



# The Pacific Pipeline

August 2022 Newsletter

FUSION/PUMPS/COMPRESSORS/GENERATORS • RENTALS/SALES/OPERATIONS/SER-

PACIFIC PUMP & POWER

## Most Common Pump Selection Issue



This month I thought instead of showing you whats new and exciting I would get into some exciting pump engineering! The most common error we see in pump selection is neglecting to factor in suction lift into a pumps capability. Read this, give it a try, and you will be selecting pumps like a pro!

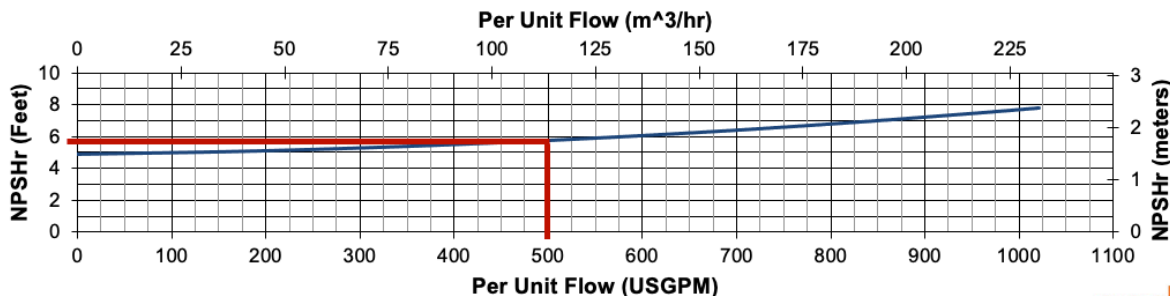
NPSHa needs to be higher than NPSHr, or the pump will not be able to pump effectively and cavitation will occur. This can be challenging especially in larger pumps as the suction lift becomes greater.

Now what does that even mean? Net Positive Suction Head available is the amount of push that the atmosphere provides to get the fluid from the water level up the suction hose to the eye of the impeller. Once there, the pumps mechanical energy can convert to pressure energy and push the water out of the pump. Net Positive Suction Head required is the required amount of pressure pushed into the pump in order to operate effectively. Every pump has its own unique NPSHr curve.

Trying to keep this as simplified as I can, at sea level 33.95 feet of head pressure pushes uniformly down on everything all the time. Take that minus the vertical height from the water level to the eye of the impeller, minus friction loss and you get NPSHa. Compare that to the NPSHr curve and you will see if your pump will pump efficiently.

In the example below, a 4" CD103M Godwin Dri-Prime Pump will be pumping through 20' of 4" suction hose from 20' down. We take 33.95' - 20' of suction lift, - 4.7' friction loss gets us 9.25' NPSHa. At 500gpm NPSHr on this pump is 5.7 so we are 3.55 + and its good to go! Ideally we always want to be +3 or more but at minimum it needs to be positive. As you can see in the example, this 4" CD103M is pretty much at its max suction lift using 4" hose at 20' while still pumping 500gpm.

**NPSHr**



If you need assistance with sewer bypassing, generators, compressed air, dredging, pumps, HDPE fusion, pipe plugs, service or operations, please call us at 808-672-8198 or email us at Sales@hawaiiumps.com



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**Dri-Prime Pumps for Sewer Bypassing & Dewatering**



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