



## Duplex Basket Strainers



1/2" to 4" - PVC, Corzan® CPVC and Eastar® Clear Polyester



### Protect System Components

When pipeline system components require protection from dirt and debris and the line cannot be shut down for basket cleaning, a Hayward All Plastic Duplex Basket Strainer is the ideal choice. Unwanted particles are removed as the process media passes through a perforated strainer basket contained inside the strainer body. The basket traps the unwanted material while allowing the process media to flow freely.

### Easy Basket Cleaning

Cleaning or changing the strainer basket is quick and easy. Turning the operating handle on the diverter valve assembly switches the flow from one strainer housing to the other. Then, the out of service housing can be serviced by opening the hand removable, spin-off cover for access to the basket. The cover features two angled handles for easy opening and closing. The housing has external cover threads that do not contact the process media eliminating the need for cleaning. Venting and draining are easily accomplished by using the hand removable, threaded plugs on the cover and the side of the housing.

### Features

- Uninterrupted Flow
- External Cover Threads
- Low Pressure Drop
- Wide Choice of Baskets
- In-Line or Loop Piping
- True Union Connections
- Ergonomic Hand Removable Cover
- FPM Seals
- Integral Flat Mounting Bases
- Hand Removable Vents On Covers
- Hand Removable Drains On Bodies
- Liquid Displacing Covers

### Options

- Stainless Steel Mesh Strainer Baskets
- EPDM Seals

### Choice of Piping Connections

The strainer can be installed either in-line or with a loop piping configuration. This is made possible by changing the orientation of the bottom outlet connection. Just loosen the connection assembly nuts on the bottom diverter valve and rotate it 180 degrees to convert from one type of connection to the other. Maintenance is simplified by the strainers true union piping connections which make it possible to remove the strainer from the pipeline without breaking down piping connections.

### Wide Range of Strainer Baskets

Plastic baskets in perforation sizes from 1/32" to 3/16" and stainless steel baskets from 1/2" perforation down to 325 mesh are available.

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PIPELINE STRAINERS  
BY HAYWARD



## Technical Information

**Parts List**  
**Duplex Basket Strainer**

1. Single Stem Lateral
2. Double Stem Lateral
3. Inlet Flange
4. Cover
5. Strainer Body
6. Spool
7. Drain Plug
8. Vent Plug

### Dimensions - Inches / Millimeters

Size	A	B	C	D	E	F	G	H	J	Weight (lb / kg)	
										Skt / Thd	Flg
1/2"	4.14 / 105	5.21 / 132	27.2 / 693	2.25 / 57	11.7 / 297	6.75 / 171	20.5 / 521	5.0 / 127	11.0 / 279	20.0 / 9	21.0 / 9.5
3/4"	4.14 / 105	5.33 / 135	27.2 / 693	2.25 / 57	11.7 / 297	6.75 / 171	20.5 / 521	5.0 / 127	11.0 / 279	20.0 / 9	21.0 / 9.5
1"	4.14 / 105	5.64 / 143	27.2 / 693	2.25 / 57	11.7 / 297	6.75 / 171	20.5 / 521	5.0 / 127	11.0 / 279	20.0 / 9	21.0 / 9.5
1 1/4"	6.0 / 152	7.44 / 189	35.3 / 897	3.25 / 83	15.5 / 394	9.5 / 241	28.0 / 711	10.8 / 274	13.5 / 343	39.5 / 18	42.0 / 20
1 1/2"	6.0 / 152	7.6 / 193	35.3 / 897	3.25 / 83	15.5 / 394	9.5 / 241	28.0 / 711	10.8 / 274	13.5 / 343	39.5 / 18	42.0 / 20
2"	6.0 / 152	7.77 / 197	35.3 / 897	3.25 / 83	15.5 / 394	9.5 / 241	28.0 / 711	10.8 / 274	13.5 / 343	39.5 / 18	42.0 / 20
2 1/2"	7.6 / 178	9.85 / 250	44.4 / 1128	4.83 / 123	22.3 / 566	14.83 / 377	35.6 / 904	14.8 / 376	16.0 / 406	83.0 / 38	88.0 / 40
3"	7.6 / 178	9.85 / 243	44.4 / 1128	4.83 / 123	22.3 / 566	14.83 / 377	35.6 / 904	14.8 / 376	16.0 / 406	83.0 / 38	88.5 / 40
4"	9.33 / 237	11.76 / 299	47.5 / 1207	4.83 / 123	22.3 / 566	14.83 / 377	38.7 / 983	14.8 / 376	16.0 / 406	100 / 45	105 / 48

