

# **HAYWARD**

## Tandem Filter Guide

*The Hayward Tandem System Guide* is a complete reference to specify hydraulically correct Hayward equipment for commercial projects of almost any size.

*By utilizing "tandem installations" pool equipment specifiers can design modular systems that allow for easy placement in the equipment room and convenient servicing of individual components without taking the total filtration system off-line. End users benefit because Hayward tandem systems offer a lower installed cost compared to traditional single pump/filter commercial systems.*

*Whatever your application, from new pool construction for a condominium to renovating a club's competition pool, look to Hayward Pool Products.*

*The wide variety of Hayward equipment can meet the requirements of any project while assuring selection, value and performance that only the leader can bring you - Hayward Pool Products.*

# HAYWARD

## TANDEM SYSTEMS ARE THE SENSIBLE SOLUTION

### EASY INSTALLATION

Tandem installations are ideal for replacement purposes by allowing for properly sized filtration systems to be installed without having to remove walls or doorways for placement of the filtration system in the existing equipment room.

Typically, the old filter is simply disassembled and cut-up on-site and removed through the existing doorway in pieces. The tandem Hayward filtration system components are easily moved into the equipment room and assembled on site without any modification to doorways or the equipment room structure.

### EASE OF SERVICE

When service is needed to an individual pump or filter within a tandem system, the individual filter or pump can be taken off-line by simply turning a valve. The remaining filters and pumps continue to provide filtration until the service or repair is completed on the individual pump or filter.

### READILY AVAILABLE SPARE PARTS

By utilizing readily available Hayward equipment in your tandem installations, you are assured immediate availability of spare parts. Any needed service or repairs to the equipment can be easily performed by technical staff already familiar with this type of equipment and no special tools are need for repairs.

### PUMPS TOO!

In addition to filtration, the *Tandem Guide* provides details on how to manifold Hayward Super II™ and NorthStar™ pumps in a tandem configuration to develop flow rates suitable for the tandem filter installations.

Hayward Tandem Systems allow the flexibility and convenience of using widely available Hayward equipment on larger pools and water facilities of all types. By simply adjusting standard tandem designs provided through the *Tandem Guide*, these high performance filtration systems can be used to supply clean filtered water for any application regardless of space limitations or budget constraints.



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## TANDEM FILTER SELECTION CHART

### SAND FILTERS

| Sand Filter Model          | 15 GPM* |         | 20 GPM* |         |
|----------------------------|---------|---------|---------|---------|
|                            | 6 HR**  | 8 HR**  | 6 HR**  | 8 HR**  |
| 2-Pro™ Series 30½"         | 52,920  | 70,560  | 70,560  | 94,080  |
| 3-Pro™ Series 30½"         | 79,560  | 106,080 | 106,200 | 141,600 |
| 4-Pro™ Series 30½"         | 106,200 | 141,600 | 141,480 | 188,640 |
| 5-Pro™ Series 30½"         | 132,480 | 176,640 | 176,760 | 235,680 |
| 2-Pro™ Series Plus 31"     | 53,460  | 71,280  | 71,280  | 95,040  |
| 3-Pro™ Series Plus 31"     | 80,190  | 106,920 | 106,920 | 142,560 |
| 4-Pro™ Series Plus 31"     | 106,920 | 142,560 | 142,560 | 190,080 |
| 5-Pro™ Series Plus 31"     | 133,650 | 178,200 | 178,200 | 237,600 |
| 2-Pro™ Series Plus 36"     | 72,140  | 96,192  | 92,192  | 128,256 |
| 3-Pro™ Series Plus 36"     | 108,216 | 144,288 | 144,288 | 192,384 |
| 4-Pro™ Series Plus 36"     | 144,288 | 192,384 | 192,384 | 256,512 |
| 5-Pro™ Series Plus 36"     | 180,360 | 240,480 | 240,480 | 320,640 |
| 2-3's Pro™ Series Plus 36" | 216,360 | 288,480 | 288,720 | 384,960 |
| 2-4's Pro™ Series Plus 36" | 288,720 | 384,960 | 384,840 | 513,120 |
| 2-5's Pro™ Series Plus 36" | 360,720 | 480,960 | 480,960 | 641,280 |
| 3-4's Pro™ Series Plus 36" | 432,720 | 576,960 | 577,080 | 769,440 |
| 3-5's Pro™ Series Plus 36" | 541,080 | 721,440 | 721,440 | 961,920 |

### DE FILTERS

| Micro-Clear™ DE Filters            | 1.5 GPM* |         | 2.0 GPM* |           |
|------------------------------------|----------|---------|----------|-----------|
|                                    | 6 HR**   | 8 HR**  | 6 HR**   | 8 HR**    |
| 2-Micro-Clear™ 72 <sup>2</sup>     | 77,760   | 103,680 | 103,680  | 138,240   |
| 3-Micro-Clear™ 72 <sup>2</sup>     | 116,640  | 155,520 | 155,520  | 207,360   |
| 4-Micro-Clear™ 72 <sup>2</sup>     | 155,520  | 207,360 | 207,360  | 276,480   |
| 5-Micro-Clear™ 72 <sup>2</sup>     | 194,400  | 259,200 | 259,200  | 345,600   |
| 3-3's Micro-Clear™ 72 <sup>2</sup> | 233,280  | 311,040 | 311,040  | 414,720   |
| 2-4's Micro-Clear™ 72 <sup>2</sup> | 311,040  | 414,720 | 414,720  | 522,960   |
| 2-5's Micro-Clear™ 72 <sup>2</sup> | 388,800  | 518,400 | 518,400  | 691,200   |
| 3-4's Micro-Clear™ 72 <sup>2</sup> | 466,560  | 622,080 | 622,080  | 829,440   |
| 3-5's Micro-Clear™ 72 <sup>2</sup> | 583,200  | 777,600 | 777,600  | 1,036,800 |

\*GPM per sq. ft. of filter area

\*\*Gallons



**HAYWARD®**

**S310S Pro™ Series  
S311SX Pro™ Series Plus  
S360SX Pro™ Series Plus**

# TANDEM SAND FILTER SPECIFICATIONS

## APPROVALS

The filter system described in this specification shall be of the pressure, high rate, permanent media type specifically designed for swimming pools and approved for fresh or salt water applications. The filter system shall comply to the minimum standards as set by the National Spa and Pool Institute (NSPI) and shall bear the National Sanitation Foundation (NSF) Seal of Approval as manufactured by Hayward Pool Products, Elizabeth, New Jersey.

## DESCRIPTION

The filter system shall consist of \_\_\_\_\_ filter tank(s) internal upper and lower distribution system, automatic air relief, pressure gauge, piping and such other accessories as required for the proper function and operation of this system.

## FILTER AREA AND CAPACITY

The filter system shall have a total effective filter area of \_\_\_\_\_ sq. ft. The system shall have a capacity of filtering \_\_\_\_\_ gallons in \_\_\_\_\_ hours at \_\_\_\_\_ G.P.M. per square foot rate.

## FILTER TANK CONSTRUCTION

The filter tank(s) shall be \_\_\_\_\_ diameter (30 ½") (31") (36"). The tank(s) shall be one piece molded, PermaGlassXL™ glass reinforced co-polymer material. A flanged 7" inspection/access hole shall be provided in the top of the tank(s) with the lid seal by means of EPDM o-ring and clamp. The tank(s) shall be snap fit to an injection molded corrosion proof ABS base and designed for a bearing load of at least four (4) times the operating weight.

The tank shall include an integral winter and service drain molded into tank.

The tank shall be designed for a working pressure of 50 PSI with a 4 to 1 safety factor and tested for soundness and leakage at a pressure of 150% of the working pressure.

## INTERNAL DISTRIBUTION SYSTEM

The upper and lower collection and distribution system shall be non-clogging and constructed of non-corrosive, non-toxic materials such as ABS and PVC. All internal piping to be 2" to give smooth, free-flowing, performance. The multi-lateral under drain assembly will be of folding ball-joint lateral design with 360° self cleaning slots to uniformly expand the filtering bed during backwash and uniformly collect the filtered water during the filtering cycle.

## FACE PIPING

The filter face piping shall comply with design and construction requirements for water piping of the American Standard National Plumbing Code, ASA-A40 8-1955. The piping shall consist of Schedule 40 PVC pipe and fittings with 4 each \_\_\_\_\_ (3") (4") (6") water type butterfly valves mounted between companion flanges for ease of maintenance.

## AIR RELIEF

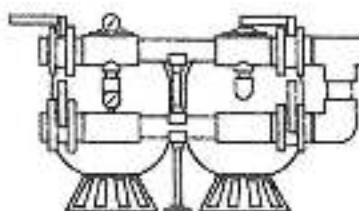
A continuous internal automatic air relief with a debris strainer shall be provided.

## MEDIA (CUSTOMER SUPPLIED)

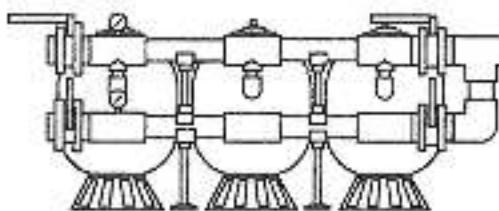
Filter sand shall consist of uniformly graded No. 20 silica sand free of foreign material with an effective particle size of between .45 and .55 mm. Each filter tank shall require \_\_\_\_\_ lbs. (500lbs for S-310-S) (350lbs for 311SX) (700lbs for 360SX) of the foregoing media and installed in accordance with the filter manufacturer's recommendation.

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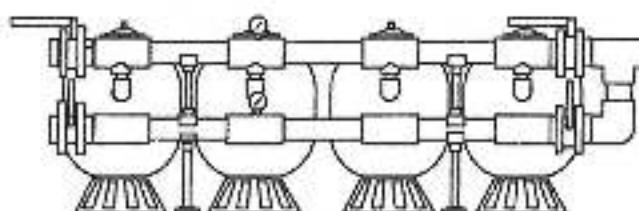
**Performance Data**  
**Tandem 30" Hayward Pro™ Series 310S Sand Filters**

**Two 30" 310S ProSeries Sand Filters**

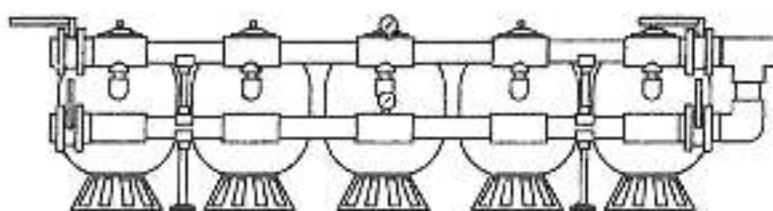
|                                     |        |        |
|-------------------------------------|--------|--------|
| Filter Area per Tank = 4.91 sq. ft. |        |        |
| Total Filter Area = 9.82 sq. ft.    |        |        |
| Performance Data                    | 15GPM* | 20GPM* |
| Flow Rate (GPM)                     | 147    | 196    |
| 6 Hr. Turnover (GAL)                | 52,920 | 70,560 |
| 8 Hr. Turnover (GAL)                | 70,560 | 94,080 |
| Velocity (fps) thru 3" pipe         | 8.4    | 8.5    |

