



PREPARING YOUR PLAN REVIEW SUBMISSION

www.kwenergy.com

NEW CONSTRUCTION
OR
SUBSTANTIAL ALTERATION

A new construction or substantial alteration plan review is required when:

- Constructing a new aquatic venue or aquatic facility
- Completely removing and replacing an existing aquatic venue
- Substantially altering an existing aquatic venue – i.e., altering the shell; volume change; complete plumbing replacement; etc.

SUBMITTAL DOCUMENTS

Documentation required to schedule an intake meeting:

- Signed Submission Instructions Sheet
- Health Permit Applications – *one per body of water*
- Certification of Contracted Services
- Recorded ownership documents with Assessor's Parcel Number (APN) – *new permits only*

Aquatic Venue Health Permit Application

To be completed by facility ownership; complete one per aquatic venue

Facility Information			
Facility Name:	[REDACTED]		
Facility Site Address:	[REDACTED]	City: LAS VEGAS	State: NV Zip: [REDACTED]
Assessor Parcel Number (APN):	[REDACTED]		
Contact Person:	ROBERT [REDACTED]		
Address:	[REDACTED]	City: Las Vegas	State: Nevad Zip: [REDACTED]
Telephone:	[REDACTED]	Email:	[REDACTED]
Aquatic Venue Type:	[REDACTED]	Surface Area:	[REDACTED]
Facility Type:	[REDACTED]	Associated with living/lodging units:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Users:	<input type="checkbox"/> Hotel/Motel Guests <input checked="" type="checkbox"/> Community Residents <input type="checkbox"/> General Public/Paid Admission <input type="checkbox"/> Program/Class		
Participants	<input type="checkbox"/> Indoor <input checked="" type="checkbox"/> Outdoor <input checked="" type="checkbox"/> Seasonal <input type="checkbox"/> Year-Round		
Hours:	<input checked="" type="checkbox"/> M: <input type="checkbox"/> T: <input type="checkbox"/> W: <input type="checkbox"/> Th: <input type="checkbox"/> F: <input type="checkbox"/> Sa: <input type="checkbox"/> Su:		

Property Ownership Information			
Required documentation: Deed, Lease Agreement, etc.			
Owner of Property:	<input type="checkbox"/> Sole Proprietor <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation <input checked="" type="checkbox"/> LLC		
Owner Name:	Robert [REDACTED]		
Owner Address:	[REDACTED]	City: KNOXVILLE	State: TN Zip: [REDACTED]
Owner Contact Person:	[REDACTED]		
Address:	[REDACTED]	City:	State: Zip:
Telephone:	[REDACTED]	Email:	[REDACTED]
Financial Contact Person:	[REDACTED]		
Address:	[REDACTED]	City:	State: Zip:
Telephone:	[REDACTED]	Email:	[REDACTED]

Owner Name, Print: [REDACTED] Date: 8/21/2024

Owner Signature: [REDACTED]

TYPICAL DELAYS IN THE SUBMITTAL PROCESS:

Incomplete Information

Missing Documents

Missing Equipment Specifications (for Substantial Alterations)

**MINOR REMODEL /
NON-SUBSTANTIAL
ALTERATION**

Non-substantial plan reviews typically include smaller projects and depend on the scope of work.

Application and plans must be submitted to the health district before the start of the remodel work by:

- A professional engineer registered in the state of Nevada,
- An architect registered in the state of Nevada, or
- A licensed contractor who holds a classification A license with an A-10 sub-classification issued by the Nevada State Contractors Board, or who is Nevada registered or licensed to practice their respective design profession as defined by the state of Nevada.

SUBMITTAL DOCUMENTS

Documentation required to schedule an intake meeting:

- Signed Submission Instructions Sheet
- Non-Substantial Alteration Application – *one for each body of water*
- Certification of Contracted Services
- Equipment/material specifications for equipment to be installed or material changes to decking, fencing, etc.
- SOFA Worksheet – *when changing suction outlet covers*

TYPICAL DELAYS IN THE SUBMITTAL PROCESS:

Incomplete Information

Missing Documents

Missing Equipment Specifications
(for Substantial Alterations)



Environmental Health Division – Aquatic Health Program

Email: aquatic@snhd.org | Phone: (702) 759-0572

Non-Substantial Alteration – Application

Complete one per aquatic venue

Facility Name:			
Facility Site Address:	City:	State:	Zip:
Aquatic Venue Name:	SNHD Permit # (found on health permit): PR		

Scope of Work (pump, filter, heater, etc.):

REPLACE BROKEN AQUASTAR # 32COFL DRAIN COVER

Equipment/materials to be removed (make, model, specifications, etc.):

AQUASTAR 2008 # 32 COFL

Equipment/materials to be installed (make, model, specifications, etc.):

**Spec sheets are required with submittal*

AQUASTAR 2017 # 32 COFL

SUBSTANTIALLY SIMILAR
OR
LIKE REPLACEMENTS

From the [2018 SNHD Aquatic Facility Regulations](#), **substantially similar** means the replacement of equipment that has identical hydraulic characteristics and performs to the same manufacturer's specifications.

- **Substantially similar equipment replacements** are identical in function and performance, but not the same make/model, to the outgoing equipment.
- **Like equipment replacements** are identical in all aspects, including function, make, and model number.

SUBMITTAL DOCUMENTS

Documentation required for Substantially Similar:

- Signed Submission Instructions Sheet
- Substantially Similar Alteration Application – *one for each body of water*
- Equipment/material specifications

Documentation required for Like Replacement:

- Like Equipment Replacement Notification Form

Submit the Like Replacement Notification form to aquatic@snhd.org **within five business days of installation** to update SNHD records.

Like equipment replacements can be conducted without review or approval from SNHD – just submittal of the form is needed.

There are no fees associated with like equipment replacements

Which Pool?
3 on property

Aquatic Venue Like Equipment Replacement
(Complete one per aquatic venue)

Facility Information

Facility Name: [REDACTED]			
Aquatic Venue Name: Pool		Permit Number (from health permit) PR:	
Facility Site Address: [REDACTED]	City: Las Vegas	State: NV	Zip: [REDACTED]
Assessor Parcel Number (APN):			

Contractor Information

Pool Contractor Name: [REDACTED]		Company:	
Contact Person: [REDACTED]			
Address: [REDACTED]	City: Las Vegas	State: NV	Zip: [REDACTED]
Telephone: [REDACTED]	Email: [REDACTED]		
Classification:	License #: [REDACTED]	Expiration:	

Facility/Staffing Information

Management Name: [REDACTED]		Company:	
Contact Person: [REDACTED]			
Address: [REDACTED]	City: Las Vegas	State: NV	Zip: [REDACTED]
Telephone: [REDACTED]	Email: [REDACTED]		

Replacement Scope of Work (describe the equipment to be replaced):

Replace Hayward Micro De filter Model # DE3600 with Hayward 3DE3620 Filter

Existing Equipment (make, model, specifications, etc.):

Hayward Micro DE 3600

Replacement Equipment (make, model, specifications, etc.):

Hayward 3DE3620 Filter
Filtration rate 36 ft.2
Flow rate 72 gpm

**TYPICAL DELAYS IN THE
SUBMITTAL PROCESS:**

Incomplete Information


Missing Equipment Specifications
(for Substantially Similar
Replacements)

WWW.SNHD.INFO

FEE SCHEDULE

PAY INVOICE

Plan Review – Aquatic Facility

 Our office is located at 2830 E. Fremont St., Las Vegas, NV 89104. Cash is not accepted at this location.

Annual Permits

Permits & Regulations










– Aquatic Health

- Application Process
- Aquatic Health Regulations
- Qualified Operators and Pool Companies
- Aquatic Health Resources
- Learn More

The Southern Nevada Health District's [2018 Aquatic Facility Regulations](#) defines aquatic venues as any "artificially constructed or modified natural structure where the general public is exposed to water intended for recreational or therapeutic purpose," and requires that each aquatic venue have a valid health permit (AFR 3-101).

Any aquatic facility owner planning to construct an aquatic venue, or planning to remodel an existing aquatic venue, must make application with SNHD and receive written approval prior to starting any work.

-  Additional Resources
-  Change of Permit Holder
-  Hydraulics
-  New Construction and Major
-  Non-Substantial Alteration (Remodel)
-  Substantially Similar
-  Suction Outlet Covers

AQUATIC@SNHD.ORG

Preparing for Inspections

Aquatic Health Plan Review

Before the Inspection



Review your reports

Your plan review comments may include items that need to be addressed before inspection

Remodel reviews include instructions for the inspections

Inspection reports include corrections required before the next inspection



Read emails

Emails will include instructions for the upcoming inspections



Review other documentation

New construction checklists include items that must be completed for each inspection

The contractor may begin construction per the following conditions:

The aquatic venue must close from the time work begins until inspected, approved, and released to operations by SNHD. A complete operational inspection may be conducted at the time of the final remodel inspection. The aquatic venue operator and the contractor must be on-site for all inspections. The contractor is responsible for scheduling all required inspections and work cannot proceed until a required inspection is completed and approved by SNHD. Failure to pass any inspection will result in a reinspection fee. For the final remodel inspection, ensure all gauges and the flow meter are working properly and the filter(s) are clean. Any overdue compliance schedules must be addressed and corrected prior to scheduling the final remodel inspection.

