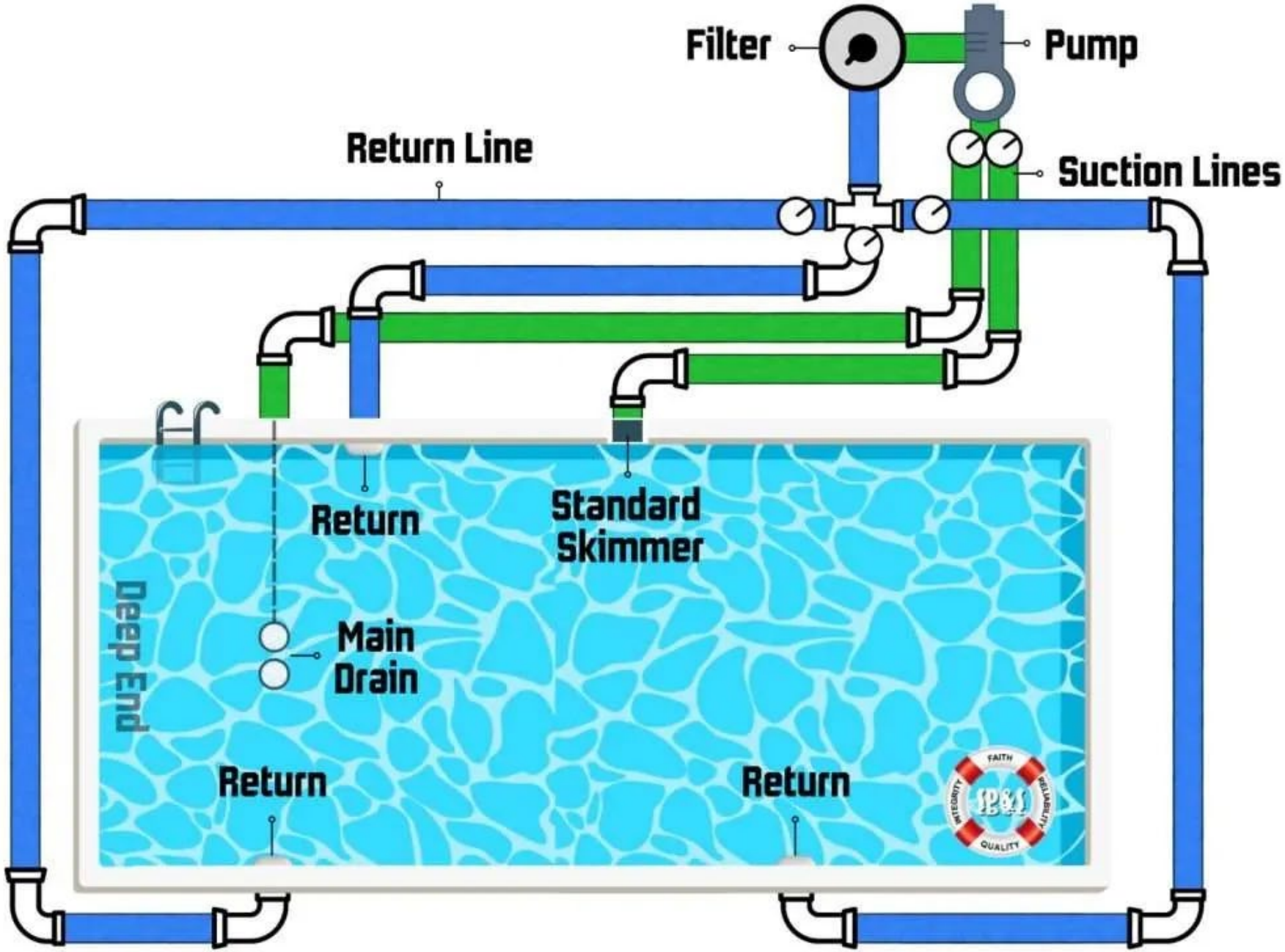
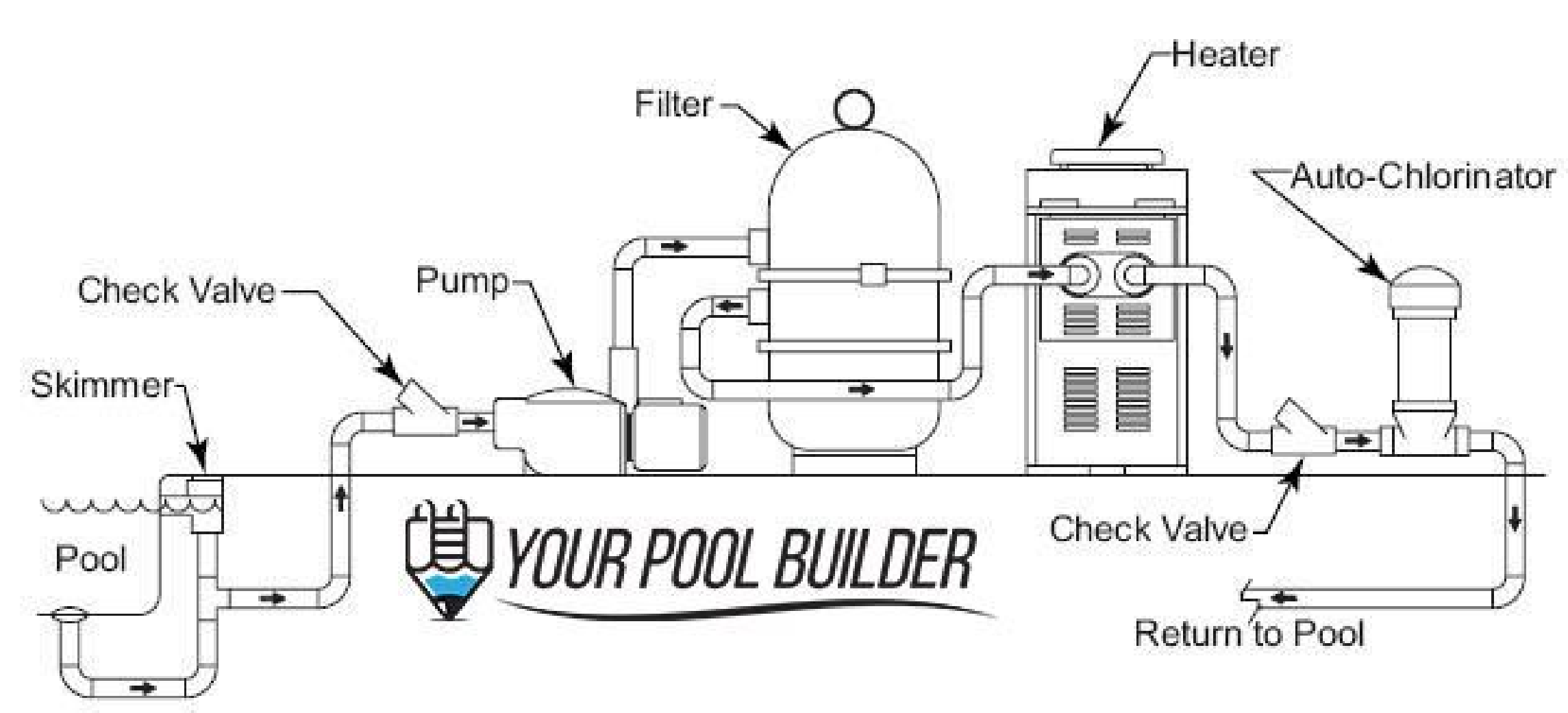
.2518 Circulation equipment