**Three 30" 310S ProSeries Sand Filters**

|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 4.91 sq. ft. |         |         |
| Total Filter Area = 14.73 sq. ft.   |         |         |
| Performance Data                    | 15GPM*  | 20GPM*  |
| Flow Rate (GPM)                     | 221     | 295     |
| 6 Hr. Turnover (GAL)                | 79,560  | 106,200 |
| 8 Hr. Turnover (GAL)                | 106,080 | 141,600 |
| Velocity (fps) thru 4" pipe         | 5.6     | 7.4     |

**Four 30" 310S ProSeries Sand Filters**

|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 4.91 sq. ft. |         |         |
| Total Filter Area = 19.64 sq. ft.   |         |         |
| Performance Data                    | 15GPM*  | 20GPM*  |
| Flow Rate (GPM)                     | 295     | 393     |
| 6 Hr. Turnover (GAL)                | 106,200 | 141,480 |
| 8 Hr. Turnover (GAL)                | 141,600 | 188,640 |
| Velocity (fps) thru 4" pipe         | 7.4     | 9.9     |

**Five 30" 310S ProSeries Sand Filters**

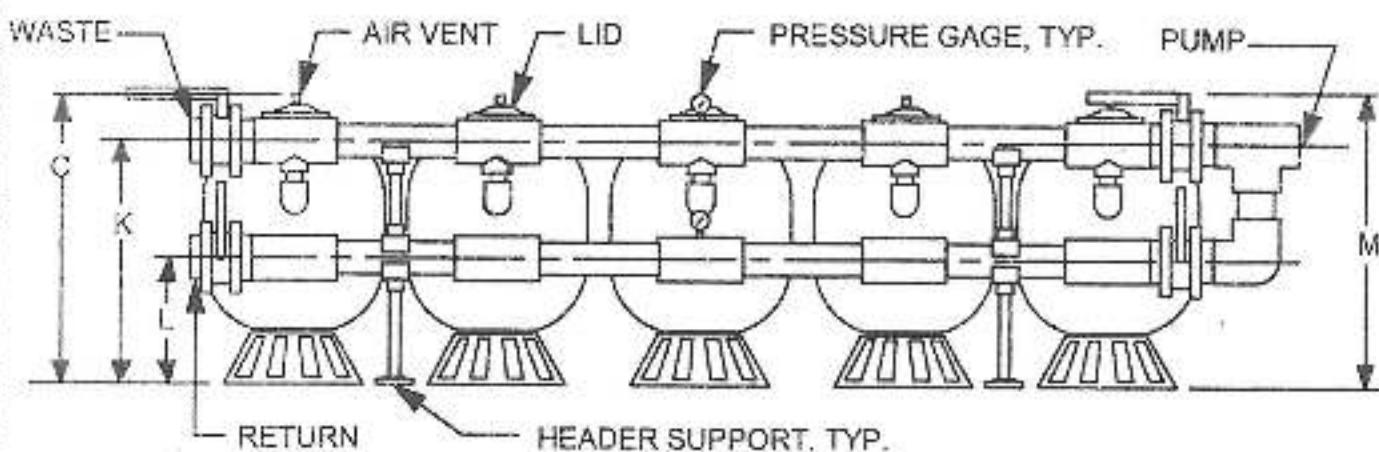
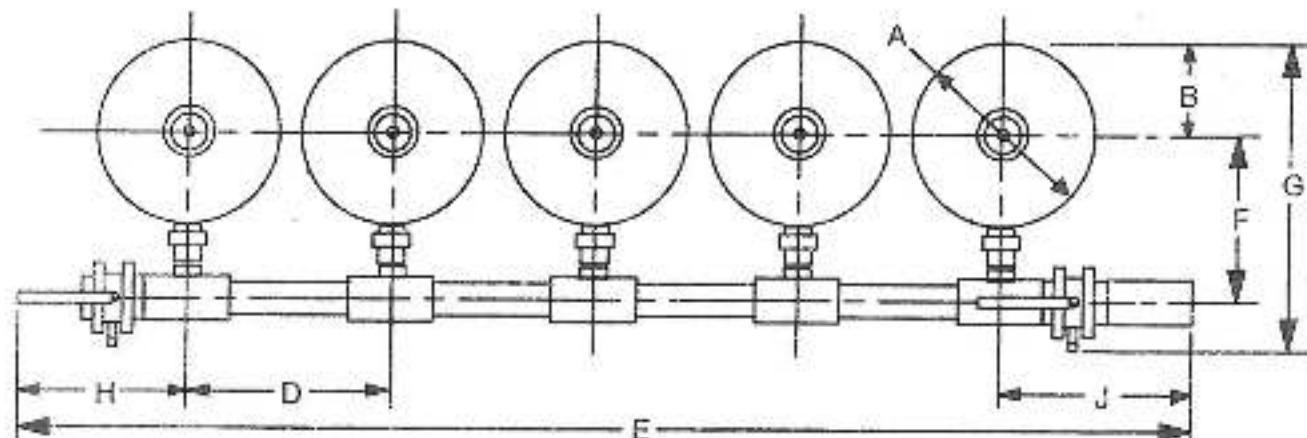
|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 4.91 sq. ft. |         |         |
| Total Filter Area = 24.55 sq. ft.   |         |         |
| Performance Data                    | 15GPM*  | 20GPM*  |
| Flow Rate (GPM)                     | 368     | 491     |
| 6 Hr. Turnover (GAL)                | 132,480 | 175,760 |
| 8 Hr. Turnover (GAL)                | 176,640 | 235,680 |
| Velocity (fps) thru 5" pipe         | 4.1     | 5.5     |

\* per sq. ft. of filter area



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**Typical Layout Dimensions  
Tandem 30" Hayward Pro™ Series 310S Sand Filters**



**MODEL S310S PRO™ SERIES SAND FILTER**

| System Size | Pipe Size Inches | A* (in) | B* (in) | C* (in) | D (in) | E (in) | F (in) | G (in) | H (in) | J (in) | K (in) | L (in) | M (in) |
|-------------|------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2-30        | 3                | 30½     | 15¼     | 40      | 33½    | 66½    | 24¼    | 45     | 14½    | 18½    | 29     | 15¾    | 34½    |
| 3-30        | 4                | 30½     | 15¼     | 40      | 33½    | 104½   | 24¼    | 46     | 17     | 20½    | 31     | 15¾    | 37½    |
| 4-30        | 4                | 30½     | 15¼     | 40      | 33½    | 138    | 24¼    | 46     | 17     | 20½    | 31     | 15¾    | 37½    |
| 5-30        | 6                | 30½     | 15¼     | 40      | 33½    | 186½   | 24¼    | 49¼    | 22½    | 30     | 34     | 15¾    | 41½    |

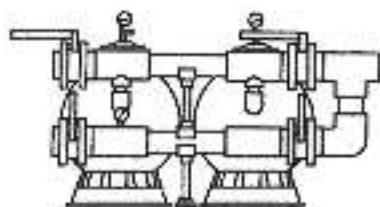
\*These dimensions are factory controlled. Other dimensions can vary depending upon field supplied pipe lengths.

Use Hayward All-Plastic Butterfly Valves on headers as shown.

Use 2" Sch. 40 PVC pipe and fittings to attach headers to filter tanks.

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Performance Data  
Tandem 31" Hayward Pro™ Series Plus Model 311SX Sand Filters

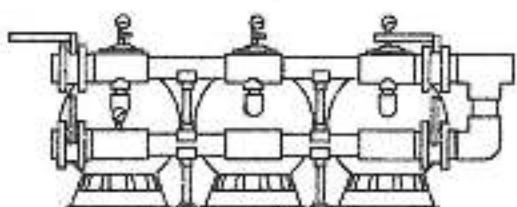


Two 31" 311SX ProSeries Plus Sand Filters

Filter Area per Tank = 4.95 sq. ft.

Total Filter Area = 9.9 sq. ft.

| Performance Data            | 15GPM* | 20GPM* |
|-----------------------------|--------|--------|
| Flow Rate (GPM)             | 148.5  | 198    |
| 6 Hr. Turnover (GAL)        | 53,460 | 71,280 |
| 8 Hr. Turnover (GAL)        | 71,280 | 95,040 |
| Velocity (fps) thru 3" pipe | 6.5    | 8.6    |

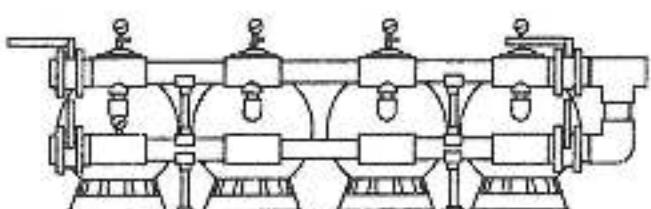


Three 31" 311SX ProSeries Plus Sand Filters

Filter Area per Tank = 4.95 sq. ft.

Total Filter Area = 14.85 sq. ft.

| Performance Data            | 15GPM*  | 20GPM*  |
|-----------------------------|---------|---------|
| Flow Rate (GPM)             | 222.75  | 297     |
| 6 Hr. Turnover (GAL)        | 80,190  | 106,920 |
| 8 Hr. Turnover (GAL)        | 106,920 | 141,560 |
| Velocity (fps) thru 4" pipe | 5.6     | 7.5     |

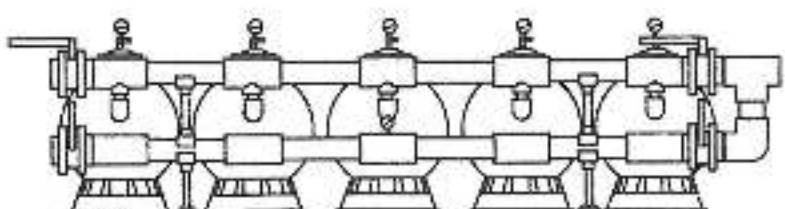


Four 31" 311SX ProSeries Plus Sand Filters

Filter Area per Tank = 4.95 sq. ft.

Total Filter Area = 19.8 sq. ft.

| Performance Data            | 15GPM*  | 20GPM*  |
|-----------------------------|---------|---------|
| Flow Rate (GPM)             | 297     | 396     |
| 6 Hr. Turnover (GAL)        | 106,920 | 142,560 |
| 8 Hr. Turnover (GAL)        | 142,560 | 190,080 |
| Velocity (fps) thru 4" pipe | 7.5     | 10.0    |



Five 31" 311SX ProSeries Plus Sand Filters

Filter Area per Tank = 4.95 sq. ft.