Two means of interlock are required. The installation manual for the controller wiring the controller to pump power and installation of a flow cell. Interlock will be verified at the final remodel inspection.

All applicable disinfection and pH control requirements of the Aquatic Facility Regulations must be complied with at the final remodel inspection.

Pre-Plaster Inspection Checklist

The following items must be completed prior to scheduling a pre-plaster inspection. Failure to complete these items will result in a failed inspection with a \$239.00 re-inspection fee which must be paid prior to scheduling the re-inspection.

1. Barrier Completed and Compliant

- a. Installed fencing matches the approved plan in regards to final materials, height, location, and hardware.
- a. No gaps > 4" from finished grade to bottom of fence or within the fence.
- b. No hand or foot holds within the fence.
- c. All gates and doors entering the enclosure self-closing/self-latching from any open position.
- d. Latching hardware mounted at least 42" from finished grade to bottom of hardware.
- e. Functional permanent locking mechanisms installed on all gates/doors entering the enclosure.
- f. No emergency egress doors entering the enclosure.

2. Pool Area Completed

- a. All landscaping within the enclosure completed.
- b. Power and water available.
- c. Approved deck materials and any deck obstruction(s) installed and completely finished.
- d. Safety Equipment on site.
- e. Area lighting installation completed.

3. Backflow Prevention

- a. Vacuum breakers installed on all hose bibs.
- b. Fill line with either 6" air gap or backflow prevention device installed and tested.
- c. Air gap at waste line.

4. Pool

- a. All pool shell dimension match the approved plans and measurement reference points are indicated.
- b. No coving on any steps and step dimensions coincide with the approved plans.
- c. Handholds, with compliant dimensions, provided as required.
- d. Depth markers installed and tile work completed.
- e. All plumbing fixtures shown on plans must be present.
- f. Suction outlet sumps installed and accessible.
- g. Equalizer line and circulation suction outlet covers on site.
- h. All skimmer parts present.

5. Equipment Room

- a. All installed equipment matches the approved application and is ready for operation.
- b. Free size installed with correct size size

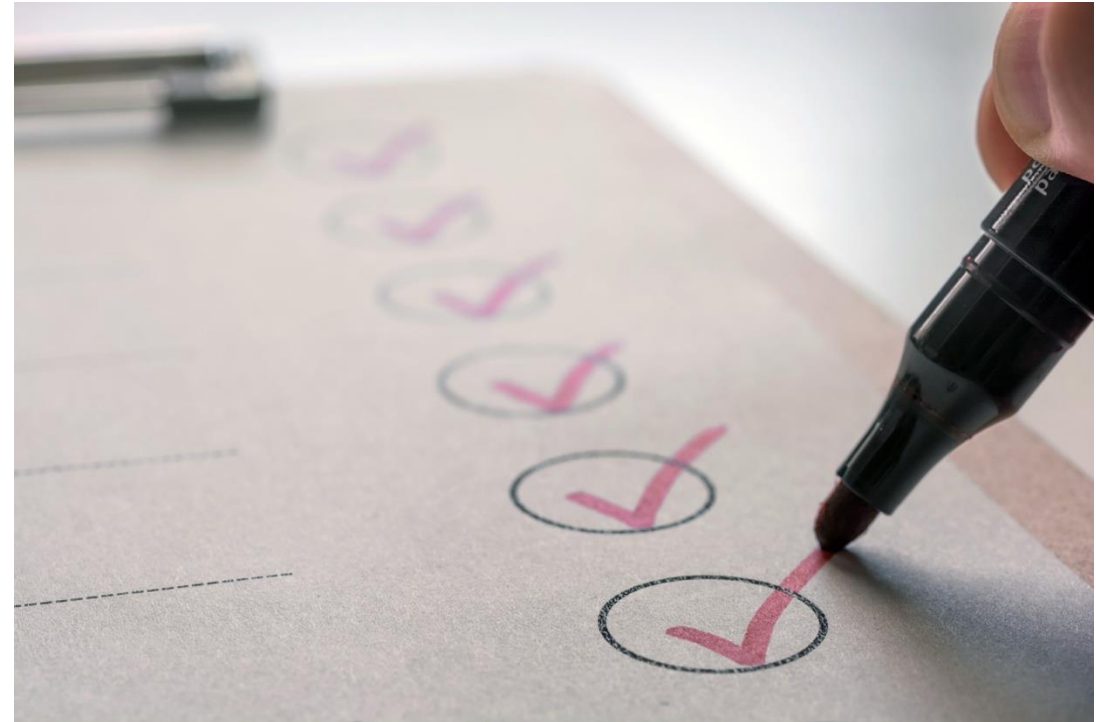
During the Inspection

- Have all required items completed prior to the start of the inspection
- If the scope of work cannot be inspected at the inspection start time, the inspection will need to be rescheduled and a missed appointment fee will be assessed. Examples include:
 - Lighting cannot be checked at a preplaster/lighting inspection
 - Flow cannot be calculated at a pump remodel
 - Water is in the pool at a plumbing inspection



After the inspection

- Prep for the next inspection
 - Read reports and emails
 - Review applicable checklists
- Prep for a reinspection, if applicable (but hopefully not)
 - Review the inspection report
 - Review applicable checklists
- Contact your plan reviewer



Questions?

Calculating Flow

Preparing For Inspections

Required System Flow

- Minimum Flow Rate

gallons / (hours x 60) = gpm

- Maximum Flow Rate

Determined by filter capacity

Table 2-502.9: Aquatic Venue Maximum Allowable Turnover Times

Type of Aquatic Venue

- Activity Pools 4 hours
- Diving Pools 6 hours
- Interactive Water Play Venues* 0.5 hours
- Isolation/Floatation Units* between users 4 Turnovers
- Lazy Rivers 4 hours
- Runout Slides 4 hours
- Wading Pools* 0.5 hours
- Child Amusement Lagoons* 0.5 hours
- Wave Pools 4 hours
- All Other Pools 6 hours
- All Spas 0.5 hours

Routine Inspection Report

Application Review

38	Violation: Facility does not have/maintain a record of contamination incidents Inspector Observation: Logs were not present in pump room Corrective Action: Start maintaining required logs, keep copies on site for 3 years
Overall Inspection Comments:	
Flow Calculations:	
Minimum Required Flow = 77 gpm. Maximum Filter Flow = 140 gpm. Flow Meter: Inoperable	
Flow Calculation:	
Pressure Gauge: $37 \times 2.31 = 85.47$ Vacuum Gauge: $0 \times 1.133 = 0$ TDH = $85.47 - (0) = 85.47$ Flow rate per pump curve: Not on pump curve	
System flow is unknown. The gauges on the suction and/or pressure side of the pump is not functioning. Both the suction and pressure sides of the pump and provide clear photos of both gauge readings to:	
Equipment:	
Filter Pump: (1) Pentair Intelliflo VS @ 3110 RPM Filter Pump Suction Outlet Cover: (1) SDX Valves: (1) Pentair 2" multiport	

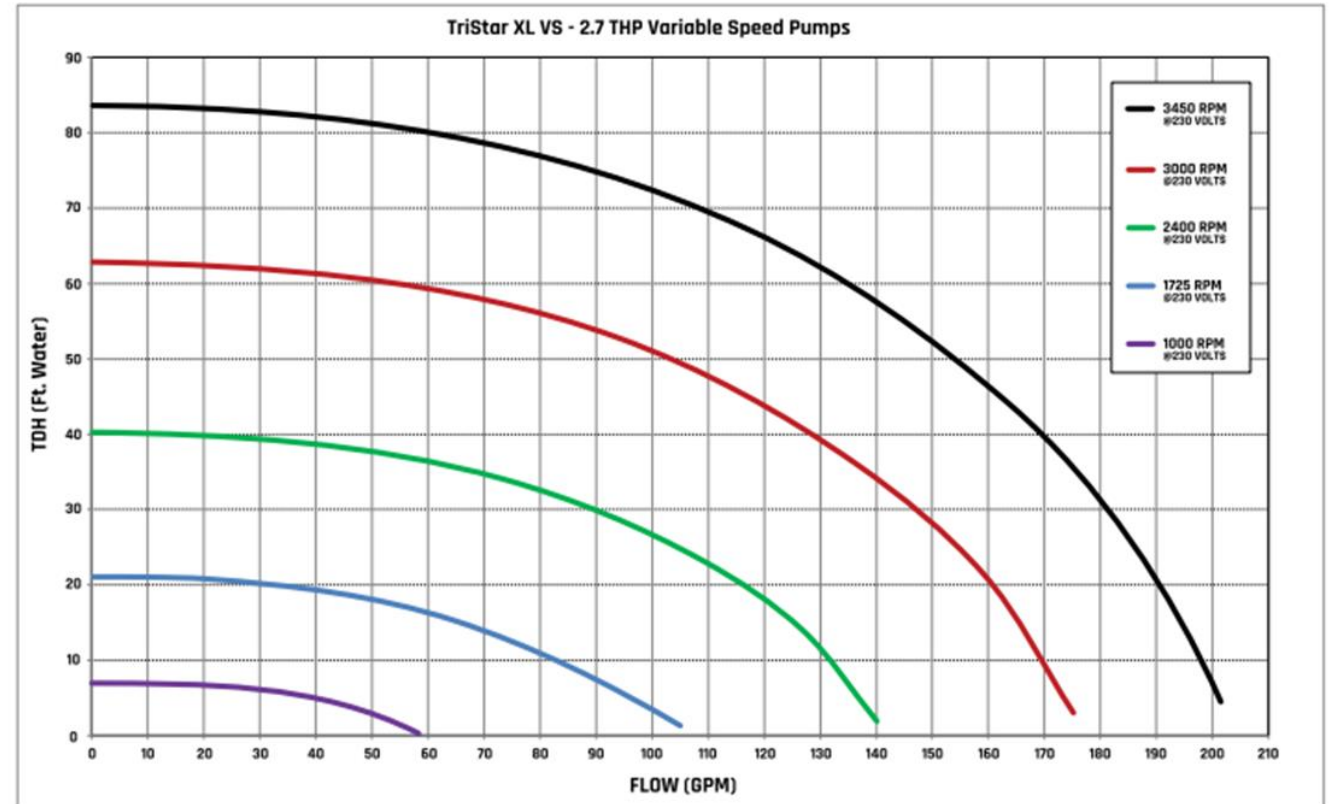
VIOLATIONS, OBSERVATIONS AND CORRECTIVE ACTIONS	
Item No	Observations & Corrective Actions
Overall Inspection Comments:	
Review of the [REDACTED] POOL non-substantial heater remodel.	
Scope of work:	
-Remove Raypak 400,000 BTU C-R406A-EN-X -Install Raypak 400,000 BTU ASME B-R406A-EN-X	
System:	
Minimum Flow Rate: 142 GPM Maximum Flow Rate: 200 GPM	
Raypak B-R406A-EN-X ASME Heater: Flow minimum 20 gpm - Flow maximum 100 gpm.	
Because the system's maximum required flow exceeds the maximum flow rate of the heater, the new heater	
Previously obtained system TDH: Pump #1 = 76 & Pump #2 = 74	
Old heater head loss: 17 ft of head @ 100 gpm	
Proposed heater head loss: 16.7 ft of head @ 100 gpm	
Previously obtained TDH from both pumps combined was 150. The old heater had a pressure drop of 17 feet	
pressure drop of 16.7 ft of head @ 100 gpm for a difference of ~0.3 ft of head. The new TDH with the proposed	
1-190 gpm. Therefore the new flow meets minimum flow requirements and will not exceed the maximum flow	

