.)	
	A <sup>1</sup>	A	B	C	D	E	Socket	
							PVC	CPVC
1/2	5	3-1/16	1-9/16	3-3/8	2-9/16	1-5/8	.31	.33
3/4	5-3/4	3-11/16	2	4	3	2	.50	.53
1	6-7/8	4-7/16	2-1/2	4-3/4	3-5/8	2-1/4	.85	.90
1-1/4	8-5/32	5-5/16	3-1/16	5-9/16	4-1/4	2-13/16	1.21	1.28
1-1/2	9-1/8	6	3-9/16	6-5/16	4-7/8	3-3/16	1.66	1.76
2	11-3/4	7-5/8	4-1/2	7-1/2	6-3/16	3-1/2	2.96	3.10
3	15	9-11/16	6-9/16	10-5/16	7-5/8	5-1/8	5.34	5.64
4	19-11/16	12-1/2	8-5/8	13-1/8	9-7/8	6-9/16	9.97	10.45



### SR Threaded Y-Strainer Dimensions & Weights

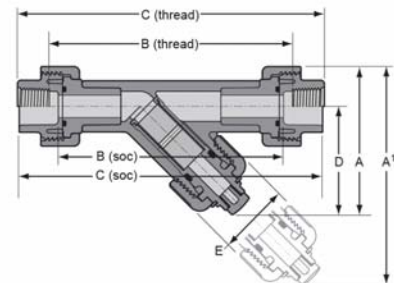
Nominal Size	Dimension Reference (inches, ± 1/16)						Approx. Wt. (Lbs.)	
	A <sup>1</sup>	A	B	C	D	E	SR Threaded	
							PVC	CPVC
1/2	6-1/2	4-11/16	3-5/8	5-1/16	4	2-3/8	.31	.33
3/4	7-5/8	5-7/16	4-3/8	5-13/16	4-9/16	2-3/8	.50	.53
1	8-5/8	6-1/8	5-3/16	7	5-1/8	2-3/8	.85	.90
1-1/4	11-1/8	7-3/4	6	7-15/16	6-1/2	3-1/2	1.21	1.28
1-1/2	12-1/4	8-7/8	6-15/16	8-13/16	7-1/2	3-1/2	1.66	1.76
2	14-1/16	10-3/16	8-1/8	10-1/8	8-1/2	3-1/2	2.96	3.10
3	20	14-13/16	11	14-1/4	12-7/16	6-5/8	5.34	5.64
4	25-13/16	18-1/2	14	14-3/4	15-5/8	7-15/16	9.97	10.45



### Flanged Y-Strainer Dimensions & Weights

Nominal Size	Dimension Reference (inches, ± 1/16)						Approx. Wt. (Lbs.)	
	A <sup>1</sup>	A	B	C	D	E	Flanged	
							PVC	CPVC
1/2	5-13/16	4-3/16	5-11/16	3-1/2	2-1/2	1-5/8	.82	.85
3/4	7-1/8	5	6-7/16	3-7/8	3-1/8	2	1.23	1.28
1	8-3/16	5-3/4	7-1/4	4-1/4	3-5/8	2-1/4	1.70	1.81
1-1/4	9-7/16	6-9/16	8-1/8	4-5/8	4-9/32	2-13/16	2.40	2.52
1-1/2	10-7/16	7-3/8	9-3/16	5	4-7/8	3-7/16	3.07	3.25
2	13-1/4	9-1/8	10-1/2	6	6-3/16	3-1/2	5.20	5.42
3	16-21/32	11-3/8	12-1/8	7-1/2	7-5/8	5-1/8	9.44	10.07
4	21-19/32	14-1/8	14-9/16	9-1/16	9-5/8	6-9/16	14.87	16.15

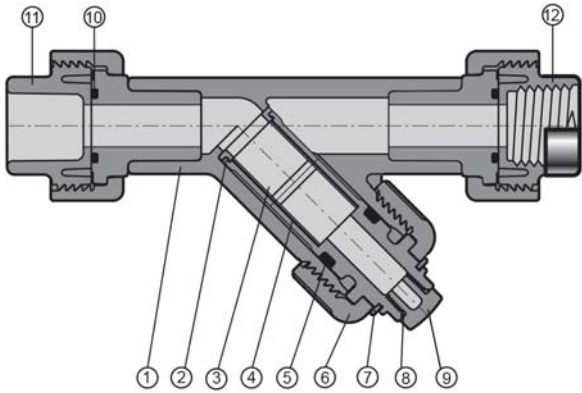
Note: 4" flanged Y-strainer uses split flange ring



