



719-754-1981

Net Positive Suction Head Calculator

Site Information

Altitude 443 Meters Above Sea Level

What type of fluid supply system do you have?

- My pump is being supplied with fluid from an open tank
- My pump is being supplied with fluid from a pipeline, pressurized tank, or another pump

Gauge pressure at fluid source, before entering suction supply piping. (Note: This should be entered as gauge pressure, and should not include atmospheric pressure)

0.8 Bar

Fluid Parameters

Flow Rate 3200 M3/HR

Liquid/Fluid Water

Fluid Temperature 68 Deg. F (20C)

Viscosity 0.999996 CENTIPOISE / CP

Specific Gravity 0.998

Vapor Pressure 2.4 KPA

Piping System

Pipe Length 15 Meters

Pipe ID 1 Meters

Pipe Material Steel Forms

HZ Friction Coeff. 60 Hazen William Coeff.
(<https://inventory.powerzone.com/documents/Hazen-Williams-Friction-Loss-Hydraulic-Tables.pdf>)

Roughness Height 45 Millimeters

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Return Results As	<u>HEAD M</u>	
NPSH Available	<u>17.6854</u>	HEAD M
Friction Loss	<u>0.0667</u>	HEAD M (Fanning Churchhill)

Explanation: To calculate NPSH Available, take the source pressure 0.8, add the atmospheric pressure, subtract the losses from friction within the pipeline and subtract the vapor pressure of the fluid 2.4. The result equals the NPSHA (or Net Positive Suction Head Available) of your system. The Net Positive Suction Head Required by the pumps, referred to as NPSHR, must be LESS THAN the NPSHA of the system, else the pump will cavitate.

Note: Because calculating NPSH is complicated and difficult, Power Zone Equipment recommends having a safety factor of at least 150%. If more detailed NPSH calculations are needed, contact the Power Zone equipment engineering team for further assistance.

Important Note: If you are calculating NPSH for a reciprocating pump, do not overlook Acceleration Head. Inadequate pulsation dampening equipment on the suction side of a plunger pump will result in severe cavitation, even if the results above show that NPSHA of the system exceeds NPSHR of the pump.

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