Variable Speed (VS) Pumps

- One graph / One pump
- Multiple published curves
- Pump must be set to a published curve



TRISTAR XL PERFORMANCE COMPARISON



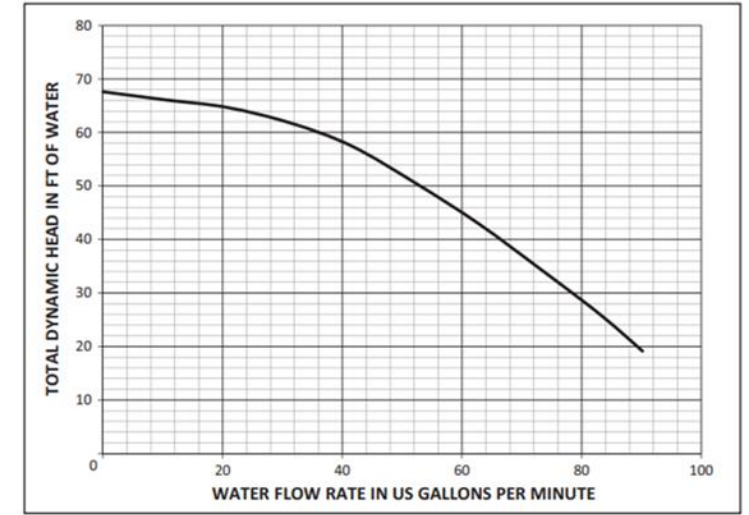
Single Speed Pumps

- One graph
- Curve is specific to that pump
- May have multiple pumps per graph
- One curve per pump
- Ensure correct curve is used



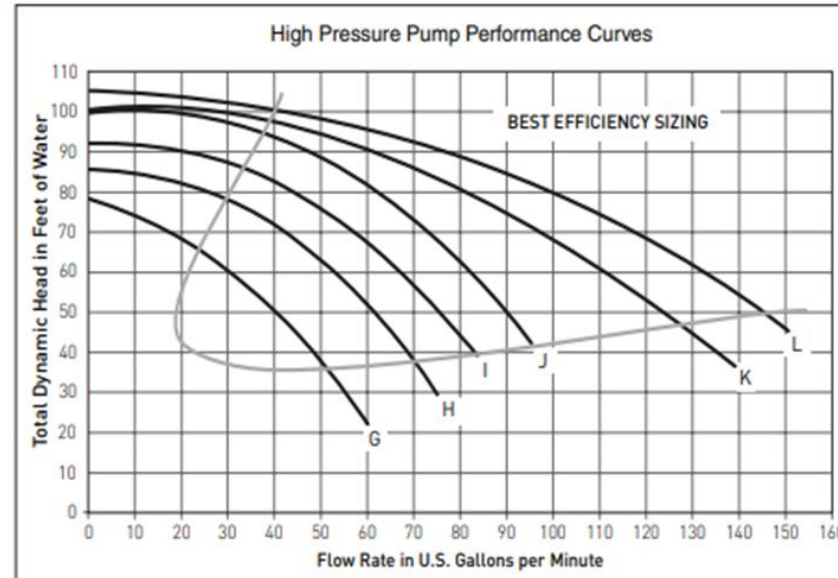
TECHNICAL DATA

Performance Curves



WHISPERFLO® High Performance Pump Installation and User's Guide

DISCONTINUED



High Pressure Curve Key	
	MOTOR
G	1/2FE, 1/2F and 3/4A
H	3/4FE, 3/4F and 1A
I	1FE, 1F, 1-1/2A and 1FE 3PH
J	1-1/2FE, 1-1/2F, 2A and 1-1/2FE 3PH
K	2FE, 2-1/2AE, 2F, 2-1/2A and 2FE 3PH
L	3FE, 3F and 3FE 3PH

Gauges

- Ensure that they are working
- Turn pump off
- If the gauges don't go to 0, it's broken
- Can't always tell by appearances

