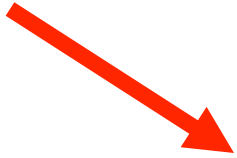


Checklist - Boiler feed pump selection process

Step Action

<input type="checkbox"/>	1	Determine control method to be used
<input type="checkbox"/>	2	Calculate BASE flow rate
<input type="checkbox"/>	3	Add for by-pass flow if required
<input type="checkbox"/>	4	Sum of base flow and by-pass flow is the total flow required
<input type="checkbox"/>	5	Calculate BASE pumping head
<input type="checkbox"/>	6	Add for all suction piping head components
<input type="checkbox"/>	7	Add for all discharge piping system head components (including feed valve if required)
<input type="checkbox"/>	8	Sum of all head components = total pumping head
<input type="checkbox"/>	9	Determine deaerator tank water temperature
<input type="checkbox"/>	10	Perform NPSHa calculation
<input type="checkbox"/>	11	Make preliminary pump selection
<input type="checkbox"/>	12	Check NPSHr versus NPSHa
<input type="checkbox"/>	13	Assure material compatibility - chemical and temperature
<input type="checkbox"/>	14	Make final pump selection

Determining the head for the feed pump



Formula based on Safety Valve setting:

- Pump head in feet = Maximum pressure X 2.31 X 1.03 ÷ Liquid Specific Gravity

Example:

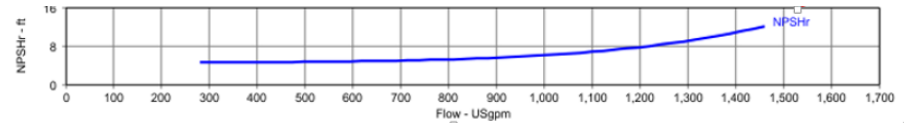
- Head = 100 psi X 2.31 X 1.03 ÷ 0.955 = 249 feet

To this 249 feet we must add for all head components attributable to the suction and discharge sides of the pump.

NPSH – Formula for calculation

To avoid cavitation, NPSHa must be greater than NPSHr

NPSHr is obtained from the pump curve

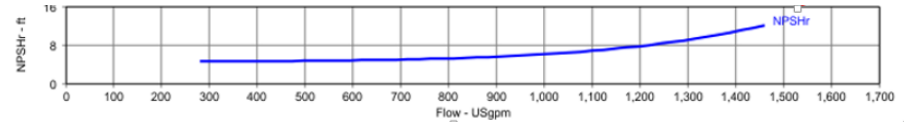


Add two to four feet of safety factor to the NPSHr stated on the curve

NPSH – Formula for calculation

To avoid cavitation, NPSHa must be greater than NPSHr

NPSHr is obtained from the pump curve



Add two to four feet of safety factor to the NPSHr stated on the curve

Formula for calculation of NPSHa:

+ Absolute pressure in deaerator tank

± Elevation of minimum water level in tank above feed pump

- Vapor pressure of water in deaerator tank

- Suction line friction loss

= Net Positive Suction Head Available

Boiler feed pump selection summary