- Surface overflow systems / Recessed surface skimmers
- Drains
- Piping and valves- Suction and Return
- Pumps
- Filter(s)
- Flow meter
- Inlets
- Vacuum

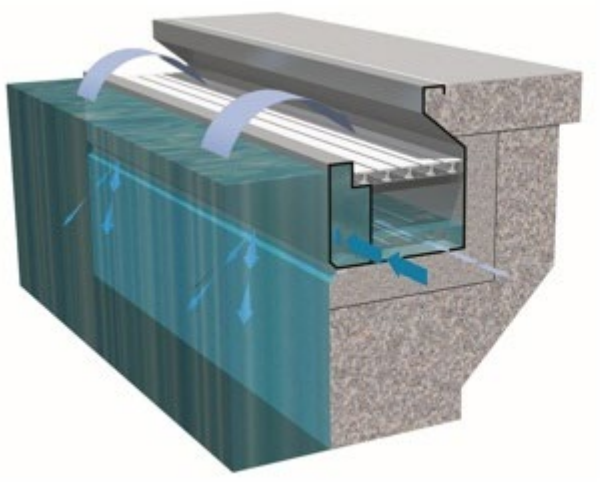

Filter
Pump
Return Line
Suction Lines
Return
Standard Skimmer
Deep End
Main Drain
Return
Return
FAITH
INTEGRITY
RELIABILITY
QUALITY
IP&I

