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March 21th 2011 ~ Monday Morning Minutes:

Centrifugal Pump Readout Corrections Part 2

By Gerry Potapa

Last week the Monday Morning Minute introduced some considerations when using gauge readings to compare with your centrifugal pump curves. Today let's look at some additional corrections.

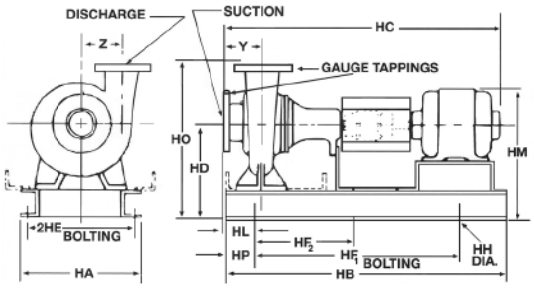
The vertical axis on the pump curve is the total dynamic head (TDH). When taking gauge readings at the pump tappings provided, we must consider three possible contributors to the final TDH:

1. Difference between suction and discharge pressure (ΔP)
2. Difference between suction and discharge height (Δh)
3. Difference between suction and discharge velocity (ΔV)

ITEM #1: Obviously the pressure gauge will provide a reading of the suction and discharge pressures and you can subtract them to get the differential pressure. If you use the same gauge, it will even cancel out gauge inaccuracies. Item 1 in the above list is part of the normal procedure for pump readout. Items two and three are easy to forget. Without the other two, you don't get the TDH and if you plot out the point, it may not fall on the pump curve.

ITEM #2: A great number of pumps have their suction and discharge gauge tappings at the same elevation or there is only a small difference. The difference between the HD dimension and the HO dimension on the 1510 5BC pump below is 10". That one foot typically isn't going to make a big difference. Now if we get into the larger VSCS series pumps where the suction is horizontal and the discharge is vertical we can have a difference of two or three feet. That Δh will make a difference and must be taken into account. Item 2 may make a difference on smaller head pumps as well.

Series 1510 5BC Centrifugal Pump Submittal



FLANGE DIMENSIONS IN INCHES (MM)			
	SIZE	THICKNESS	O.D.
Discharge	5" (127)	1-3/8" (35)	10-3/4" (273)
Suction	6" (152)	1-7/16" (37)	12-1/8" (308)

FLANGES ARE 125# ANSI - STANDARD
250# ANSI - AVAILABLE

Next week we look at the third correction, velocity head.