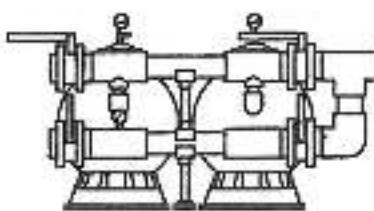
Total Filter Area = 24.75 sq. ft.

| Performance Data            | 15GPM*  | 20GPM*  |
|-----------------------------|---------|---------|
| Flow Rate (GPM)             | 371.25  | 495     |
| 6 Hr. Turnover (GAL)        | 133,650 | 178,200 |
| 8 Hr. Turnover (GAL)        | 178,200 | 237,000 |
| Velocity (fps) thru 6" pipe | 4.1     | 5.5     |

\* per sq. ft. of filter area

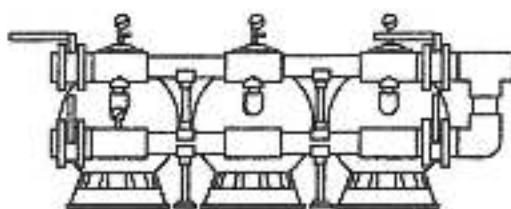
**HAYWARD®**

**Performance Data  
Tandem 36" Hayward Pro™ Series Plus 360SX Sand Filters**



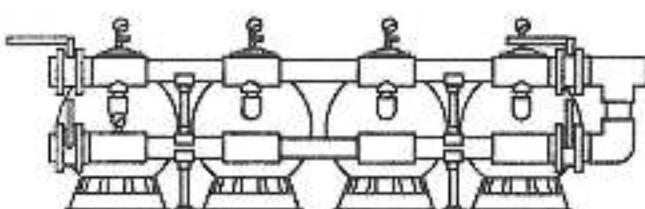
**Two 36" 360SX ProSeries Plus Sand Filters**

|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 6.68 sq. ft. |         |         |
| Total Filter Area = 13.36 sq. ft.   |         |         |
| Performance Data                    | 15 GPM* | 20 GPM* |
| Flow Rate (GPM)                     | 200.4   | 257.2   |
| 6 Hr. Turnover (GAL)                | 72,140  | 95,192  |
| 8 Hr. Turnover (GAL)                | 96,192  | 128,256 |
| Velocity (fps) thru 4" pipe         | 5.1     | 6.7     |



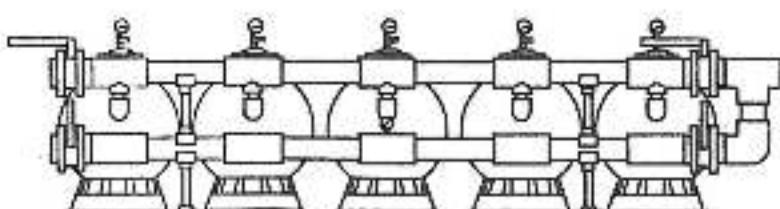
**Three 36" 360SX ProSeries Plus Sand Filters**

|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 6.68 sq. ft. |         |         |
| Total Filter Area = 20.04 sq. ft.   |         |         |
| Performance Data                    | 15 GPM* | 20 GPM* |
| Flow Rate (GPM)                     | 300.6   | 400.8   |
| 6 Hr. Turnover (GAL)                | 108,216 | 144,288 |
| 8 Hr. Turnover (GAL)                | 144,288 | 192,384 |
| Velocity (fps) thru 4" pipe         | 7.6     | 10.1    |



**Four 36" 360SX ProSeries Plus Sand Filters**

|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 6.68 sq. ft. |         |         |
| Total Filter Area = 26.72 sq. ft.   |         |         |
| Performance Data                    | 15 GPM* | 20 GPM* |
| Flow Rate (GPM)                     | 400.8   | 534.4   |
| 6 Hr. Turnover (GAL)                | 144,288 | 192,384 |
| 8 Hr. Turnover (GAL)                | 192,384 | 256,512 |
| Velocity (fps) thru 5" pipe         | 4.5     | 5.9     |



**Five 36" 360SX ProSeries Plus Sand Filters**

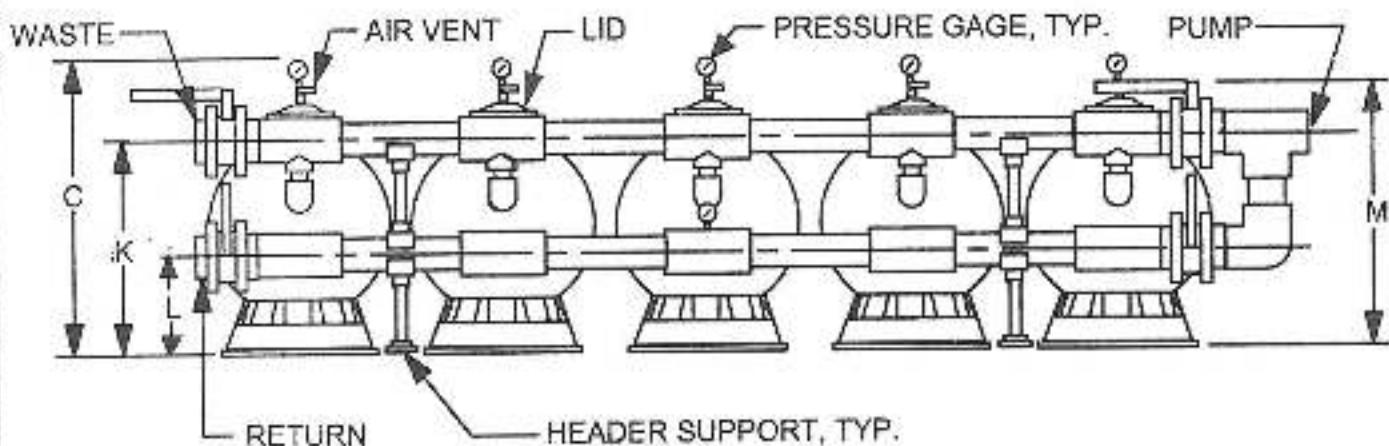
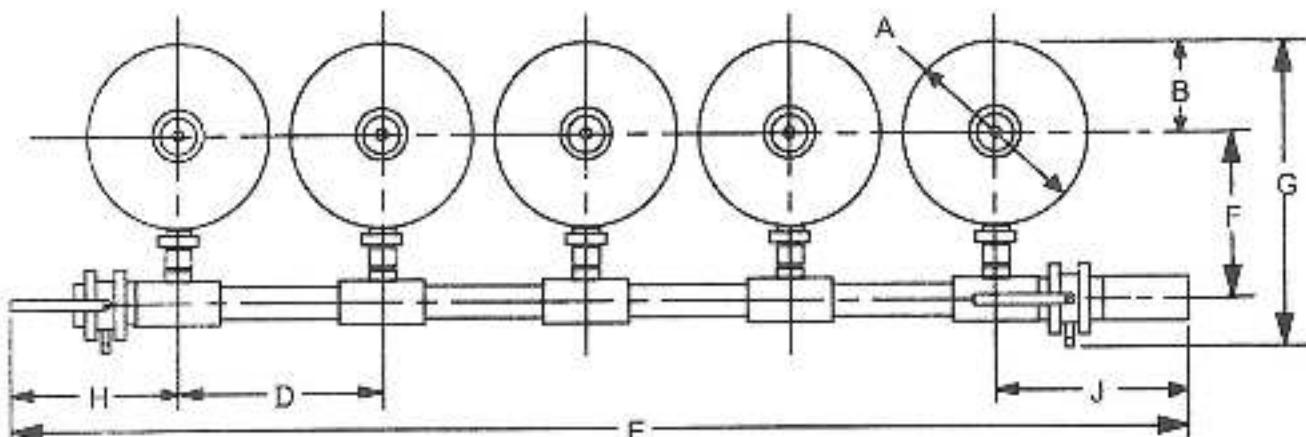
|                                     |         |         |
|-------------------------------------|---------|---------|
| Filter Area per Tank = 6.68 sq. ft. |         |         |
| Total Filter Area = 33.4 sq. ft.    |         |         |
| Performance Data                    | 15 GPM* | 20 GPM* |
| Flow Rate (GPM)                     | 501     | 668     |
| 6 Hr. Turnover (GAL)                | 180,360 | 240,480 |
| 8 Hr. Turnover (GAL)                | 240,480 | 320,640 |
| Velocity (fps) thru 5" pipe         | 5.6     | 7.1     |

\* per sq. ft. of filter area



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**Typical Layout Dimensions  
Tandem Pro™ Series Plus Models 311SX and 360SX Sand Filters**



**MODEL 311SX PRO™ SERIES PLUS AND FILTER**

| System Size | Pipe Size Inches | A* (In) | B* (In) | C* (In) | D (In) | E (In) | F (In) | G (In) | H (In) | J (In) | K (In) | L (In) | M (In) |
|-------------|------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2-31        | 3                | 31      | 15½     | 38½     | 34     | 67     | 24¼    | 45½    | 14½    | 18½    | 27¼    | 14¼    | 33     |
| 3-31        | 4                | 31      | 15½     | 38½     | 34     | 105½   | 24¼    | 46½    | 17     | 20½    | 29¼    | 14¼    | 36     |
| 4-31        | 4                | 31      | 15½     | 38½     | 34     | 139½   | 24¼    | 46½    | 17     | 20½    | 29¼    | 14¼    | 36     |
| 5-31        | 6                | 31      | 15½     | 38½     | 34     | 188½   | 26¼    | 49½    | 22½    | 30     | 32¼    | 14¼    | 40     |

**MODEL 360SX PRO™ SERIES PLUS SAND FILTER**

| System Size | Pipe Size Inches | A* (In) | B* (In) | C* (In) | D (In) | E (In) | F (In) | G (In) | H (In) | J (In) | K (In) | L (In) | M (In) |
|-------------|------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2-36        | 4                | 36      | 18      | 46      | 39     | 76½    | 27     | 51½    | 17     | 20½    | 32½    | 17½    | 39     |
| 3-36        | 4                | 36      | 18      | 46      | 39     | 115½   | 27     | 51½    | 17     | 20½    | 32½    | 17½    | 39     |
| 4-36        | 6                | 36      | 18      | 46      | 39     | 169½   | 29     | 54½    | 22½    | 30     | 35½    | 17½    | 43     |
| 5-36        | 6                | 36      | 18      | 46      | 39     | 208½   | 29     | 54½    | 22½    | 30     | 35½    | 17½    | 43     |