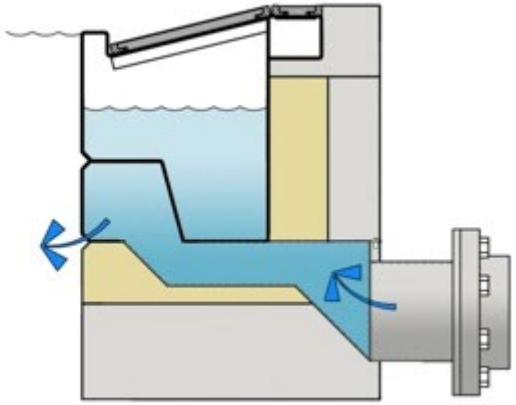

Heater
Filter
Auto-Chlorinator
Check Valve
Pump
Skimmer
YOUR POOL BUILDER
Pool
Check Valve
Return to Pool

Recessed surface skimmers

Perimeter Overflow (Gutter) System

Acts as a wave attenuator = faster swimming
Pre-made components are both skimmers and return inlets.
Must have dedicated vacuum line or portable vacuum.
May need additional floor returns depending on pool dimensions.
Pool may use both gutters and recessed automatic surface skimmers.



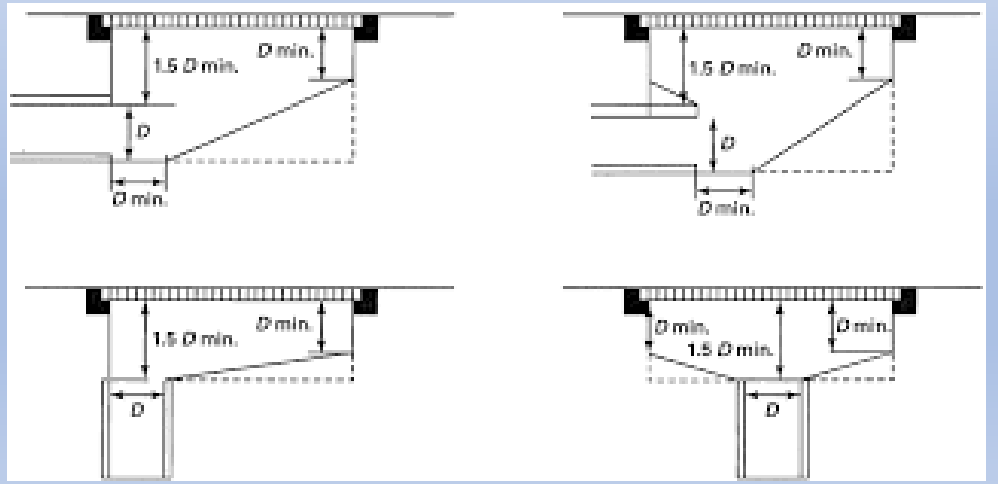


Drains

2 main drains or unblockable, or none at all!
Separated by at least 3 foot on center or differing planes
Comply with safety standards for construction and entrapment

RED FLAG ON NEW CONSTRUCTION

2008 Sump configurations



2017 Drain covers (SOFAs) require cover to be tested to the conditions it will be used.
All new pool plans should include the use of a 2017 drain cover; They may not be able to locate a 2008 cover during construction.

AQUASTAR pool products

VGBA-2017 PRODUCT SPECIFICATIONS
Suction Outlet Fitting Assembly (SOFA)
VGBA-2017 Flow Ratings, Sump Dimensions, Sump Flow Path Zone, and Head Loss Curves

NSF Certified to NSF/ANSI/CAN 50 ANSI/APSP/ICC 16 - 2017

DIRECTIONS: Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must conform to these minimum/maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the *VGBA DRAIN COVER IDENTIFICATION INFORMATION* label that comes with each AquaStar Pool Products, Inc. drain cover.

Cover Model Number:
1824xxx

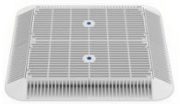
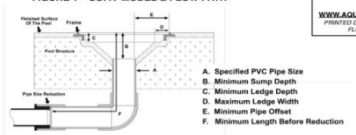


FIGURE 1 – SOFA MODEL & FLOW PATH

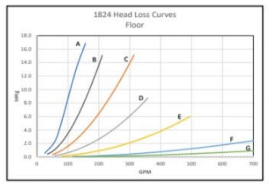


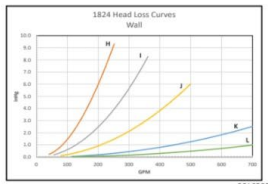
FOR MOST CURRENT INFORMATION SCAN THE QR CODE OR VISIT
WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE
PRINTED DOCUMENTS MAY NOT HAVE THE MOST CURRENT FLOW RATINGS OR INSTALLATION OPTIONS.