### True Union Y-Strainer Dimensions & Weights

Nominal Size	Dimension Reference (inches, ± 1/16)						Approx. Wt. (Lbs.)			
	A <sup>1</sup>	A	B		C		D	E	Union	
			Socket	SR Thread	Socket	SR Thread			PVC	CPVC
1/2	5	3-7/16	5-1/8	5-1/2	6-7/8	7	2-1/2	1-5/8	.49	.53
3/4	6-3/16	4-1/8	5-7/8	6-7/16	7-7/8	7-7/8	3	2	.80	.85
1	7-5/16	4-7/8	6-1/2	7-3/8	8-3/4	9	3-5/8	2-1/4	1.13	1.20
1-1/4	8-5/8	5-13/16	7-7/16	6-3/16	9-15/16	10-1/8	4-1/4	2-13/16	1.84	1.90
1-1/2	9-3/4	6-5/8	8-3/16	9	10-15/16	10-15/16	4-7/8	3-3/16	2.44	2.52
2	12-7/16	8-15/16	9-7/16	10-13/16	12-7/16	12-13/16	6-3/16	3-1/2	4.33	4.45
3	16-1/6	10-3/4	12-3/16	13-15/16	16	16-3/4	7-5/8	5-1/8	10.35	10.55
4	20-15/16	13-3/4	15-5/16	17-1/2	19-13/16	20-1/2	9-7/8	6-9/16	18.51	18.80

Suitable for Oil-Free air handling to 25 psi, not for distribution of compressed air or gas  
See Spears® Product Sourcebook for product offerings



**Replacement Parts**

NO.	COMPONENT	QTY.	MATERIAL
1	Body <sup>1</sup> (SOC/SR/FLANGE/UNION)	1	PVC/PVC CLEAR/CPVC
2	Screen Support Ring	1	PVC/CPVC
3	Screen	1	PVC/CPVC/SS 316
4	Screen Support Housing	1	PVC/CPVC
5	Housing O-ring	1	EPDM/FKM
6	Bonnet Nut	1	PVC/CPVC
7	Retaining Clip	1	PP
8	Plug O-ring	1	EPDM/FKM
9	Plug	1	PVC/CPVC
10	Union O-ring	2	EPDM/FKM
11	Union Socket End	2	PVC/CPVC
12	Union SR Threaded End	2	PVC/CPVC

- 1 - Body Includes: Body (1), Spigot Adapters (2), SS Collars (2)
- Flange Body Includes: Body (1), Spigot Hubs (2), Flange Rings (2)
- Union Body Includes: Body (1), Spigot Ends (2), Nuts (2)

**Temperature Pressure Rating**

System Operating Temperature °F (°C)		100 (38)	110 (43)	120 (49)	130 (54)	140 (60)	150 (66)	160 (71)	170 (77)	180 (82)	190 (88)	200 (93)	210 (99)	
Strainer Pressure Rating psi (MPa)	1/2" - 2"	PVC	150 (1.03)	135 (.93)	110 (.76)	75 (.52)	50 (.34)	-0-	-0-	-0-	-0-	-0-	-0-	
		CPVC	150 (1.03)	140 (.97)	130 (.90)	120 (.83)	110 (.76)	100 (.70)	90 (.62)	80 (.55)	70 (.48)	60 (.41)	50 (.34)	-0-
	3" - 4"	PVC	90 (.70)	85 (.62)	75 (.52)	60 (.41)	40 (.30)	-0-	-0-	-0-	-0-	-0-	-0-	-0-
		CPVC	90 (.70)	85 (.62)	80 (.55)	75 (.52)	70 (.48)	60 (.41)	50 (.34)	45 (.31)	40 (.30)	35 (.24)	30 (.21)	-0-

**Drain Plug Tap Size**

Y-Strainer Size	Tap Size (NPT)
1/2	1/4 - 18
3/4	1/4 - 18
1	3/8 - 18
1-1/4	1/2 - 14
1-1/2	1 - 11 - 1/2
2	1 - 11 - 1/2
3	1 - 11 - 1/2
4	1 - 11 - 1/2

Tap Size = nominal Inch Size - Threads Per Inch (TPI) (i.e. 1/4" - 18 TPI; 1" - 11 1/2 TPI)

**Y-Strainer C<sub>v</sub>**

Nominal Size	Plastic Strainer Mesh			
	8	12	20	30
1/2	5.5	5.4	5.3	5.2
3/4	8.2	7.8	7.5	7.2
1	14.3	13.9	13.6	13.3
1-1/4	33.6	32.9	29.4	25.4
1-1/2	43.8	41.6	33.0	32.1
2	50.6	50.0	49.6	48.8
3	75.2	74.6	74.0	73.4
4	169.5	169.0	168.8	168.0

Gallons per minute at 1 psi pressure drop.  
 Plastic Strainers are perforated PVC or CPVC screens.  
 Standard is mesh.