- Elevation of the pump relative to the aquatic venue can affect readings



Calculating TDH

Pressure side = psi x 2.31

Vacuum side = -inHg x 1.13

Pressure - -Vacuum = System TDH


$$P = 22 \times 2.31 = 50.81$$


$$V = 2 \times 1.13 = 2.26$$

$$\text{TDH} = 50.81 + 2.26 = 53.07$$



Using Graphs

Hayward Tristar XL @3450 rpm

P: $22 \times 2.31 = 50.81$

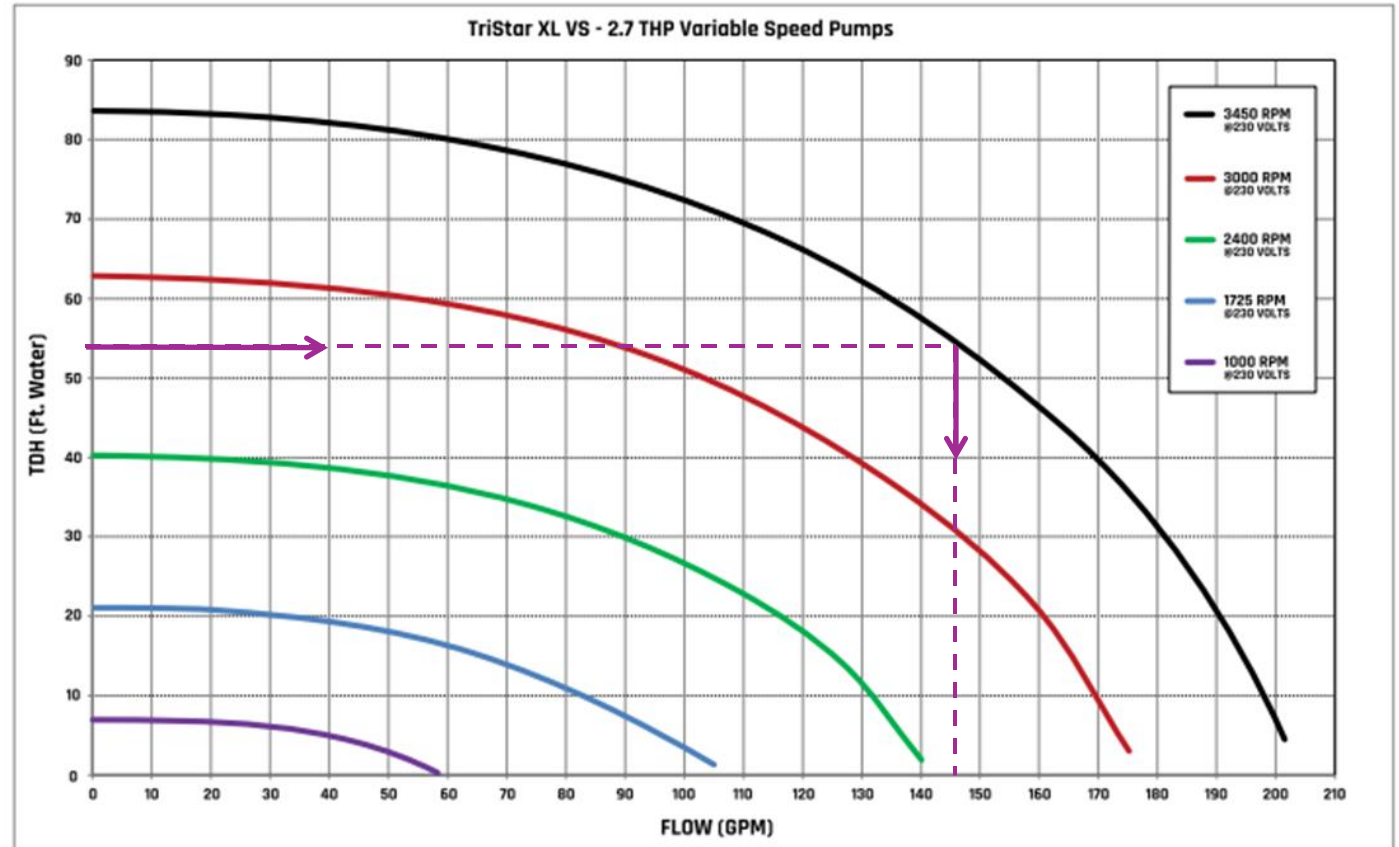
V: $2 \times 1.13 = 2.26$

TDH: $50.81 + 2.26 = 53.07$

System Flow: ~ 147 gpm



TRISTAR XL PERFORMANCE COMPARISON



System Flow parameters

Minimum Flow = 138 gpm

Maximum Flow = 196 gpm



Pump: IntelliProXF @3450 rpm

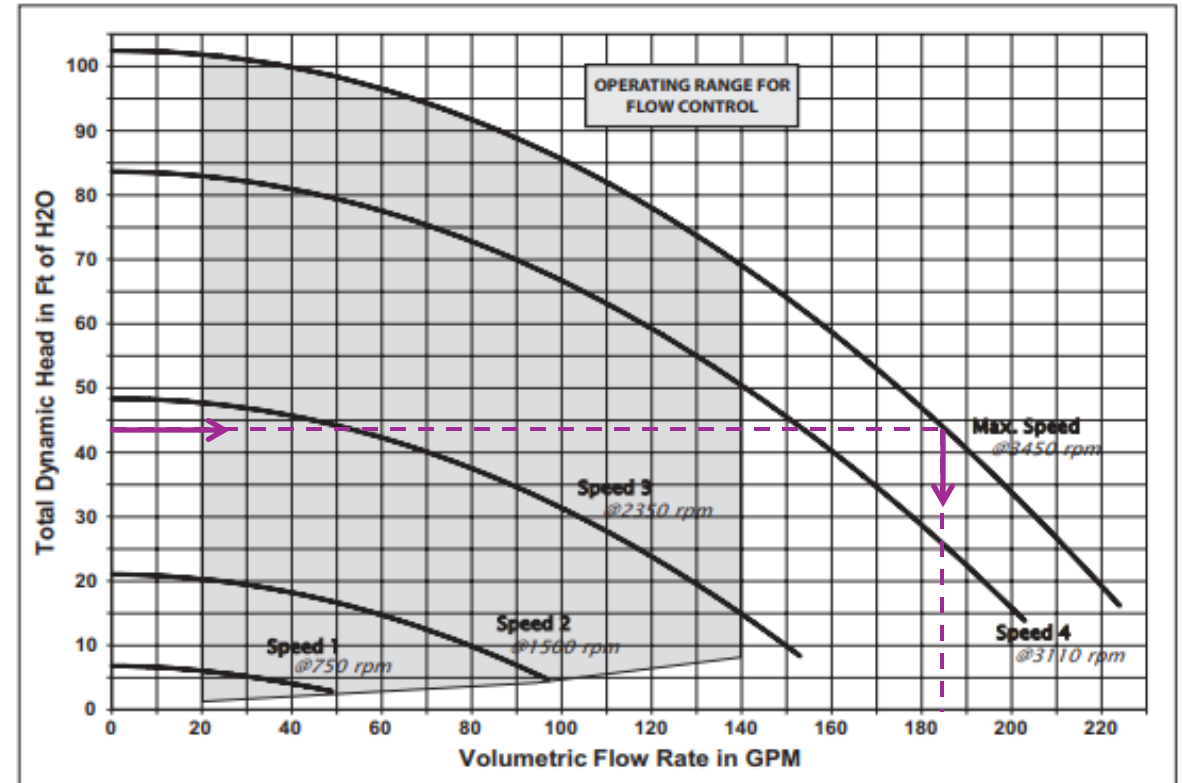
P: 16 psi x 2.31 = 37

V: -6 inHg x 1.13 = -7

TDH: 37 + 7 = 44

System Flow = ~185 gpm

Pump Performance Curves



Minimum Required Flow: 30 gpm
Maximum Filter Flow: 72 gpm

P = 15 psi

V = 6 inHg

P: 15 x 2.31 = 34.65

V: 6 x 1.13 = 6.78

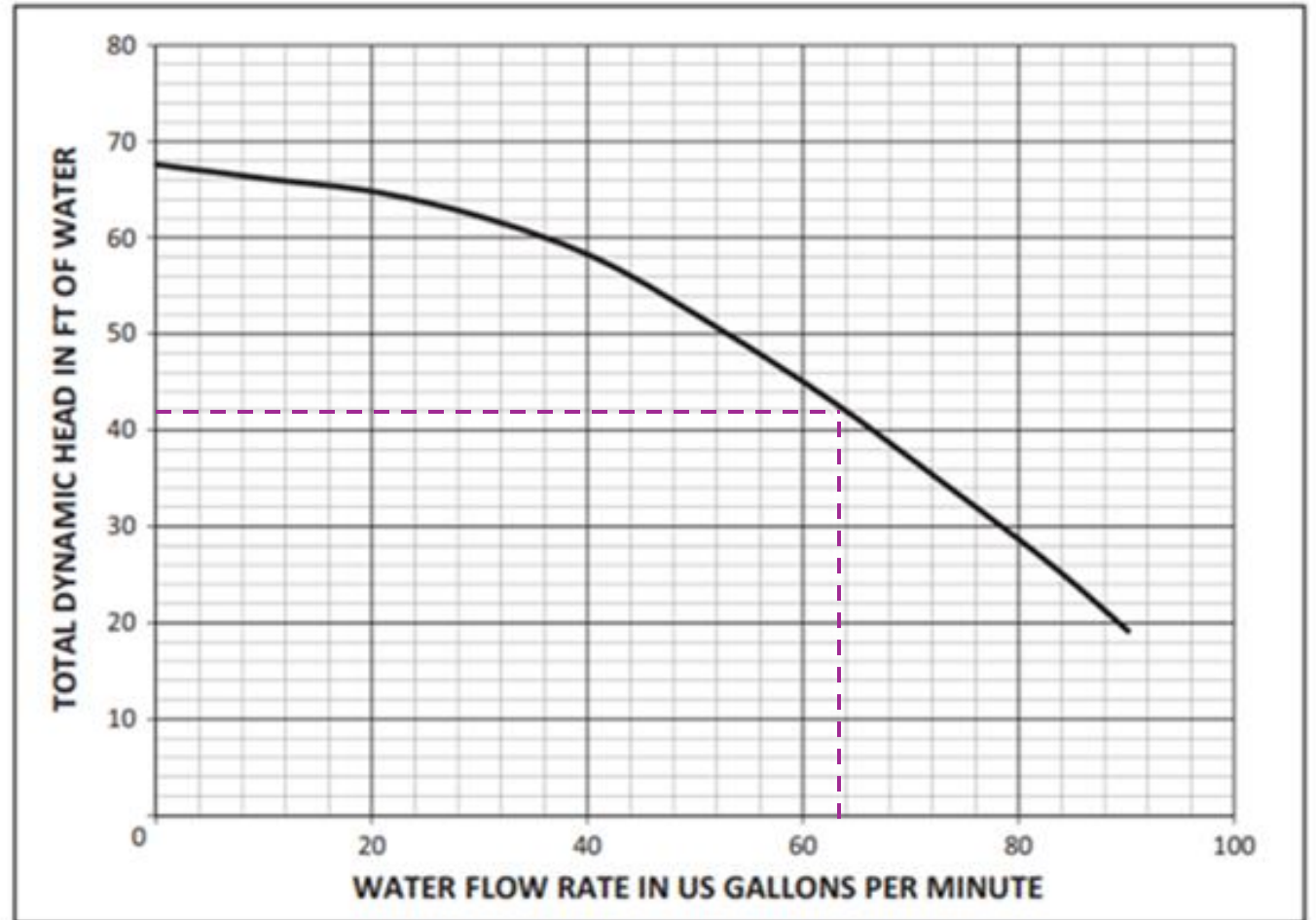
TDH: 35 + 7 = 42

System Flow = ~64 gpm

WhisperFlo® High Performance Pump

TECHNICAL DATA

Performance Curves



Minimum Flow = 73 gpm
Maximum Flow = 141 gpm

IntelliFlo® VS+SVRS Variable Speed Pump

Pump at **3110** rpm

P = **20** psi

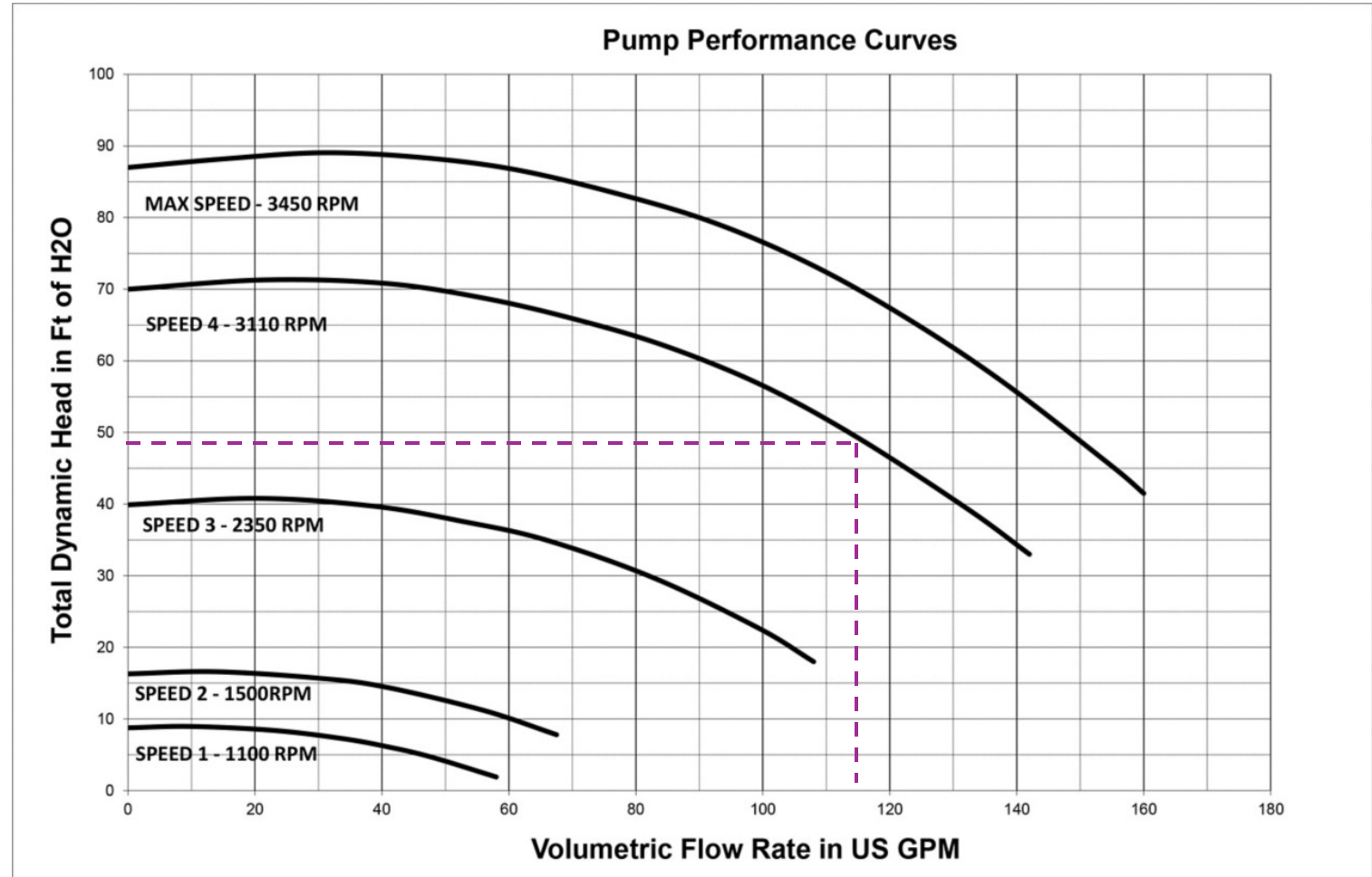