SCAN ME

SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
1824-18f_A-1.5b_B3_C1.4_D1.4_E2.9_F16	1.5" (b)	3"	Floor (f)	126	A
1824-18f_A-2b_B3_C1.4_D1.4_E3.1_F16	2" (b)	3"	Floor (f)	170	B
1824-18f_A-2.5b_B3_C1.4_D1.4_E3_F16	2.5" (b)	3"	Floor (f)	250	C
1824-18f_A-3b_B3_C1.4_D1.4_E3.2_F16	3" (b)	3"	Floor (f)	288	D
1824-18f_A-4b_B3_C1.4_D1.4_E3.1_F16	4" (b)	3"	Floor (f)	398	E
1824-18f_A-6b_B3_C1.4_D1.4_E3.1_F16	6" (b)	3"	Floor (f)	590	F
1824-18f_A-8b_B3_C1.4_D1.4_E3.2_F16	8" (b)	3"	Floor (f)	590	G
1824-18f_A-1.5s_B5.5_C1.4_D1.4_E2.9_F16	1.5" (s)	5.5"	Floor (f)	126	A
1824-18f_A-2s_B5.7_C1.4_D1.4_E3.1_F16	2" (s)	5.7"	Floor (f)	170	B
1824-18f_A-2.5s_B6_C1.4_D1.4_E3_F16	2.5" (s)	6"	Floor (f)	250	C
1824-18f_A-3s_B6.2_C1.4_D1.4_E3.2_F16	3" (s)	6.2"	Floor (f)	288	D
1824-18f_A-4s_B6.4_C1.4_D1.4_E3.1_F16	4" (s)	6.4"	Floor (f)	398	E
1824-18f_A-6s_B7.5_C1.4_D1.4_E3.1_F16	6" (s)	7.5"	Floor (f)	590	F
1824-18f_A-8s_B8.4_C1.4_D1.4_E3.2_F16	8" (s)	8.4"	Floor (f)	590	G
1824-18w_A-2.5b_B3_C1.4_D1.4_E3_F16	2.5" (b)	3"	Wall (w)	200	H
1824-18w_A-3b_B3_C1.4_D1.4_E3.2_F16	3" (b)	3"	Wall (w)	288	I
1824-18w_A-4b_B3_C1.4_D1.4_E3.1_F16	4" (b)	3"	Wall (w)	398	J
1824-18w_A-6b_B3_C1.4_D1.4_E3.1_F16	6" (b)	3"	Wall (w)	576	K
1824-18w_A-8b_B3_C1.4_D1.4_E3.2_F16	8" (b)	3"	Wall (w)	576	L
1824-18w_A-2.5s_B6_C1.4_D1.4_E3_F16	2.5" (s)	6"	Wall (w)	200	H
1824-18w_A-3s_B6.2_C1.4_D1.4_E3.2_F16	3" (s)	6.2"	Wall (w)	288	I
1824-18w_A-4s_B6.4_C1.4_D1.4_E3.1_F16	4" (s)	6.4"	Wall (w)	398	J
1824-18w_A-6s_B7.5_C1.4_D1.4_E3.1_F16	6" (s)	7.5"	Wall (w)	576	K
1824-18w_A-8s_B8.4_C1.4_D1.4_E3.2_F16	8" (s)	8.4"	Wall (w)	576	L

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.





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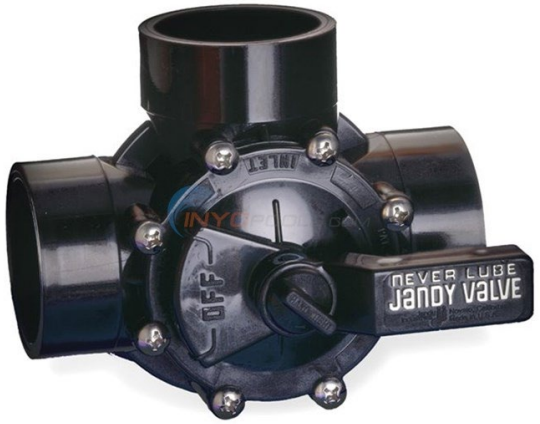
Piping and Valves