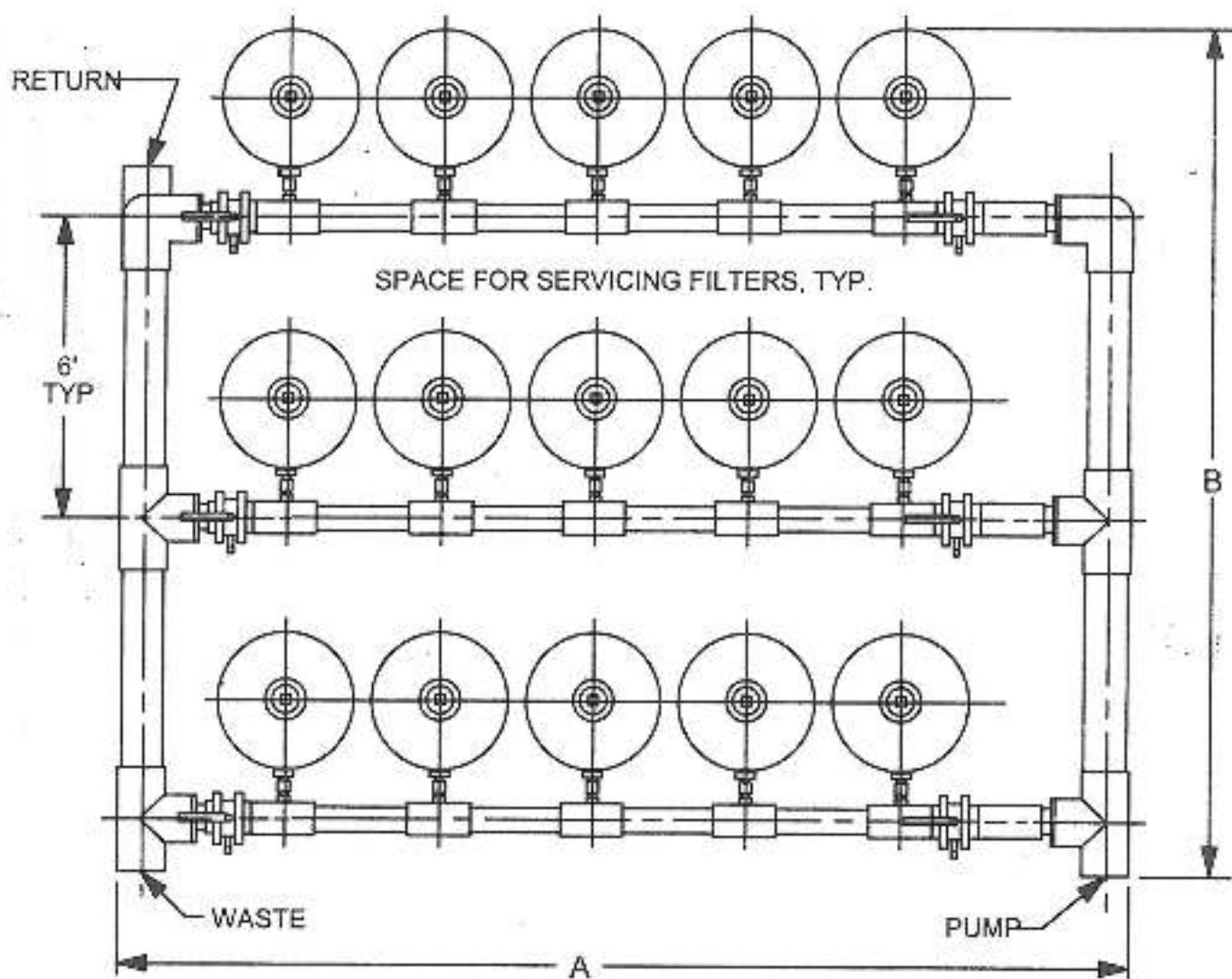
\*These dimensions are factory controlled. Other dimensions can vary depending upon field supplied pipe lengths.  
Use Hayward All-Plastic Butterfly Valves on headers as shown.  
Use 2" Sch. 40 PVC pipe and fittings to attach headers to filter tanks.

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## General Arrangement and

## Performance Data

## Multiple Tandem Hayward Pro™ Series Plus 360SX Sand Filter



| Sets of Tandems | Total No. of Filters | Flow GPM<br>15*<br>20** | Turnover 15*<br>6 hr***<br>8 hr*** | Turnover 20*<br>6 hr***<br>8 hr*** | Manifold Pipe Size<br>Pump Return Waste | "A"       | "B" |
|-----------------|----------------------|-------------------------|------------------------------------|------------------------------------|---|-----------|-----|
| 2-3's           | 6                    | 601 802                 | 216,360 288,480                    | 288,720 384,960                    | 8" 5" 6"                                | 133" 124" |     |
| 2-4's           | 8                    | 802 1069                | 288,720 384,960                    | 384,840 513,120                    | 8" 8" 8"                                | 193" 128" |     |
| 2-5's           | 10                   | 1002 1336               | 360,720 480,960                    | 480,960 641,280                    | 8" 8" 8"                                | 232" 128" |     |
| 3-4's           | 12                   | 1202 1603               | 432,720 576,960                    | 577,080 769,440                    | 10" 10" 10"                             | 200" 202" |     |
| 3-5's           | 15                   | 1503 2004               | 541,080 721,440                    | 721,440 961,920                    | 10" 10" 10"                             | 239" 202" |     |

\*GPM per sq. ft. of filter area

\*\* Gallons

Provide Hayward 2" True Union Ball Valve on pump(s) suction.

Provide 2" full flow check valve on pump(s) discharge.

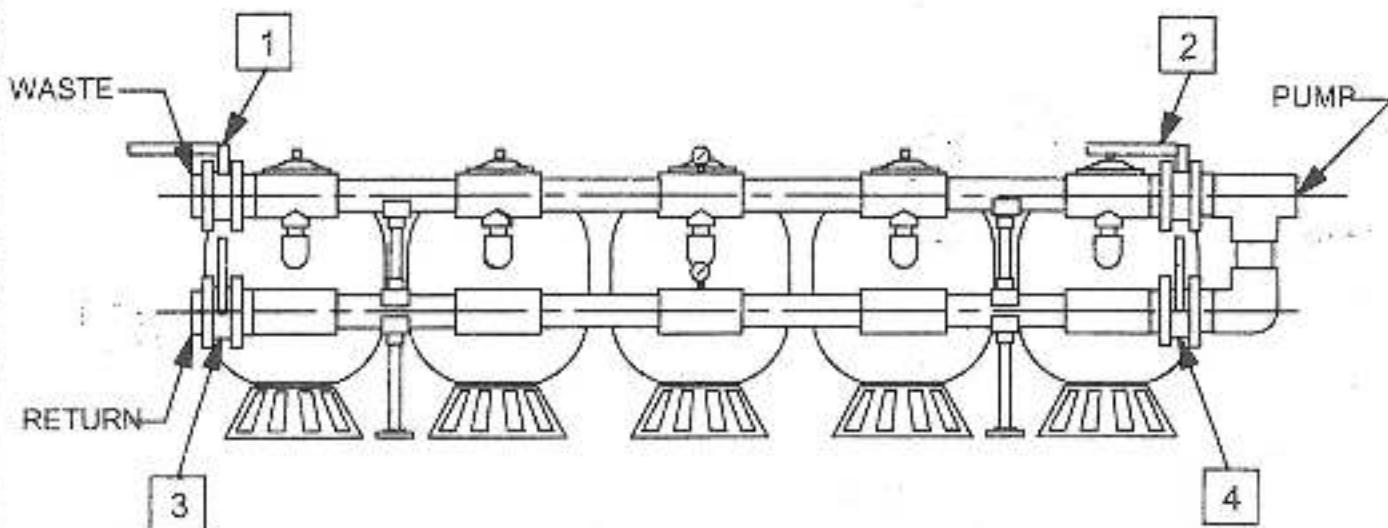
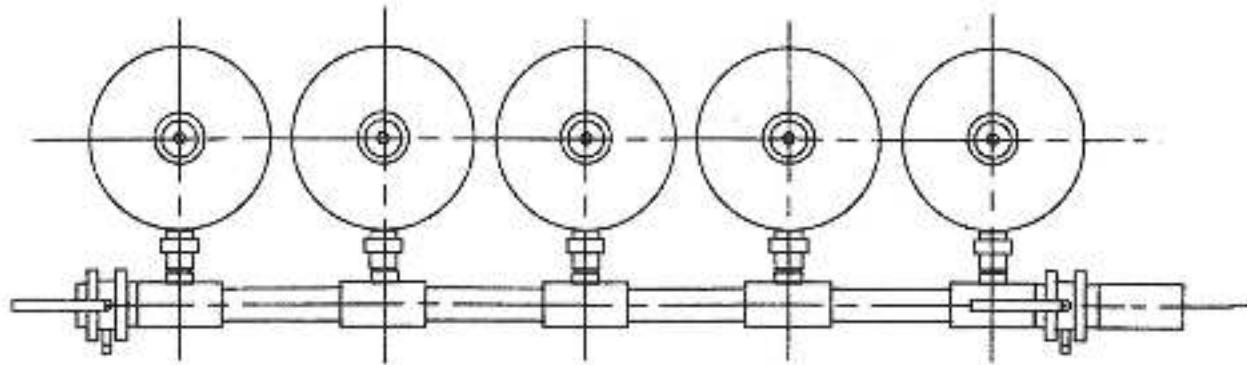
Provide supports for suction and discharge manifolds.

\*A" and "B" Dimensions can vary depending on filter room layout.



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Valve Sequence Chart  
Hayward Pro™ Series" & Pro™ Series Plus Sand Filters



**VALVE SEQUENCE CHART**

| FILTER OPERATION | SYSTEM VALVE NOS. □ |   |   |   |
|------------------|---------------------|---|---|---|
|                  | 1                   | 2 | 3 | 4 |
| FILTER           | ●                   | ○ | ○ | ● |
| BACKWASH         | ○                   | ● | ● | ○ |

"○" DENOTES VALVE OPEN  
"●" DENOTES VALVE CLOSED

TURN PUMP(S) OFF WHEN CHANGING VALVE POSITIONS

**HAYWARD**

# TANDEM DE FILTER SPECIFICATIONS

## APPROVALS

The filter system described in this specification shall be of the vertical grid Diatomaceous Earth type specifically designed for swimming pools and approved for fresh or salt water applications which shall comply to the minimum standards as set by the National Spa and Pool Institute (NSPI) and shall bear the National Sanitation Foundation (NSF) Seal of Approval as manufactured by Hayward Pool Products, Elizabeth, New Jersey.

## DESCRIPTION

The filter system shall consist of \_\_\_\_\_ filter tank(s) with internal grid elements and plumbing to uniformly hold filtration media to provide filtration of water and allow for efficient reverse flow of the water cleaning of grid elements during backwashing.

## FILTER AREA AND CAPACITY

The filter system shall have a total effective filter area of \_\_\_\_\_ sq. ft. The system shall have a capacity of filtering \_\_\_\_\_ gallons in \_\_\_\_\_ hours at \_\_\_\_\_ G.P.M. per square foot rate.

## FILTER TANK CONSTRUCTION

The filter tank(s) shall be two-piece and molded of PermaGlassXL™ glass reinforced co-polymer material or stainless steel. A tamper-proof bolted center flange clamp shall be utilized to fasten the tank top and bottom together.

Each filter tank to house high-impact, curved, filter element grids fitted with monofilament polypropylene cloth. Elements to be spaced 1" apart and allow up-flow filtration and down-flow backwashing.

**Micro-Clear™ 72 Sq. Ft.  
Vertical Grid DE Filter**

If Perma-GlassXL™ construction the tank(s) shall have an integral base molded as one piece with the lower tank half with 1 ½" full flow integral drain. If S/S tank construction lower half will have a fixed base of ABS. The tank shall be designed for a working pressure of 50 PSI with a 4 to 1 safety factor and tested for soundness and leakage at a pressure of 150% of the working pressure.

## INTERNAL DISTRIBUTION SYSTEM

The top manifold collector and filter element locator shall securely lock elements in their designed spiral pattern to assure proper grid spacing and efficient flow. The grid assembly shall be molded with integral lift handles to allow convenient removal of grid nest as one unit. All internal piping to be 2" to give smooth, free flowing, performance.

## FACE PIPING

The filter face piping shall comply with design and construction requirements for water piping of the American Standard National Plumbing Code, ASA-A40 8-1955. The piping shall consist of Schedule 40 PVC pipe and fittings with 4 each \_\_\_\_\_ (4") (6") water type butterfly valves mounted between companion flanges for ease of maintenance.