V = **3** inHg

P: **20** x 2.31 = **46.2**

V: **3** x 1.13 = **3.39**

TDH: **46** + **3** = **49**

System Flow = ~115 gpm



Minimum Flow = 50 gpm
 Maximum Flow = 141 gpm

P: 25 psi

V: 7 inHg

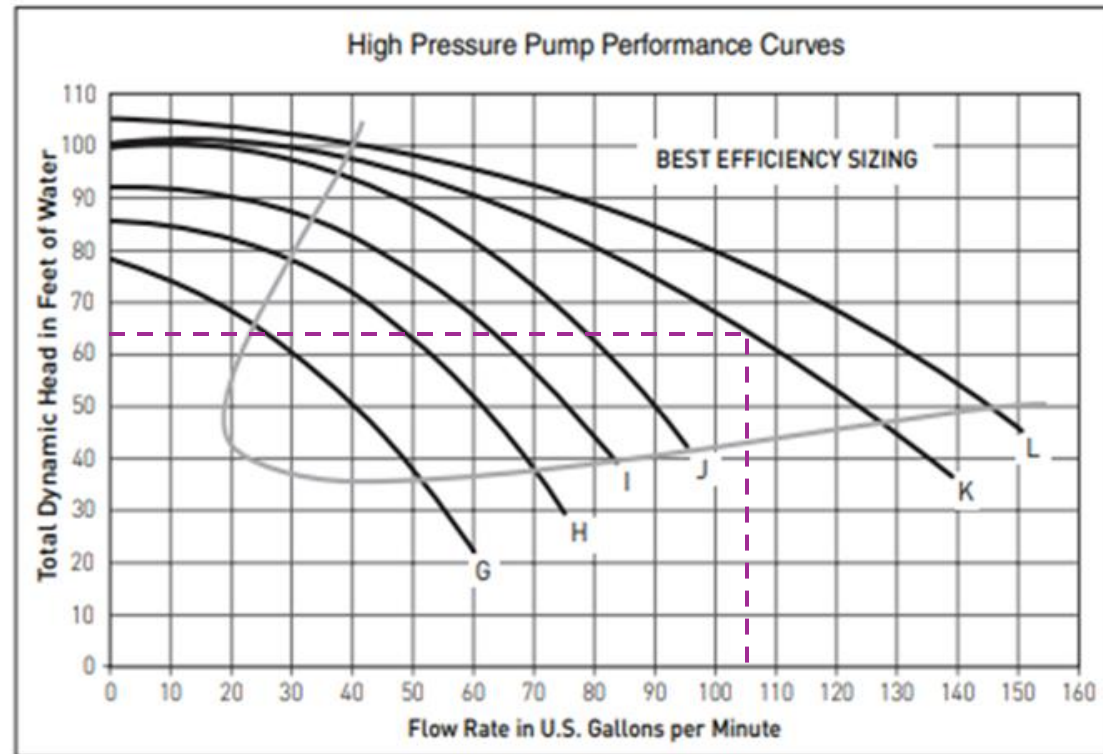
P: 25 x 2.31 = 57.75

V: 7 x 1.13 = 7.91

TDH: 58 + 8 = 64

System Flow: ~106 gpm

Pentair Challenger CHII-NI-2FE



High Pressure Curve Key	
	MOTOR
G	1/2FE, 1/2F and 3/4A
H	3/4FE, 3/4F and 1A
I	1FE, 1F, 1-1/2A and 1FE 3PH
J	1-1/2FE, 1-1/2F, 2A and 1-1/2FE 3PH
K	2FE, 2-1/2AE, 2F, 2-1/2A and 2FE 3PH
L	3FE, 3F and 3FE 3PH

Multiple Pumps

Pump #1 Hayward Tristar XL @3450 rpm

$$P: 22 \times 2.31 = 50.81$$

$$V: -2 \times 1.13 = -2.26$$

$$\text{TDH: } 50.81 - -2.26 = 53.07$$

System Flow: ~147 gpm

Pump #2: IntelliProXF @3450 rpm

$$P: 16 \text{ psi} \times 2.31 = 37$$

$$V: -6 \text{ inHg} \times 1.13 = -7$$

$$\text{TDH: } 37 - -7 = 44$$

System Flow: ~185 gpm

Pump #1 Flow + Pump #2 Flow = System Flow

$$147 \text{ gpm} + 185 \text{ gpm} = \sim 332 \text{ gpm}$$

Minimum Flow = 80 gpm
Maximum Flow = 141

$P = 30 \text{ psi} \times 2.31 = 69$

$V = 3 \text{ inHg} \times 1.13 = 3$

$P + V = 72 \text{ TDH (clean)}$

System Flow = ~110 gpm (clean)