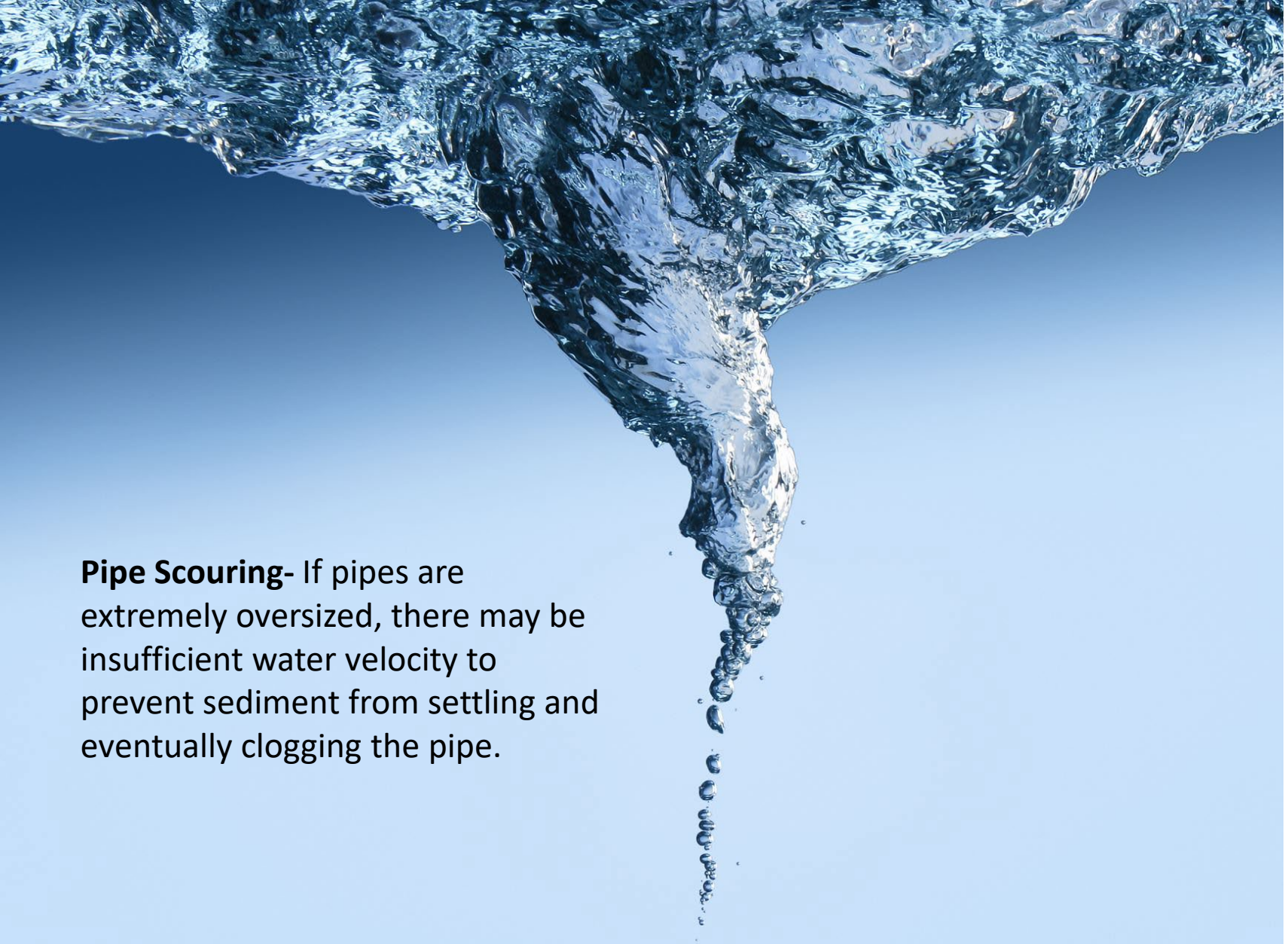
- Skimmers and main drain piping each sized to handle 100% of the **design** flow rate
- Schedule 40 PVC or better. Adding NSF Standard 14 to rules.
- Sized according to chart- Not to exceed 6 fps on suction, 10 fps on return
    - Other standards use lower numbers- Okay to oversize piping.



Not all valves are created the same!

Far left valve is a Jandy valve in the closed position.

Middle and far right valves are common orientation in the open position.