## AIR RELIEF

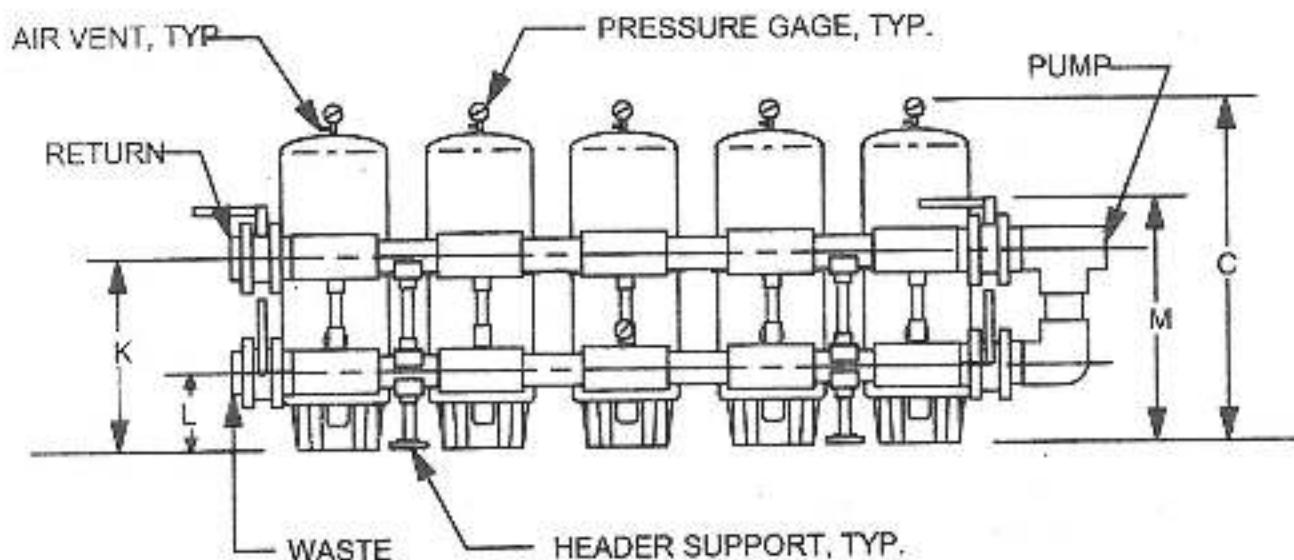
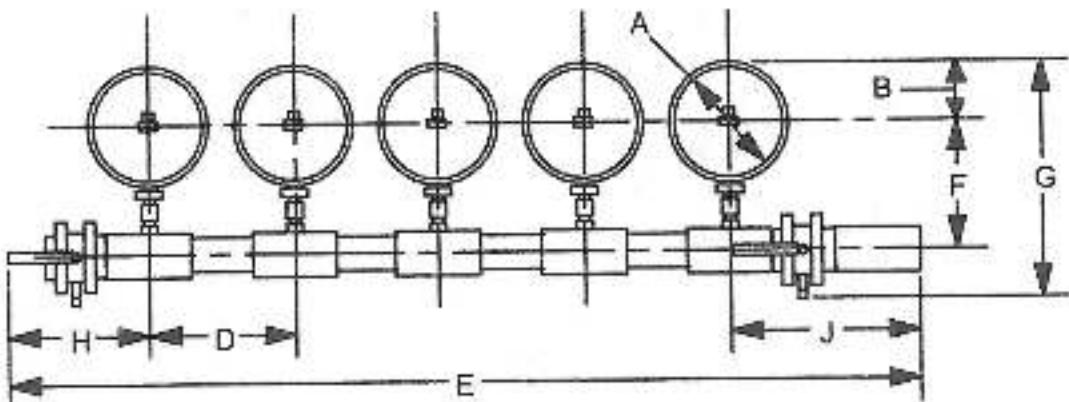
A continuous internal automatic air relief with a debris strainer shall be provided.

## MEDIA (CUSTOMER SUPPLIED)

Swimming Pool Grade D.E. with each filter tank requiring 1/8lb per square foot of filtration and installed in accordance with the filter manufacturer's recommendation.

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Typical Layout Dimensions  
Hayward "Micro-Clear™" DE Filters



MODEL 72 Sq. Ft. MICRO-CLEAR™ DE FILTER

| System Size | Pipe Size Inches | A* (In) | B* (In) | C* (In) | D (In) | E (In) | F (In) | G (In) | H (In) | J (In) | K (In) | L (In) | M (In) |
|-------------|------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2-72        | 4                | 19      | 9½      | 53½     | 22     | 59½    | 18½    | 34½    | 17     | 20½    | 26¼    | 11¼    | 33     |
| 3-72        | 4                | 19      | 9½      | 53½     | 22     | 81½    | 18½    | 34½    | 17     | 20½    | 26¼    | 11¼    | 33     |
| 4-72        | 4                | 19      | 9½      | 53½     | 22     | 103½   | 18½    | 34½    | 17     | 20½    | 26¼    | 11¼    | 33     |
| 5-72        | 6                | 19      | 9½      | 53½     | 22     | 140½   | 20½    | 37½    | 22½    | 30     | 29¼    | 11½    | 37     |

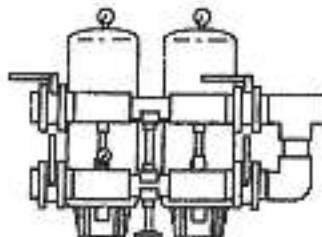
\*These dimensions are factory controlled. Other dimensions can vary depending upon field supplied pipe lengths.

Use Hayward All-Plastic Butterfly Valves on headers as shown.

Use 2" Sch. 40 PVC pipe and fittings to attach headers to filter tanks.

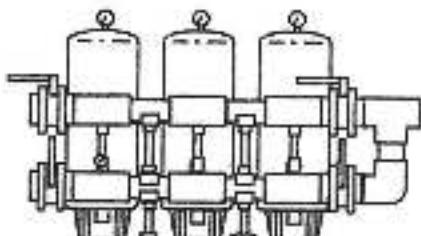
**HAYWARD®**

Performance Data  
Tandem 72 Sq. Ft. Hayward Micro-Clear™ Filters



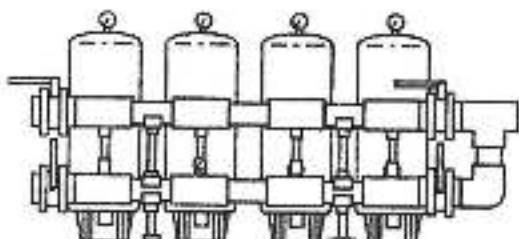
Two 72 sq. ft. Micro-Clear™ DE Filters

|                                   |          |          |
|-----------------------------------|----------|----------|
| Filter Area per Tank = 72 sq. ft. |          |          |
| Total Filter Area = 144 sq. ft.   |          |          |
| Performance Data                  | 1.5 GPM* | 2.0 GPM* |
| Flow Rate (GPM)                   | 216      | 288      |
| 6 Hr. Turnover (GAL)              | 77,760   | 103,880  |
| 8 Hr. Turnover (GAL)              | 103,880  | 138,240  |
| Velocity (fps) thru 4" pipe       | 5.5      | 7.3      |



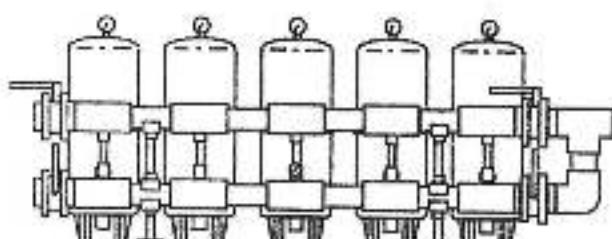
Three 72 sq. ft. Micro-Clear™ DE Filters

|                                   |          |          |
|-----------------------------------|----------|----------|
| Filter Area per Tank = 72 sq. ft. |          |          |
| Total Filter Area = 216 sq. ft.   |          |          |
| Performance Data                  | 1.5 GPM* | 2.0 GPM* |
| Flow Rate (GPM)                   | 324      | 432      |
| 6 Hr. Turnover (GAL)              | 116,840  | 155,520  |
| 8 Hr. Turnover (GAL)              | 155,520  | 207,360  |
| Velocity (fps) thru 4" pipe       | 8.2      | 10.9     |



Four 72 sq. ft. Micro-Clear™ DE Filters

|                                   |          |          |
|-----------------------------------|----------|----------|
| Filter Area per Tank = 72 sq. ft. |          |          |
| Total Filter Area = 288 sq. ft.   |          |          |
| Performance Data                  | 1.5 GPM* | 2.0 GPM* |
| Flow Rate (GPM)                   | 432      | 576      |
| 6 Hr. Turnover (GAL)              | 155,520  | 207,360  |
| 8 Hr. Turnover (GAL)              | 207,360  | 276,480  |
| Velocity (fps) thru 6" pipe       | 4.8      | 6.4      |