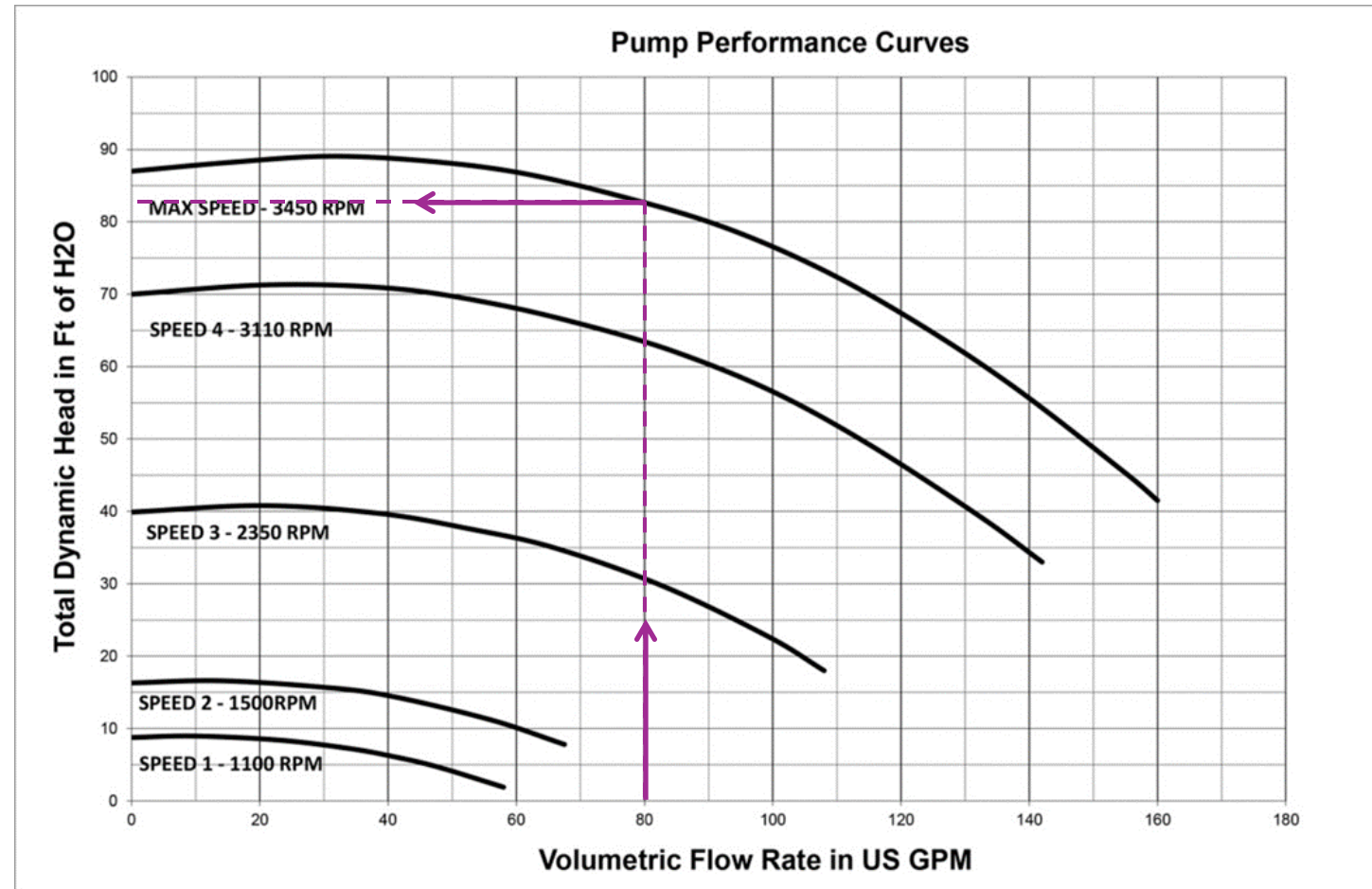
Dirty Filter = Clean Filter + 23.1 ft of head

$72 \text{ TDH} + 23.1 \text{ TDH} = 95 \text{ TDH (dirty)}$

TDH at min flow – System TDH = feet of head between clean and dirt filter conditions

$82 \text{ TDH} - 72 \text{ TDH} = 10 \text{ ft of head between clean and dirty}$

IntelliFlo® VS+SVRS



Questions?

Thank you

Suction Outlet Fitting (SOFA)

A woman with curly hair, wearing a green long-sleeved shirt and a black skirt, stands holding a whiteboard. The whiteboard has two lines of text written on it. The background is a solid teal color.

Broken Drain Covers!!!!
Closed with a \$909 closure fee!!





Suction System: Filtration

Model #	VSFHP165JEP	Max Flow Rating	120 GPM	Unblockable
Location	Wall	SOFA Quantity	0	
# of ports	2	Min Sump Depth	14 in	

	Port 1	Port 2	Port 3	Port 4
Pipe size	2.5"	2.5"		
Port location	vac port	North skimmer		
Pump model	VSFHP165JEP	VSFHP165JEP		
Pump maximum potential flow	120 GPM	120 GPM		
Pump actual flow	50 GPM	40 GPM		