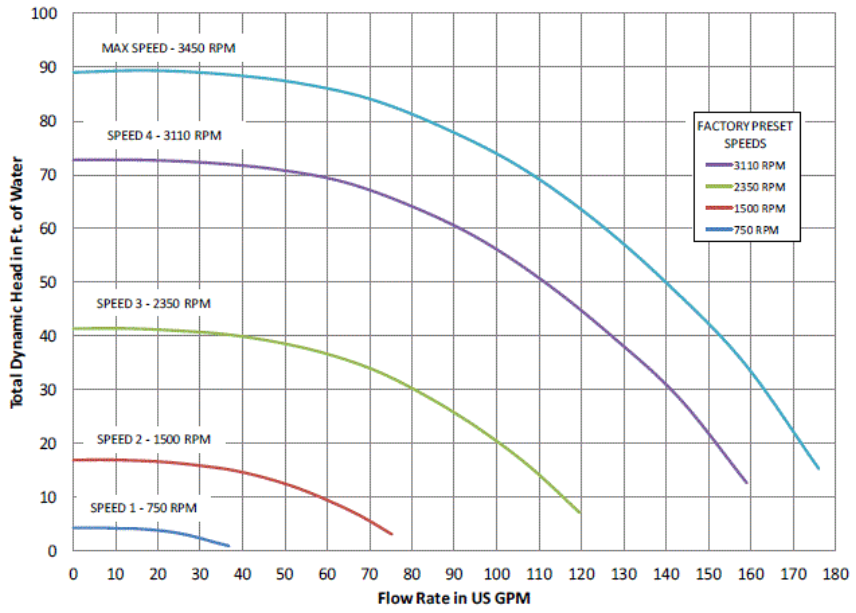


Pipe Scouring- If pipes are extremely oversized, there may be insufficient water velocity to prevent sediment from settling and eventually clogging the pipe.

- **Efficient flow rates** - You can move water through a pipe up until a certain point, past which there is a sharp loss in overall movement of water versus energy it takes to move the water. At slow speeds there is not much in the way of turbulence or friction that prevents the water from flowing. *Past the velocity of approximately six feet per second (6 fps) there is a sharp increase in system efficiency loss.* The water begins to swirl and create vortices and turbulence, all of which counteract smooth flow of the water. Friction especially is a concern and measured as friction losses in a plumbing system. As water velocity increases, friction and losses within the system increase.

Pumps

3 hp or smaller must be NSF Standard 50
Sizing based on assumed 65 feet of total dynamic head



Note: IntelliPro VS+SVRS minimum speed is 1100 RPM

Filtration

Sand Filter

Cartridge Filter

Multi-Port Valve

Diatomaceous Earth Filter

Flow Meter

Usually installed on filtered water line
Capable of handling 1 ½ times the design flow rate*
10% accurate of true flow**
Installed according to manufacturers instructions***

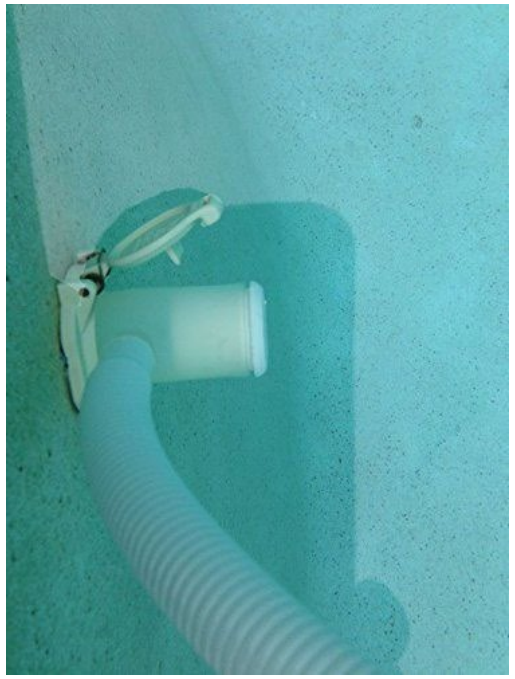
*This is proposed to change effective 11/2024
**This differs from other safety standards because Blue White flow meters drop to 10% in larger pipe sizes.
***This will often determine which flow meter can be used.

Inlets

Provide uniform circulation of water
1 inlet per 20 gpm of return water flow
Minimum of 4 in any pool
No more than 25 feet horizontal separation
Adjustable

Vacuum

- Vacuum system is required – Can be dedicated line or thru skimmer for smaller pools. A portable vacuum device meets the rule requirement.
- New rule will allow separating skimmers on larger pools and eliminating integral vacuum ports.




QUESTIONS?