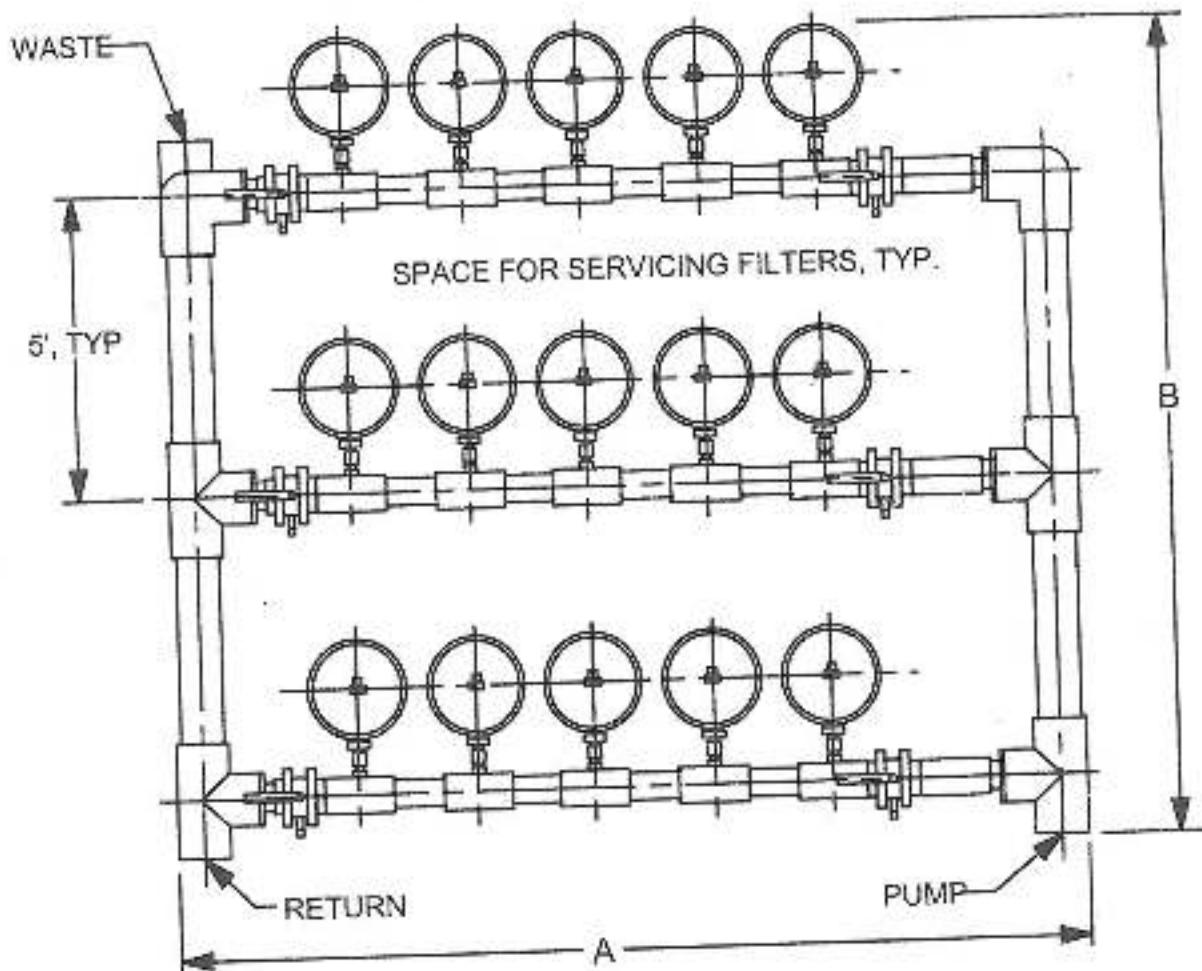
Five 72 sq. ft. Micro-Clear™ DE Filters

|                                   |          |          |
|-----------------------------------|----------|----------|
| Filter Area per Tank = 72 sq. ft. |          |          |
| Total Filter Area = 360 sq. ft.   |          |          |
| Performance Data                  | 1.5 GPM* | 2.0 GPM* |
| Flow Rate (GPM)                   | 540      | 720      |
| 6 Hr. Turnover (GAL)              | 194,400  | 259,200  |
| 8 Hr. Turnover (GAL)              | 259,200  | 345,600  |
| Velocity (fps) thru 6" pipe       | 6.0      | 8.0      |

\* per sq. ft. of filter area

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**General Arrangement and  
Performance Data  
Multiple Tandem Hayward Micro-Clear™ DE Filters**



| Sets of Tandems | Total No. of Filters | Flow GPM<br>1.5*<br>2.0* | Turnover 1.5*<br>6 hr**<br>8 hr** | Turnover 2.0*<br>6 hr**<br>8 hr** | Manifold Pipe Size<br>Pump Return Waste | "A"                  | "B" |
|-----------------|----------------------|--------------------------|-----------------------------------|-----------------------------------|---|----------------------|-----|
| 2-3's           | 6                    | 648    884               | 233,280    311,040                | 311,040    414,720                | 6"    6"    6"                          | 93"    98"           |     |
| 2-4's           | 8                    | 864    1152              | 311,040    414,720                | 414,720    552,960                | 8"    8"    8"                          | 115"    156"    100" |     |
| 2-5's           | 10                   | 1080    1440             | 388,800    518,400                | 518,400    691,200                | 8"    8"    8"                          | 124"    162"    100" |     |
| 3-4's           | 12                   | 1296    1728             | 466,560    622,080                | 622,080    829,440                | 10"    10"    10"                       | 140"    160"    124" |     |
| 3-5's           | 15                   | 1620    2160             | 583,200    777,600                | 777,600    1,036,800              | 10"    10"    10"                       | 160"    162"    140" |     |

\*GPM per sq. ft. of filter area

\*\* Gallons

Provide Hayward 2" True Union Ball Valve on pump(s) suction.

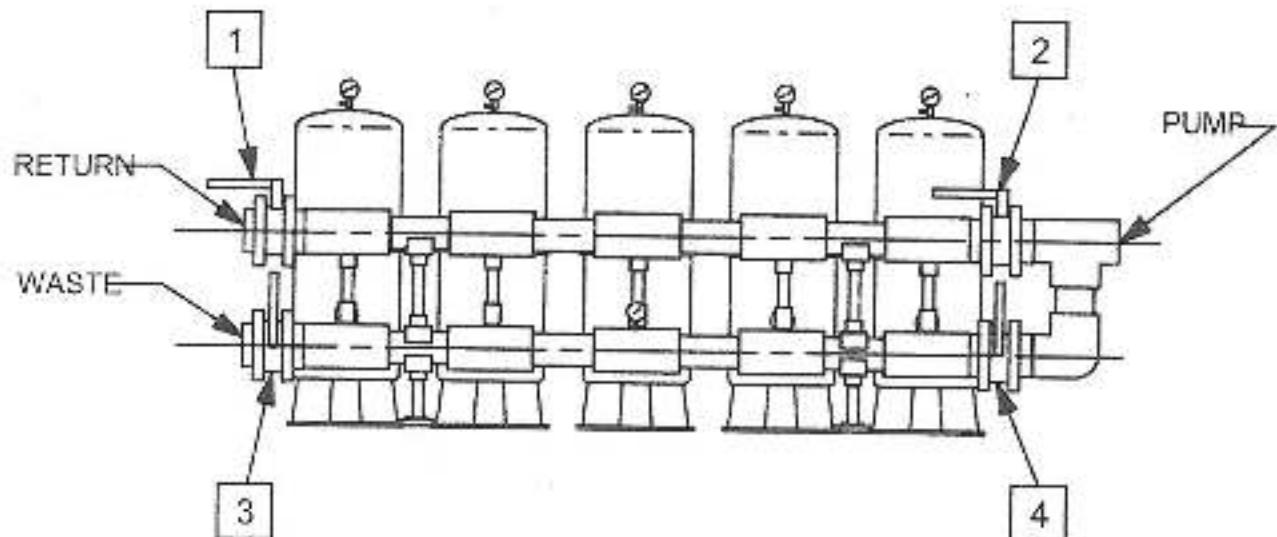
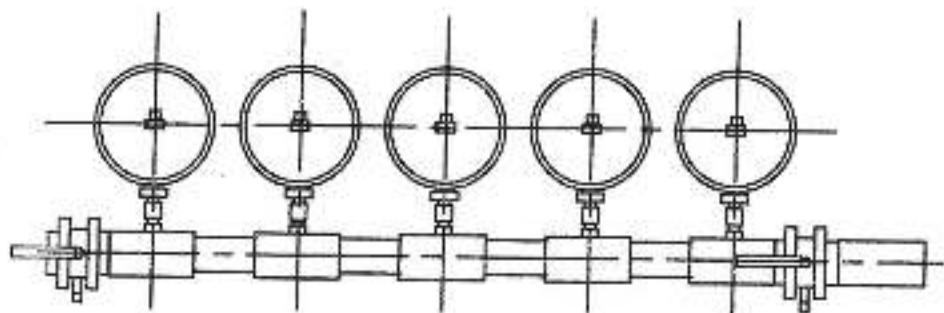
Provide 2" full flow check valve on pump(s) discharge.

Provide supports for suction and discharge manifolds.

"A" and "B" Dimensions can vary depending on filter room layout.

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Valve Sequence Chart  
Hayward Micro-Clear™ DE Filters



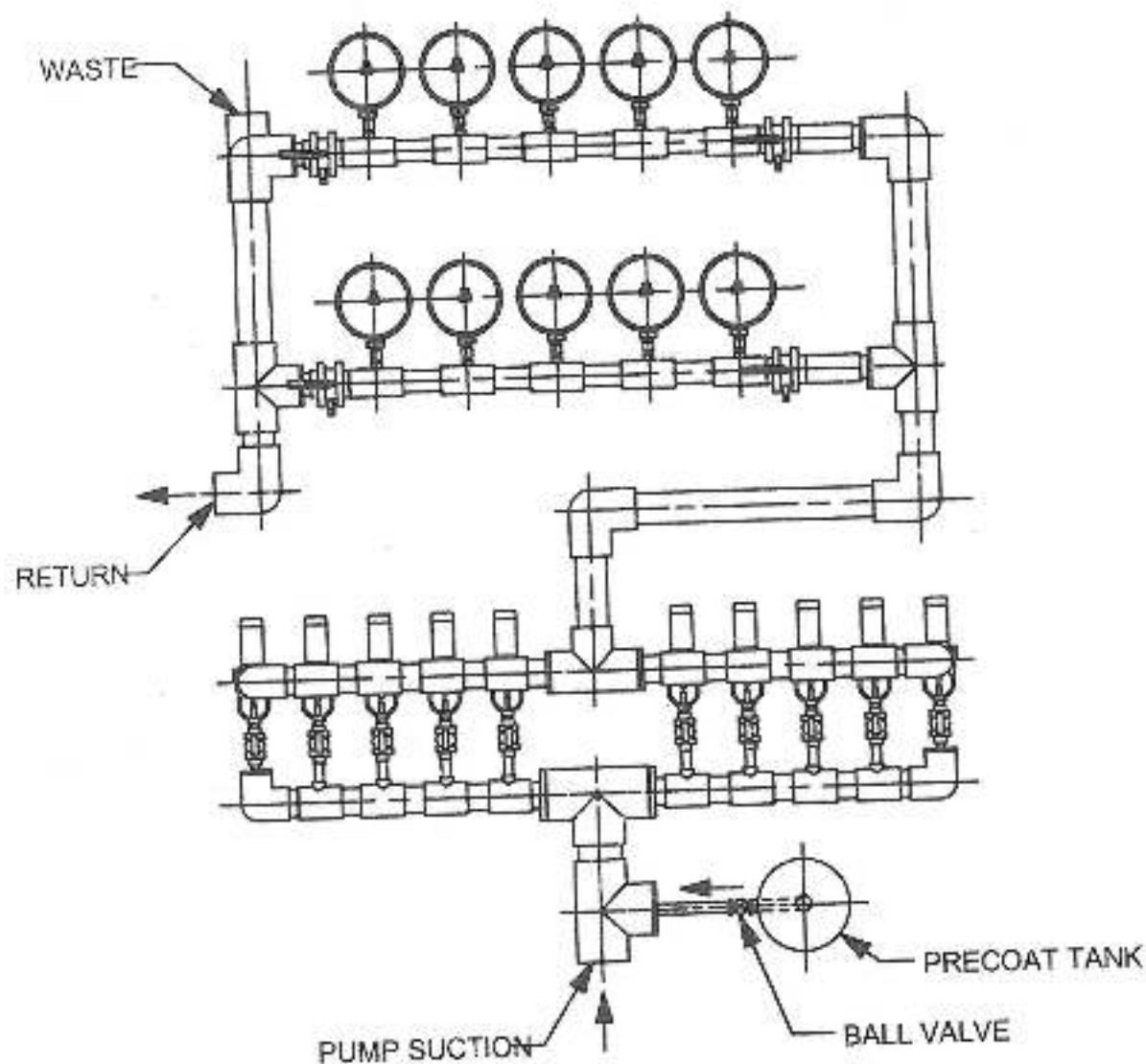
**VALVE SEQUENCE CHART**

| FILTER OPERATION | SYSTEM VALVE NOS. 1 |   |   |   |
|------------------|---------------------|---|---|---|
|                  | 1                   | 2 | 3 | 4 |
| FILTER           | ○                   | ● | ● | ○ |
| BACKWASH         | ●                   | ○ | ○ | ● |

\* "O" DENOTES VALVE OPEN

\* "●" DENOTES VALVE CLOSED

TURN PUMP(S) OFF WHEN CHANGING VALVE POSITIONS

**HAYWARD**General Arrangement and  
Precoat Data For Tandem Hayward Micro-Clear™

| System Size | Total Filter Area sq. ft. | D.E. (pounds per precoat) | Precoat Tank Dia. | Tank Side Shell |
|-------------|---------------------------|---------------------------|-------------------|-----------------|
| 2-72        | 144                       | 18                        | 14"               | 20"             |
| 3-72        | 216                       | 27                        | 18"               | 24"             |
| 4-72        | 288                       | 36                        | 18"               | 24"             |
| 5-72        | 360                       | 45                        | 18"               | 24"             |
| 6-72        | 432                       | 54                        | 24"               | 30"             |
| 8-72        | 576                       | 72                        | 24"               | 30"             |
| 10-72       | 720                       | 90                        | 24"               | 30"             |
| 12-72       | 864                       | 108                       | 24"               | 30"             |
| 15-72       | 1080                      | 135                       | 24"               | 36"             |

Use Sch. 40 PVC pipe and fittings to attach precoat tank to pump suction line.  
Precoat charge based on 1/8 lb per sq. ft. of filter area.