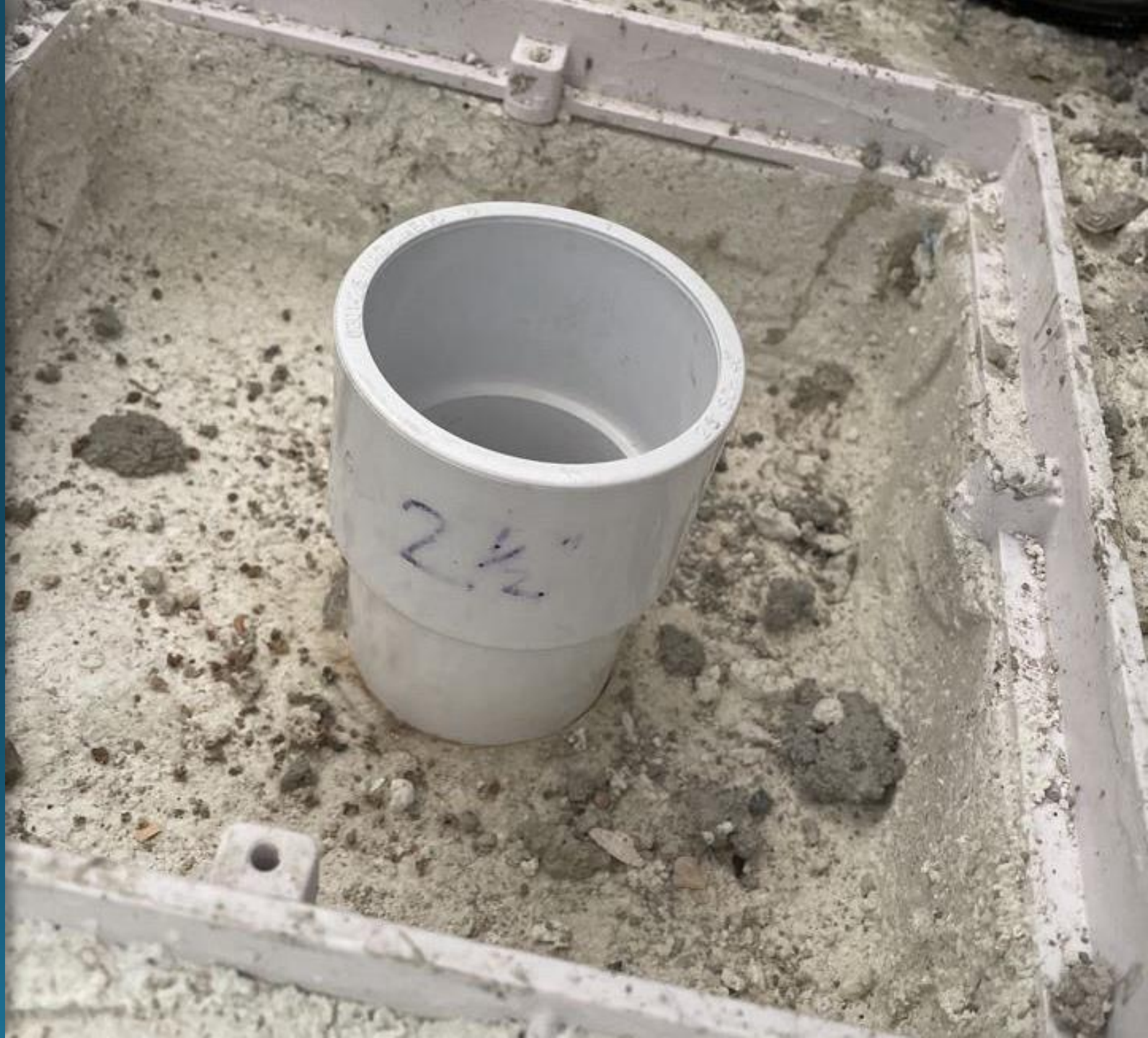
REJECTED



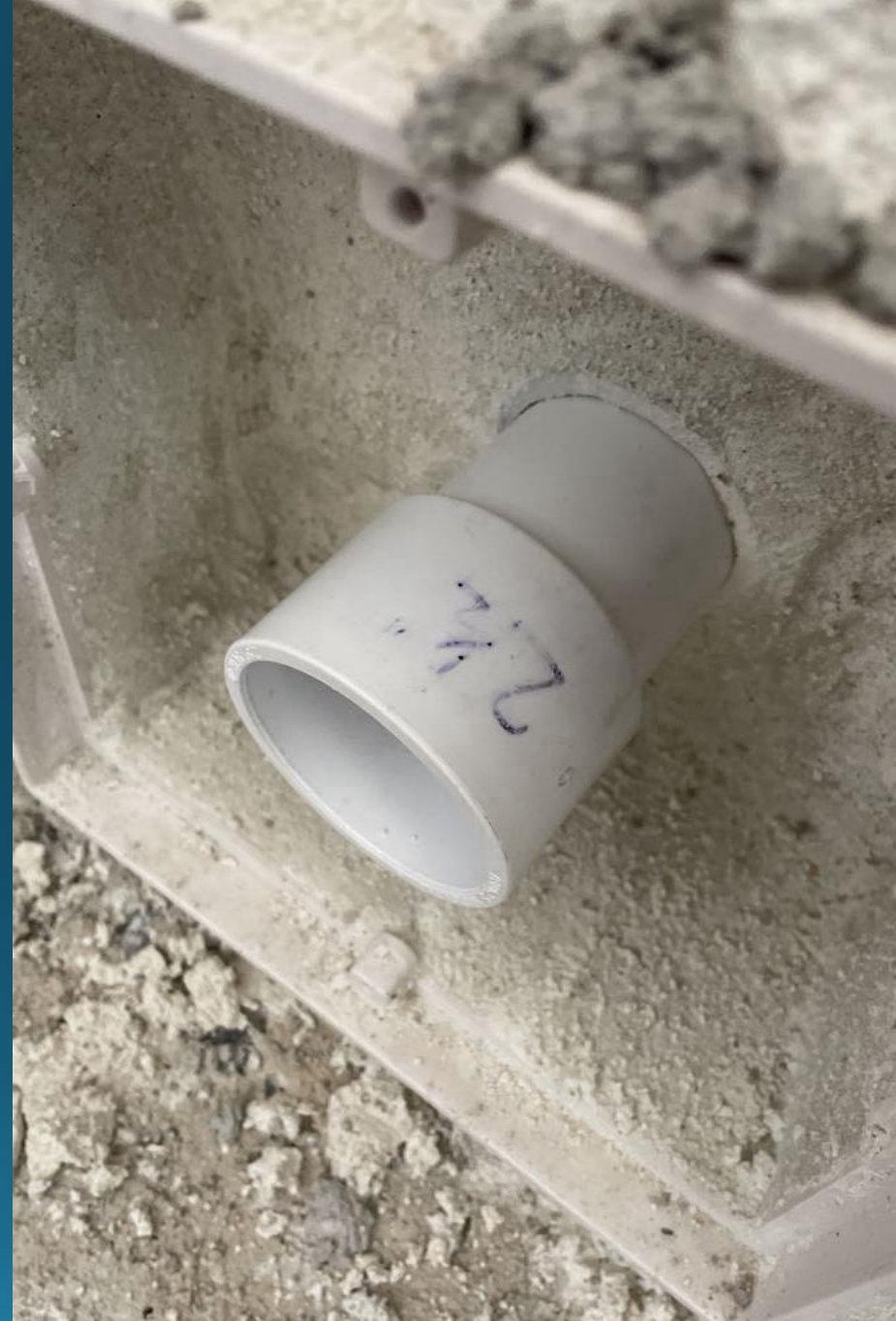
SN/D

36.02422922, -114.96336850 9/26/2024 9:28:28

- Hydrotherapy Jet Outlet on the Floor



- Hydrotherapy Jet Outlet on the Wall



- Filtration Outlet on the Floor



36.02451814, -114.96367220

- Filtration Outlet on the Wall



But it's full of water!

- Next best option is to look in the pump room. 96.4% of the time the plumbing inside the aquatic venue will match the plumbing in the equipment room.



What do we know?

- The aquatic venue is a spa
- It has two systems; Filtration and Jets
- It requires four Suction Outlet Fitting Assemblies (SOFAs)
- Two are on the floor and two are on the wall
- Filtration is 2 inches and Jets are 2 ½ inches

Choosing a SOFA

All the new drains have new instructions concerning flow rates, pipe sizes and sump depths. You must follow these new instructions to make it a compliant installation.

The manufacturer documentation will include a flow rating for different pipe size and sump configurations

SDX₂

SOFA SDX2 FLOW RATINGS

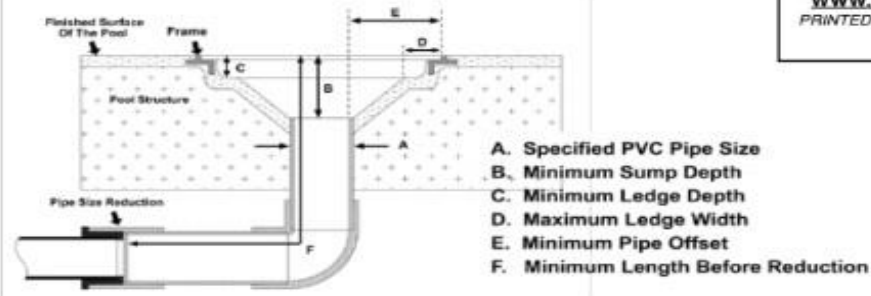
Flow Rating (GPM)	Pipe Size	Pipe Port Orientation	Drain Mounting Orientation	Flow Rating (GPM)	Pipe Size	Pipe Port Orientation	Drain Mounting Orientation
180	3"	Side	Floor	140	3"	Side	Wall
116	2.5"	Side	Floor	108	2.5"	Side	Wall
100	2"	Side	Floor	100	2"	Side	Wall
60	1.5"	Side	Floor	60	1.5"	Side	Wall
178	3"	Bottom	Floor	140	3"	Bottom	Wall
120	2.5"	Bottom	Floor	108	2.5"	Bottom	Wall
100	2"	Bottom	Floor	100	2"	Bottom	Wall
60	1.5"	Bottom	Floor	60	1.5"	Bottom	Wall

Aquastar

Cover Model Number:
9MFxxx



FIGURE 1 – SOFA MODEL & FLOW PATH



FOR MOST CURRENT INFORMATION
SCAN THE QR CODE OR VISIT
WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE
PRINTED DOCUMENTS MAY NOT HAVE THE MOST CURRENT FLOW
RATINGS OR INSTALLATION OPTIONS.



SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
9MF-9f_A-2b_B3_C1.6_D0.5_E2.8_F16	2" (b)	3"	Floor (f)	170	A
9MF-9f_A-2.5b_B3_C1.6_D0.5_E2.6_F16	2.5" (b)	3"	Floor (f)	186	B
9MF-9f_A-3b_B3_C1.6_D0.5_E2.5_F16	3" (b)	3"	Floor (f)	275	C
9MF-9f_A-4s_B5.6_C1.6_D0.5_E1.7_F16	[Sump P/N 9-3SB] 4" (s)	5.6"	Floor (f)	258	D
9MF-9f_A-4b_B9.8_C1.6_D0.5_E1.8_F16	4" (b)	9.8"	Floor (f)	275	E
9MF-9w_A-1.5b_B3_C1.6_D0.5_E0.6_F16	1.5" (b)	3"	Wall (w)	126	F
9MF-9w_A-2b_B3_C1.6_D0.5_E2.8_F16	2" (b)	3"	Wall (w)	170	G
9MF-9w_A-2.5b_B3_C1.6_D0.5_E2.6_F16	2.5" (b)	3"	Wall (w)	186	H
9MF-9w_A-3b_B3_C1.6_D0.5_E2.5_F16	3" (b)	3"	Wall (w)	200	I
9MF-9w_A-4b_B9.8_C1.6_D0.5_E1.8_F16	4" (b)	9.8"	Wall (w)	275	J

Note 1: "SOFA Model No" nomenclature; bottom pipe = (b), side pipe = (s). See Fig 1 for capital letters A through E

Note 2: Head loss inHg is measured 16 to 24 inches from the finish surface of the pool. Reference Fig 1 dimension F.



Suction Outlet Fitting Assembly (SOFA) Worksheet
(One worksheet required per aquatic venue)

Recent changes to the *American National Standard for Suction Outlet Fitting Assemblies (SOFA) for Use in Pools, Spas, and Hot Tubs*, ANSI/APSP/ICC-16 2017, have resulted in new testing procedures to determine the maximum allowable flow rate through the SOFA/drain cover. Southern Nevada Health District 2018 Aquatic Facility Regulations section 2-502.5 requires flow rates to comply with the APSP-16 standard.

Instructions:

- This worksheet is required for all SOFA replacements, including VGB 2008-listed models
- If a SOFA is being replaced, this worksheet must be submitted prior to the scheduled review date. **Submission and approval must occur prior to the start of work**
- Once plumbing and sump configuration have been determined and a SOFA has been selected for the system*, fill out the fields below. All fields are required. Incomplete or missing information will result in delays
- Plumbing and sump configurations that have not been tested/listed to the appropriate standard will not be approved
- The applicant is responsible for ensuring that all installation requirements are met

*The maximum flow potential of the pump and operating flow rate must be determined prior to selecting a SOFA

Inspections:

- A plumbing inspection will be conducted to verify sump depth and pipe size.
- A final inspection will be required unless the scope of work is limited to SOFAs and the pump maximum potential flow is less than the rating of the SOFA. In these cases, photos may be accepted in lieu of the final inspection.