### Cv Factors

Size	Factor	Size	Factor
1/2"	12.5	1 1/2"	45
3/4"	13	2"	48
1"	14	3"	200
1 1/4"	40	4"	230

The above Cv Factors were determined using a 1/16" perforated plastic basket.

### Pressure Drop Calculations

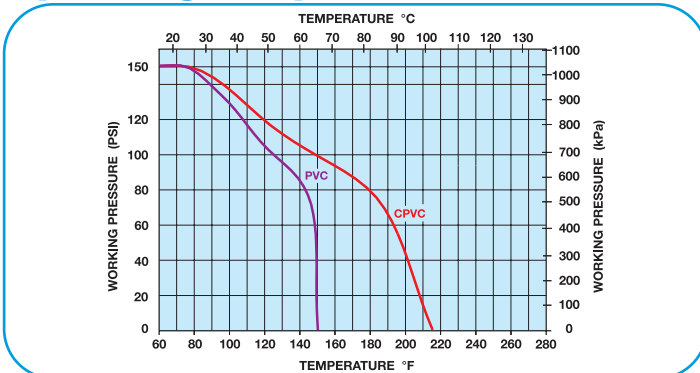
Basket Perforation Correction Factors			
Plastic Baskets		Stainless Steel Baskets	
1/32"	1.05	1/32"	.82
1/16"	1.00	3/64"	.63
1/8"	.58	1/2"	.48
3/16"	.46	1/16"	.74
		20 Mesh	.79
		5/64"	.50
		40 Mesh	1.01
		7/64"	.51
		60 Mesh	1.20
		1/8"	.58
		80 Mesh	1.16
		5/32"	.37
		100 Mesh	1.20
		3/16"	.46
		200 Mesh	1.09
		1/4"	.58
		325 Mesh	1.22

The pressure drop across the strainer, for water or fluids with a similar viscosity, can be calculated using the formula below:

$$\Delta P = \left[ \frac{Q}{Cv} \right]^2$$

Where  $\Delta P$  = Pressure Drop  
 $Q$  = Flow in GPM  
 $Cv$  = Flow Coefficient

### Operating Temperature/Pressure



### Selection Chart

Size	Material	End Connection	Seal*	Rating
1/2" to 4"	PVC, CPVC	Thd, Skt, Flg	FPM	150 PSI @ 70°F
1/2" to 2"	EASTAR®*	Thd, Skt, Flg		100 PSI @ 70°F

\*EPDM seals POA.

### Basket Selection

- The 1/2" to 1" strainers can be ordered with either a 1/32" or 1/16" perf plastic basket.
- The 1 1/2" and 2" with a 1/32", 1/16", 1/8", or 3/16" perf plastic basket.
- The 3" and 4" with a 1/16", 1/8" or 3/16" perf plastic basket.
- The 6" and 8" with a 1/8" or 3/16" perf plastic basket.
- Stainless steel baskets for all size strainers are available in these perfs: 1/32", 3/64", 1/16", 5/64", 7/64", 1/8", 5/32", 3/16", 1/4", 3/8", 1/2"; and in mesh sizes: 20, 40, 60, 80, 100, 200, 325



## Basket Strainer Technical Information

### Selection Criteria

The first consideration when selecting a Hayward basket strainer is the amount of free open area. This is the ratio of the open area through the strainer basket to the cross sectional area of the pipe. A well-designed basket strainer should have an open area ratio of at least 4 to 1. Anything less may cause excessive pressure drop. The area is calculated with a clean basket – and as the basket begins to clog, the ratio will drop. Unless there is a wide safety margin, the area through the basket may quickly become smaller than the pipe area. This will reduce flow through the strainer and necessitate very frequent cleaning. A small open area ratio also means the holding capacity of the basket is small (an important consideration if there is a lot of solid material to be removed.)

