

Simplified Total Dynamic Head (TDH)Calculation Worksheet

Minimum Flow Rate Required: 35 GPM Per Skimmer. (Required: 1 Skimmer per 800 Square Feet of Surface Area)

Determine Maximum System Flow Rate

1. Calculate Pool Volume $\frac{450 \times 4.8' \times 7.481}{(\text{Surface Area}) (\text{Avg. Depth})}$ = $\frac{16,158.96}{(\text{Vol. In Gallons})}$

2. Determine Preferred Turnover Time in Hours: $\frac{6}{(\text{Hours})} \times 60 (\text{ Min./Hou })$ = $\frac{360}{(\text{Turnover In Mins.})}$

3. Determine Max. Flow Rate $\frac{16,158.96}{(\text{Vol. In Gallons}) (\text{Turnover In. Mins})} + \frac{N/A}{(\text{Feature Flow})}$ = $\frac{45}{(\text{Total Flow Rate})}$

4. Spa Jets $\frac{0}{(\text{No. Of Jets})} \times \frac{15}{(\text{Jet Flow})}$ GPM Per Jet = $\frac{0}{(\text{Total Jet Flow})}$

For single pump pool/spa combo, use the higher of No. 3 or No. 4 in the following calculations for pool & Spa

Determine Maximum System Flow Rate

Branch Piping to be 3" Inch to keep velocity at 6 FPS max at 135 GPM Max. System Flow Rate

Trunk Piping to be 3" Inch to keep velocity at 8 FPS max at 135 GPM Max. System Flow Rate

Return Piping to be 2.5" Inch to keep velocity at 8 FPS max at 135 GPM Max. System Flow Rate

Determine Simplified TDH

1. Distance From Pool to Pump in feet 50

2. Friction Loss (In Suction Pipe)In 3" Inch Pipe per 1 Foot at 135 GPM = .07 (From Pipe Flow/Fricton Loss Chart)

3. Friction Loss (In Return Pipe) In 2.5" Inch Pipe per 1 Foot at 135 GPM = .13 (From Pipe Flow/Fricton Loss Chart)

4. $\frac{50}{(\text{Length of Suction Pipe})} \times \frac{.07}{(\text{Friction Loss})}$ = 3.5

5. $\frac{50}{(\text{Length of Return Pipe})} \times \frac{.13}{(\text{Friction Loss})}$ = 6.5

Determine Simplified TDH

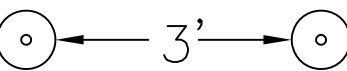
Pump Selection Pentair Intelliflo VS 3HP Using Pump Curve for TDH & System Flow Rate

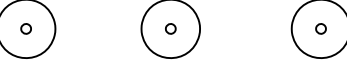
Main Drain Cover Hayward WG1154AVPAK2 (System Flow Rate must not exceed approved cover flow rates)

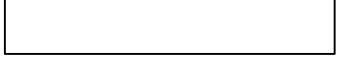
Note: Minimum System Flow Rate based on minimum flow per skimmer of 35 GPM.

Determine The Number & Type of Required In-Floor Suctions

(Check all that apply)

☒  Hayward WG1154AVPAK2 Suction Outlets At 116EA GPM Max. Flow (See Note 2)

☐  Suction Outlets At GPM Max. Flow (See Note 3)

☐  Suction Outlets At GPM Max. Flow (See Note 4)

ANSI/APSP-7 2006 Specifies three methods for determining the maximum system flow rate. The following TDH calculation is one of the methods specified.

TDH Calculation Options

- ☒ Simplified Total Dynamic Head (STDH)
Complete STDH Worksheet - Fill in all blanks
- ☐ Total Dynamic Head (TDH)
Complete Program or other Calcs. Fill in required
blanks on worksheet & attach calcs.
- ☐ Maximum Flow Capacity
Of the new or replacement pump

Notes

1. If a variable speed pump is used, use the max. pump flow in calculations
2. For side wall drains, use appropriate side wall drain flow as published by manufacturer.
3. Insert manufacturer's name and approved maximum flow.
4. See installation instructions for number of ports to be used.
5. In-Floor suction outlet cover/grate must conform to most recent edition of ASME/ANSI A112.19.8 and be embossed with that edition approval.
6. Pump, Filter & Heater make and model cannot change, and equipment location cannot be moved closer to the pool without submitting a revised plan and TDH calculation worksheet for approval.

FLOW & FRICTION LOSS PER FOOT
SCH. 40 PVC PIPE

PIPE SIZE	6 FPS - BRANCH		8 FPS - TRUNK		10 FPS - RETURN	
1"	16 GPM	0.14'	21 GPM	0.23'	26 GPM	0.35'
1.5"	37 GPM	0.08'	50 GPM	0.14'	62 GPM	0.21'
2"	62 GPM	0.06'	82 GPM	0.10'	103 GPM	0.16'
2.5"	88 GPM	0.05'	117 GPM	0.09'	146 GPM	0.13'
3"	138 GPM	0.04'	181 GPM	0.07'	227 GPM	0.10'
4"	234 GPM	0.03'	313 GPM	0.05'	392 GPM	0.07'
6"	534 GPM	0.02'	712 GPM	0.03'		

Date

Contractors Signature

Contractors Printed Name

Contractors Telephone

SWIMMING POOL SPECIFICATION FOR:

Elmore Residence

2344 SW Old Bellamy Rd Fort White, FL 32038



This Item has been electronically signed and sealed by Sam Liberatore PE using a Digital Signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

SAMUEL A. LIBERATORE, P.E. #55740

Samuel A Liberatore
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For: Gator Pools

SIMPLIFIED TOTAL DYNAMIC HEAD
CALCULATION

REV.	DESCRIPTION	DATE
DRAWN NT		CHECKED SAL
DATE 9-8-2023		SCALE N/A
SHEET 1 OF 1		