SOFA Configuration:

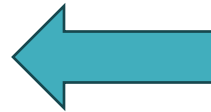
- SNHD review is limited to plumbing configuration, pipe size, and sump depth. Refer to manufacturer installation instructions/VGBA certified documents for specific installation requirements
- For sumps with more than one pipe, ensure minimum sump depth is based on the pipe size with the deepest sump requirement

Suction System:

Model #	<input type="text" value="Choose one"/>	Max Flow Rating	GPM	<input type="text" value="Choose one"/>
Location	<input type="text" value="Choose one"/>	SOFA Quantity		
# of ports		Min Sump Depth	in	

	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System: Choose one



Model #	Choose one	Flow Rating	GPM	Choose one
Location	Choose one	Quantity		
# of ports	Choose one	Imp Depth	in	

	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System: Filtration

Model #	9MFxxx	Max Flow Rating	170	GPM	Choose one
Location	Choose one	SOFA Quantity			
# of ports		Min Sump Depth		in	

	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System: Filtration

Model #	9MFxxx	Max Flow Rating	170	GPM	Choose one <input type="text" value="Choose one"/>
Location	Floor <input type="text" value="Floor"/>	SOFA Quantity	2		Choose one
# of ports		Min Sump Depth		in	Blockable Unblockable



	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System:



Model #	<input type="text" value="0MFxxx"/>	Max Flow Rating	<input type="text" value="GPM"/>	<input type="text" value="Choose one"/>
Location	<input type="text" value="Choose one"/>	SOFA Quantity		
# of ports	<input type="text" value="Choose one"/>	Min Sump Depth	<input type="text" value="in"/>	
	<input type="text" value="Floor"/> <input type="text" value="Wall"/> <input type="text" value="Floor and Wall"/>		<input type="text" value="Port 2"/>	<input type="text" value="Port 3"/>
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System: Filtration

Model #	9MFxxx	Max Flow Rating	170	GPM	Blockable <input type="button" value="v"/>
Location	Floor and Wall <input type="button" value="v"/>	SOFA Quantity	2		
# of ports		Min Sump Depth		in	

	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System:

Model #	9MFxxx	Max Flow Rating	170	GPM	<input type="text" value="Blockable"/>
Location	<input type="text" value="Floor and Wall"/>	SOFA Quantity	2		
# of ports	1	Min Sump Depth		in	

	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System:



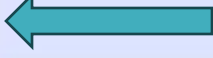


Model #	<input type="text" value="9MFxxx"/>	Max Flow Rating	<input type="text" value="170"/>	<input type="text" value="GPM"/>	<input type="text" value="Choose one"/>
Location	<input type="text" value="Choose one"/>	SOFA Quantity	<input type="text" value="2"/>		
# of ports	<input type="text" value="1"/>	Min Sump Depth	<input type="text" value="3"/>	<input type="text" value="in"/>	



	Port 1	Port 2	Port 3	Port 4
Pipe size				
Port location				
Pump model				
Pump maximum potential flow				
Pump actual flow				

Suction System: Filtration ▼

Model #	9MFxxx	Max Flow Rating	170	GPM	Blockable
Location	Floor and Wall ▼	SOFA Quantity	2		
# of ports	1	Min Sump Depth	3	in	

	Port 1	Port 2	Port 3	Port 4
Pipe size	2"			
Port location	Floor and Wall			
Pump model	IntelliFlo vs+svrs			
Pump maximum potential flow	170 gpm			
Pump actual flow	140 gpm			

Suction System: Auxiliary/Jet

Model #	9MFxxx	Max Flow Rating	186	GPM	Blockable <input type="button" value="v"/>
Location	Floor and Wall <input type="button" value="v"/>	SOFA Quantity	2		
# of ports	1	Min Sump Depth	3	in	

	Port 1	Port 2	Port 3	Port 4
Pipe size	2 1/2"			
Port location	Floor and Wall			
Pump model	IntelliFlo vs+svrs			
Pump maximum potential flow	170 gpm			
Pump actual flow				

Equalizer SOFA

- **Clark County Swimming Pool and Spa code 315.5 Equalizers**
- Equalizers on skimmers shall be prohibited.
- New aquatic venue projects from here on in shall not include the use of skimmer equalizer lines.
- Existing aquatic venues that have skimmer equalizer lines installed can:
 - Keep existing equalizer lines but must have a SOFA compliant with current VGBA 2017 standards (including flow rating and sump depth requirements)
 - Eliminate the equalizer line by removing all water from the line, capping the line opening on aquatic venue wall and plastering over it, and inserting a permanent plug in the line opening inside the skimmer.

Something new.



CERTIFICATE OF CONFORMITY

SDX HIGH FLOW SAFETY DRAIN

Submerged Suction Outlet
For Single or Multiple Drain Use
For Use on Wall and Floor
No Sump Required

The SDX High Flow Safety Drain is a 10" diameter frame and grate or bulkhead style drain fitting. It includes a back plate and cover that is affixed to a frame, a bulkhead or an existing drain sump. SDX Retro replaces most existing drain covers up to 10" in diameter.

FLOW RATING FLOOR WALL

One SDX or SDX Retro 200 GPM
Square inches of opening = 43.201 sq. inches
Velocity @ 200 GPM = 1.485 fps

PLACE OF MANUFACTURE:

Paramount Pool & Spa Systems
295 E. Corporate Place
Chandler, AZ 85226 USA
(480) 893-7807

NAME OF THIRD PARTY LABORATORY: IAPMO R&T LAB

TEST RECORD DOCUMENTATION: IAPMO R&T
5001 E. Philadelphia Street
Ontario, CA 91761
(909) 472-4104

Test Report—March 17, 2011

LIFE SPAN: 6 YEARS FROM DATE OF INSTALLATION



COMPLIANT WITH:

- Virginia Graeme Baker Pool and Spa Safety Act
- ASME A112.19.9-2007
- ANSI/APSP - 7
- IAPMO Listed

SDX Model Numbers:

- Concrete XXX-162-2212-XX
- Vinyl XXX-172-2212-XX
- Fiberglass XXX-182-2212-XX
- Retro XXX-192-2212-XX
- Retro Vinyl XXX-169-2212-XX
- Retro Equalizer XXX-157-2212-XX

Install Date: _____

Replacement 5 years from installed date.

NOTE: Suction Safety Standards require that drain grates used to cover sumps must have the suction pipe out at least 1.6 times the pipe diameter behind the drain cover. There is NO SUMP requirement for SDX because the patented design provides uniform suction regardless of pipe location. If the pipe is too close to the back of the cover, it may restrict water flow to the pump, potentially reducing hydraulic efficiency, but this does not pose a suction safety hazard. This is confirmed by the IAPMO Test Report. This Product must be installed in accordance with all applicable Federal, State and Local Codes.

REV063011

VGBA DRAIN COVER IDENTIFICATION INFORMATION

ATTENTION INSTALLER - Please carefully cut along the dashed line and remove from instructions. Fill in the blank spaces below upon installing drain cover. Permanently post as near as feasible to the pump control and provide a copy of this information to the pool owner to be kept with other important pool-related documents.

Manufacturers Name:
AquaStar Pool Products Inc.

Cover/Grate Part Number:
Please check the box () of the cover being installed:

- 8MFxxx CC8xxx R8MFxxx CC10xxx
 10MFxxx 10AVRxxx 9MFxxx R9MFxxx
 12MFxxx WAV9WRxxx WAV12WRxxx R12MFxxx
 18MFxxx R18MNFxxx 8MFSBVxxx



SOFA FLOW RATING
For SOFA flow rating please scan the QR code or visit www.aquastarpoolproducts.com/flowcode

Service Life of the Cover Grate:
5 years from the date of installation

Certified Suction Outlet Fitting Assembly (SOFA) Flow Ratings:
Please use the QR Code or Link to find the SOFA Specific flow rate for your configuration.

SOFA Model #: _____

Orientation: _____ (wall or floor) **SOFA Flow Rating:** _____ GPM

Location of the Installed Suction Outlet Fitting Assembly:
Please describe the location of the suction outlet fitting assembly.

Location: _____

Installation Date:
Please mark the month and year that the drain cover was installed below.

Month						Year					
1	2	3	4	5	6	21	22	23	24	25	26
7	8	9	10	11	12	27	28	29	30	31	32

REFER TO INSTRUCTIONS OR VISIT OUR WEBSITE FOR ADDITIONAL INFORMATION - (877) 768-2717 - www.aquastarpoolproducts.com - MADE IN THE USA - © 2024 AquaStar Pool Products, Inc. - IN021-062724



A Safe Drain is No Accident™
VGBA Compliance Every Pool, Every Time

IMPORTANT SAFETY INFORMATION
READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS

This VGBA Suction outlet has an installation specific flow rating and this product **SHALL NOT** be installed on a pumping system that is capable of exceeding this limit, which varies based on the number and location of installed suction outlets. **READ** and **FOLLOW** the section of the included installation instructions explaining how to calculate the suction system flow ratings and that of the installed pumping system.

WARNING! This is a Blockable VGBA Suction Outlet that must **ONLY** be installed in a multiple VGBA Suction Outlet system or be installed in a suction system that also includes one or more of the following devices or systems designed to prevent suction entrapment.

SAFETY VACUUM RELEASE SYSTEM - A system that ceases operation of the pump, reverses the circulation flow, or otherwise releases the vacuum in a circulation system when a blockage is detected, that has been tested by an independent third party and found to conform to ASME/ANSI standard A112.19.17 or ASTM standard F2387.

SUCTION-LIMITING VENT SYSTEM - A circulation system that incorporates a tamper-resistant atmospheric vent that is hydraulically located between the suction outlet and the circulation pump, which allows air to enter the circulation system and release the vacuum within the system when the suction outlet is blocked and the circulation pump is operating.

GRAVITY DRAINAGE SYSTEM - A powered circulation system, which utilizes a collector tank hydraulically located between the pump and the suction outlet that is filled by the gravitationally induced flow of water from the suction outlet, and is vented to the atmosphere by a tamper-resistant opening.

AUTOMATIC PUMP SHUT-OFF SYSTEM - A system that is designed to sense blockage of the suction fitting and then turn-off the power to the pump, and subsequently release the vacuum in the circulation system when a blockage is detected.

DRAIN DISABLEMENT - A device or system that permanently stops the flow of water from a SOFA.

THIS LABEL IS TO BE REMOVED BY THE INSTALLER ONLY

Questions