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## Tandem Filter Plumbing Kits (Schedule 40)

Add filters, media, pipe and flange bolts for completion

### 3" Pipe 2 Filter Plumbing Kit

|                   |  |
|-------------------|--|
| 4 ea BY110300EL   | 3" Hayward Butterfly Valves w/PVC Disc     |
| 8 ea 851-030      | 3" PVC Solid Flange Soc Cl 150             |
| 2 ea DE2400PAK2CS | Filter Coupling                            |
| 1 ea 401-030      | 3" PVC TEE Soc                             |
| 4 ea 401-338      | 3"x2" PVC Reducing TEE Soc                 |
| 1 ea 406-030      | 3" PVC 90° Elbow Soc                       |
| 3 ea 463-338      | 3"x2" PVC Red Saddle Soc                   |
| 2 ea 406-020      | 2" Socket Elbows 90°                       |
| 4 ea SP0724S      | 2" Hayward Trimline™ Deluxe Ball Valve Soc |

P/N# TK0302

### 4" Pipe 2 Filter Plumbing Kit

|                   |  |
|-------------------|--|
| 4 ea BY110400EL   | 4" Hayward Butterfly Valves w/PVC Disc     |
| 8 ea 851-040      | 4" PVC Solid Flange Soc Cl 150             |
| 2 ea DE2400PAK2CS | Filter Coupling                            |
| 1 ea 401-040      | 4" PVC TEE Soc                             |
| 4 ea 401-420      | 4"x2" PVC Reducing TEE Soc                 |
| 1 ea 406-040      | 4" PVC 90° Elbow Soc                       |
| 3 ea 463-420      | 4"x2" PVC Red Saddle Soc                   |
| 2 ea 406-020      | 2" Socket Elbows 90°                       |
| 4 ea SP0724S      | 2" Hayward Trimline™ Deluxe Ball Valve Soc |

P/N# TK0402

### 4" Pipe Add-A-Filter Kit - add one kit per additional filter

|                   |  |
|-------------------|--|
| 2 ea 401-420      | 4"x2" PVC Reducing TEE Soc                 |
| 1 ea 406-020      | 2" Socket Elbow 90°                        |
| 2 ea SP0724S      | 2" Hayward Trimline™ Deluxe Ball Valve Soc |
| 1 ea DE2400PAK2CS | Filter Coupling Plumbing Kit               |

P/N # ADF04

### 4" Pipe Add-A-Brace Kit - one add'l. required for up to 5 tank system

|              |                       |
|--------------|-----------------------|
| 3 ea 463-420 | 4"x2" PVC Saddle Soc. |
|--------------|-----------------------|

P/N # ADB04

### 6" Pipe 2 Filter Plumbing Kit

|                   |  |
|-------------------|--|
| 4 ea BY110600EL   | 6" Hayward Butterfly Valves w/PVC Disc     |
| 8 ea 851-060      | 6" PVC Solid Flange Soc Cl 150             |
| 2 ea DE2400PAK2CS | Filter Coupling                            |
| 1 ea 401-060      | 6" PVC TEE Soc                             |
| 4 ea 401-528      | 6"x2" PVC Reducing TEE Soc                 |
| 1 ea 406-060      | 6" PVC 90° Elbow Soc                       |
| 3 ea 463-528      | 6"x2" PVC Red Saddle Soc                   |
| 2 ea 406-020      | 2" Socket Elbows 90°                       |
| 4 ea SP0724S      | 2" Hayward Trimline™ Deluxe Ball Valve Soc |

P/N# TK0602

### 6" Pipe Add-A-Filter Kit - add one kit per additional filter

|                   |  |
|-------------------|--|
| 2 ea 401-528      | 6"x2" PVC Reducing TEE Soc                 |
| 1 ea 406-020      | 2" Socket Elbow 90°                        |
| 2 ea SP0724S      | 2" Hayward Trimline™ Deluxe Ball Valve Soc |
| 1 ea DE2400PAK2CS | Filter Coupling Plumbing Kit               |

P/N# ADF06

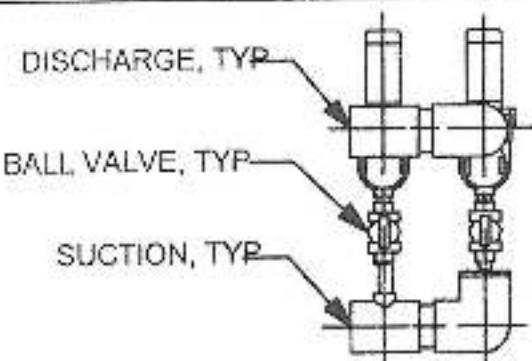
### 6" Pipe Add-A-Brace Kit - one add'l. required for up to 5 tank systems

|              |                               |
|--------------|-------------------------------|
| 3 ea 463-528 | 6"x2" PVC Reducing Saddle Soc |
|--------------|-------------------------------|

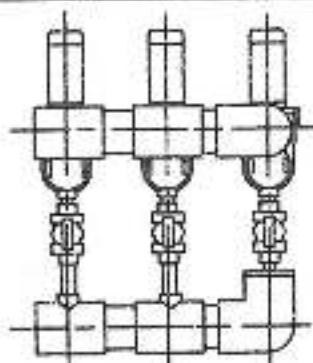
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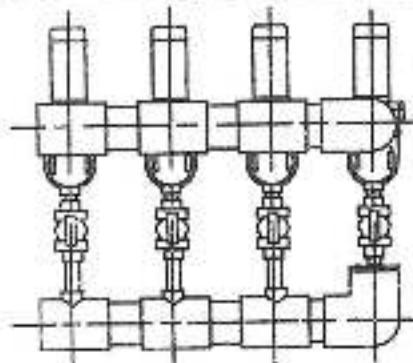
**General Arrangement and  
Performance Data**  
**Tandem Hayward 3HP Super II™ 50HZ & 60HZ Pumps**

**Two Hayward Super II, 3HP Pumps**

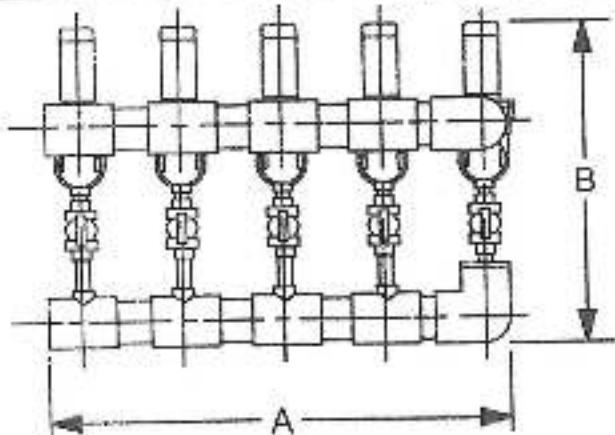
|                    | 50HZ          | 60HZ          |
|--------------------|---------------|---------------|
| Total Flow         | 150 gpm @ 60' | 274 gpm @ 60' |
| Total Flow         | 190 gpm @ 50' | 300 gpm @ 50' |
| Manifold Pipe Size |               |               |
| Suction            | 3"            | 4"            |
| Discharge          | 3"            | 4"            |
| "A" Dimension      | 21"           | 23"           |
| "B" Dimension      | 40"           | 41"           |

**Three Hayward Super II, 3HP Pumps**

|                    | 50HZ          | 60HZ          |
|--------------------|---------------|---------------|
| Total Flow         | 225 gpm @ 60' | 411 gpm @ 60' |
| Total Flow         | 285 gpm @ 50' | 450 gpm @ 50' |
| Manifold Pipe Size |               |               |
| Suction            | 4"            | 6"            |
| Discharge          | 4"            | 5"            |
| "A" Dimension      | 37"           | 43"           |
| "B" Dimension      | 41"           | 45"           |

**Four Hayward Super II, 3HP Pumps**

|                    | 50HZ          | 60HZ          |
|--------------------|---------------|---------------|
| Total Flow         | 300 gpm @ 60' | 548 gpm @ 60' |
| Total Flow         | 380 gpm @ 50' | 600 gpm @ 50' |
| Manifold Pipe Size |               |               |
| Suction            | 6"            | 6"            |
| Discharge          | 6"            | 6"            |
| "A" Dimension      | 56"           | 56"           |
| "B" Dimension      | 45"           | 45"           |