Second, is ease of basket removal. Since a basket strainer is used where cleaning may occur often, it stands to reason that the basket should be able to be removed and replaced as simply as possible. Hayward simplex and duplex strainers feature hand removable, precision machined, threaded covers which can be quickly loosened or tightened by hand without the use of tools.

Another item to look for in selecting a strainer is compactness of design. Is the strainer unnecessarily bulky or tall? In many industrial areas, space is at a premium and the less room a strainer takes the better.

Lastly, a wide variety of basket perforation sizes should be available. This is necessary to cope with the great range of particle sizes which the strainer may be called upon to remove.

### Selection and Sizing

Selecting the proper size basket strainer for a particular application is extremely important for optimum performance of the strainer. Factors such as viscosity, specific gravity, and mesh lining size all influence pressure drop of flow through the strainer. As a general rule of thumb, a pressure of greater than 2 PSI through a clean strainer usually indicates the strainer selected is too small for the intended application.

In some cases, the strainer size may not always be the same size as the pipe diameter. For example, the pressure drop of highly viscous liquids passing through a mesh basket can cut flow considerably making it necessary to use a strainer several times larger than pipeline to ensure adequate flow.

Likewise, if an unusually large amount of material needs to be taken out of the process flows, a larger strainer or multiple strainer should be specified. By using two strainers in a series, the first with large openings designed to catch larger particles and the second with a fine mesh lining to trap smaller material, the load is spread over two strainers and time between maintenance for cleaning is also extended.

While the initial investment is slightly more for a larger strainer or multiple strainers, there are no added long term operating costs since basket strainers have no parts to wear out and last indefinitely.

### Proper Basket Selection

The question of which perforation or mesh lining size to use comes up regularly. Here again, the basic rule is to use the coarsest size which will strain out the product to be removed. Using a finer mesh than needed will only result in premature clogging. When in doubt about which of two basket screens to use, it is best to choose the larger. As a rule of thumb, size the baskets for one half the particle size to be removed.

### Basket Sizes Offered for Hayward Simplex and Duplex Plastic Basket Strainers

Pressure Drop Correction Factors for Various Size Basket Screens

PLASTIC		STAINLESS STEEL		STAINLESS STEEL	
Perforation	Correction Factor	Perforation	Correction Factor	Mesh	Correction Factor
1/32"	1.05	1/32"	0.82	20	0.79
1/16"	1.00	3/64"	0.63	40	1.01
1/8"	0.58	1/16"	0.74	60	1.20
3/16"	0.46	5/64"	0.50	80	1.16
		7/64"	0.51	100	1.20
		1/8"	0.58	200	1.09
		5/32"	0.37	325	1.22
		3/16"	0.46		
		1/4"	0.58		
		3/8"	0.45		
		1/2"	0.48		

**Note:** Pressure Drop Correction Factors for various size basket screens may be applied to data for 1/16" perforation plastic baskets. Simply multiply the pressure drop shown in the 1/16" basket chart by the appropriate correction factor.

Comparative Particle Size

Mesh	Inches	Microns	Mesh	Inches	Microns	Mesh	Inches	Microns
3250	0.0002	6	130	0.0043	110	24	0.028	718
1600	0.0005	14	120	0.0046	118	20	0.034	872
750	0.0010	25	110	0.0051	131	18	0.039	1000
325	0.0016	40	100	0.0055	149	16	0.045	1154
250	0.0024	62	90	0.0061	156	14	0.051	1308
200	0.0029	74	80	0.0070	179	12	0.060	1538
180	0.0033	85	70	0.0078	200	10	0.075	1923
170	0.0035	90	60	0.0092	238	8	0.097	2488
160	0.0038	97	50	0.0117	300	6	0.132	3385
150	0.0041	100	40	0.015	385	5	0.159	4077
140	0.0042	108	30	0.020	513	4	0.203	5205