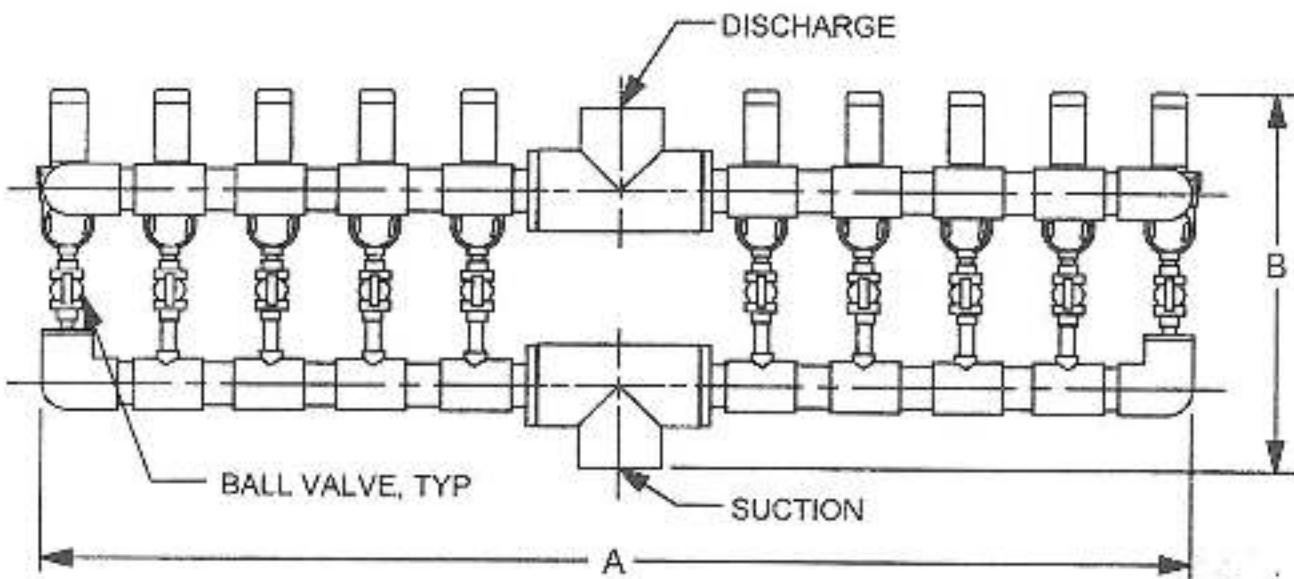
**Five Hayward Super II 3HP Pumps**

|                    | 50HZ          | 60HZ          |
|--------------------|---------------|---------------|
| Total Flow         | 375 gpm @ 60' | 685 gpm @ 60' |
| Total Flow         | 475 gpm @ 50' | 750 gpm @ 50' |
| Manifold Pipe Size |               |               |
| Suction            | 6"            | 6"            |
| Discharge          | 6"            | 6"            |
| "A" Dimension      | 70"           | 70"           |
| "B" Dimension      | 45"           | 45"           |

Provide Hayward 2" True Union Ball Valve on pump(s) suction.  
Provide 2" full flow check valve on pump(s) discharge.  
Provide supports for suction and discharge manifolds.

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**General Arrangement and  
Performance Data**  
**Multiple Tandem Hayward 3HP Super II™ 50HZ & 60HZ Pumps**



| Sets of Tandem Units | Total No. of Pumps | 50HZ                           | Pipe Size Suct. Disc. | 60HZ | Pipe Size Suct. Disc.      | "A" Inches | "B" Inches |              |            |
|----------------------|--------------------|--------------------------------|-----------------------|------|----------------------------|------------|------------|--------------|------------|
| Two 3's              | 6                  | Flow* 450* @ 60'<br>570* @ 60' | 6"                    | 6"   | 822* @ 60'<br>900* @ 60'   | 8"         | 6"         | 108"<br>108" | 50"<br>50" |
| One 3 & one 4        | 7                  | Flow* 525* @ 60'<br>665* @ 50' | 6"                    | 6"   | 959* @ 60'<br>1050* @ 50'  | 8"         | 8"         | 121"<br>121" | 50"<br>50" |
| Two 4's              | 8                  | Flow* 600* @ 60'<br>760* @ 50' | 6"                    | 6"   | 1096* @ 60'<br>1200* @ 50' | 8"         | 8"         | 130"<br>130" | 50"<br>50" |
| One 4 & one 5        | 9                  | Flow* 875* @ 60'<br>855* @ 50' | 6"                    | 6"   | 1233* @ 60'<br>1350* @ 50' | 8"         | 8"         | 144"<br>144" | 50"<br>50" |
| Two 5's              | 10                 | Flow* 750* @ 60'<br>950* @ 50' | 6"                    | 6"   | 1370* @ 50'<br>1500* @ 50' | 8"         | 8"         | 158"<br>163" | 50"<br>52" |

\*GPM

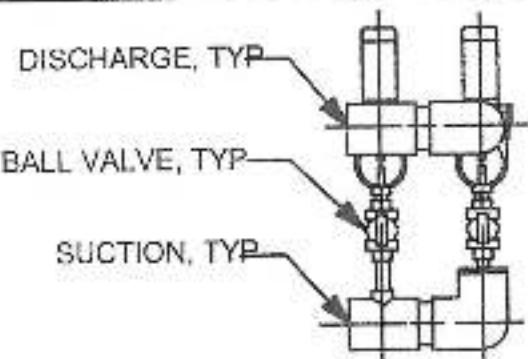
Provide Hayward 2" True Union Ball Valve on pump(s) suction.  
 Provide 2" full flow check valve on pump(s) discharge.  
 Provide supports for suction and discharge manifolds.

"A" and "B" Dimensions are maximums.

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**General Arrangement and  
Performance Data**

**Tandem Hayward 3HP "NorthStar™" 60HZ Pumps**



**Two Hayward NorthStar, 3 HP Pumps**

60 HZ

Total Flow 354 gpm @ 60'

Total Flow 380 gpm @ 50'

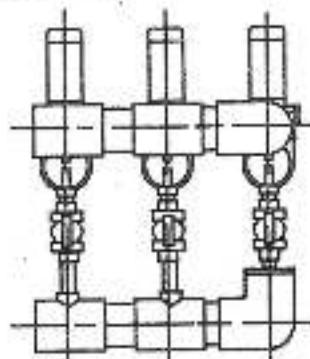
Manifold Pipe Size

Suction 6"

Discharge 4"

"A" Dimension 28"

"B" Dimension 52"



**Three Hayward NorthStar, 3 HP Pumps**

60 HZ

Total Flow 531 gpm @ 60'

Total Flow 570 gpm @ 50'

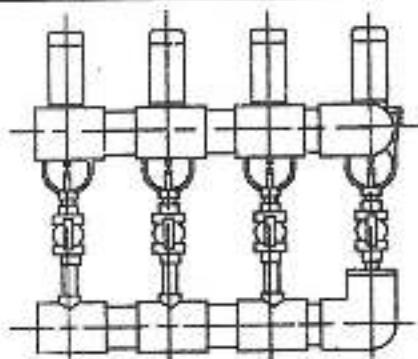
Manifold Pipe Size

Suction 6"

Discharge 6"

"A" Dimension 43"

"B" Dimension 52"



**Four Hayward NorthStar, 3 HP Pumps**

60 HZ

Total Flow 708 gpm @ 60'

Total Flow 760 gpm @ 50'

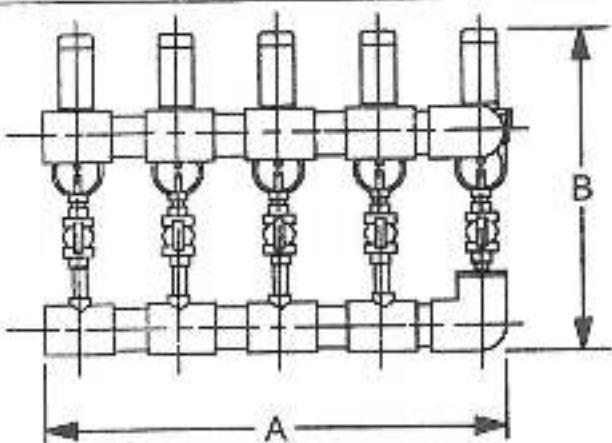
Manifold Pipe Size

Suction 6"

Discharge 6"

"A" Dimension 56"

"B" Dimension 52"



**Five Hayward NorthStar, 3 HP Pumps**

60 HZ

Total Flow 865 gpm @ 60'

Total Flow 950 gpm @ 50'

Manifold Pipe Size

Suction 6"

Discharge 6"

"A" Dimension 88"

"B" Dimension 55"

Provide Hayward 2" True Union Bell Valve on pump(s) suction.  
Provide 2" full flow check valve on pump(s) discharge.

Provide supports for suction and discharge manifolds.

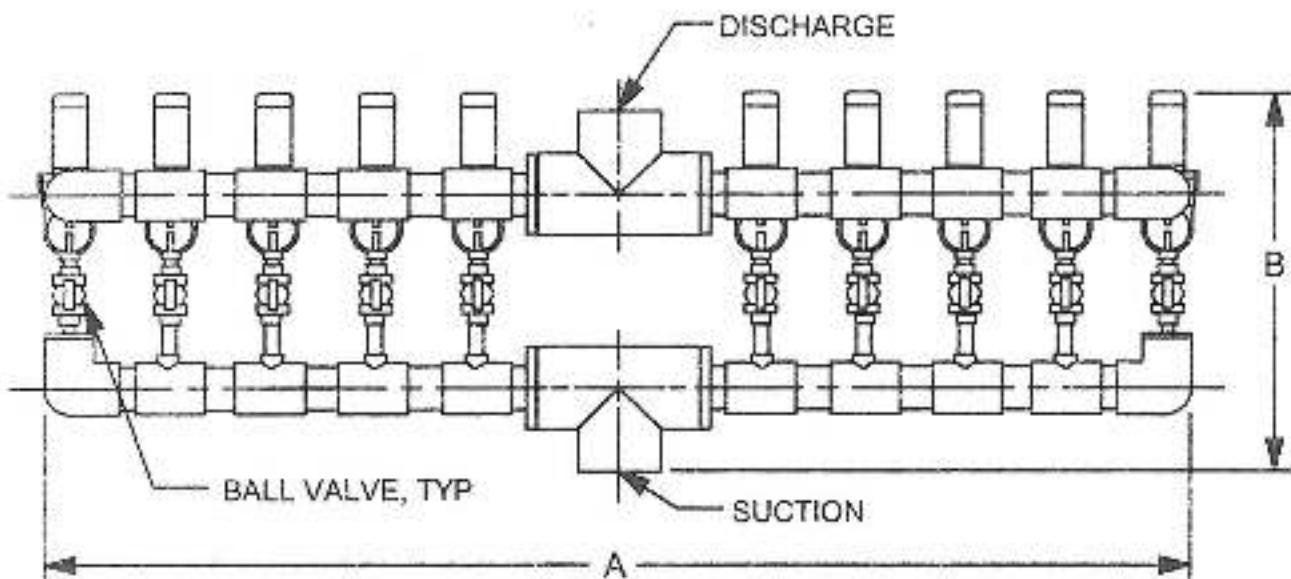


**HAYWARD®**

General Arrangement and

Performance Data

Multiple Tandem Hayward 3HP NorthStar™ 60HZ Pumps



| Sets of<br>Tandems | Total No.<br>of Pumps | 60HZ                             | Pipe Size<br>Suct. Disc. |    | "A"<br>inches | "B"<br>inches |
|--------------------|-----------------------|----------------------------------|--------------------------|----|---------------|---------------|
| Two 3's            | 6                     | Flow* 1062* @ 60'<br>1140* @ 60' | 8"                       | 8" | 108"          | 57"           |
| One 3 & one 4      | 7                     | Flow* 1239* @ 60'<br>1330* @ 50' | 8"                       | 8" | 121"          | 57"           |
| Two 4's            | 8                     | Flow* 1416* @ 60'<br>1520* @ 50' | 10"                      | 8" | 139"          | 60"           |
| One 4 & one 5      | 9                     | Flow* 1593* @ 60'<br>1710* @ 50' | 10"                      | 8" | 171"          | 60"           |
| Two 5's            | 10                    | Flow* 1770* @ 60'<br>1930* @ 60' | 10"                      | 8" | 203"          | 62"           |

\*GPM

Provide Hayward 2" True Union Ball Valve on pump(s) suction.

Provide 2" full flow check valve on pump(s) discharge.

Provide support for suction and discharge manifolds.

"A" and "B" Dimensions are maximums.