

Monday, May 28, 2018

Bell & Gossett ESP-Systemwize Pump Selections: Part 3

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Happy Memorial Day! Today we celebrate and remember those brave patriots who sacrificed their lives while serving in the Armed Forces protecting the freedoms all Americans enjoy. Please take a moment in prayer or reflection on the gift they offered for us.

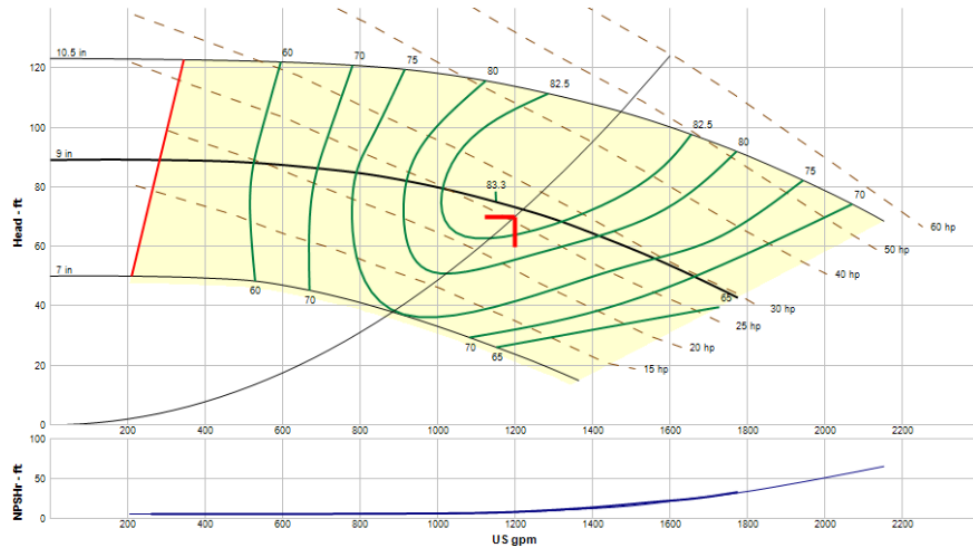
Today in the R. L. Deppmann Monday Morning Minutes we share the documents available after you have made your pump selection.

Let's begin with a double suction tower water pump selection. The design capacity is 1200 GPM at 70 feet and the calculated suction pressure at design flow rate is only 1 PSIG.

In this example selection, we will also look at the NPSH or net positive suction head required by the pump. 1 PSIG is about 36 feet of absolute pressure available. We will default to a safety factor of 2.0 so we want a pump with $36/2 = 18$ feet of NPSH required. We run ESP-Systemwize and look for a side suction pump since we have a low inlet pipe. We select a Bell & Gossett VSX-VSCS 5X6X10.5A with a 30 HP 1780 RPM motor. The NPSHr is only about 9 feet and the efficiency is the best of the selection.

Single Pump

Pump: VSX-VSCS 5x6x10.5A



Let's gather information for our files. Let's start by gathering documents. We have previously signed in and have a password, so what can we get when we click documents?

Get Results

NPSHr (ft)	Motor (HP)	NOL Power (HP)	Motor R	Actions
8.95	30	29.9		+ Add to Schedule Download Documents

x
Documents
 Pumps: VSX-VSCS 5x6x10.5A

[Select All](#)

For Submittal and CAD Downloads Please Choose a Model:

VSCS-5X6X10P5A-286TTS-SPL

[Submittal \(PDF\)](#)

[Download Revit](#)

[CAD](#)

Submittals

[VSX VSCS 5x6x10 1/2 A B 851.2C](#)

Specifications

[VSX Specification](#)

File Name

Bell and Gossett-System Selector

Pump Selection Summary	
Pump Capacity	1200.0 US gpm
Pump Head	70 ft
Control Head	0 ft
Duty Point Pump Efficiency	83 %
Pump PLEVv Efficiency	0.0 %
Impeller Diameter	9 in
Motor HP	30 hp
Duty Point Power	26.7 bhp
Motor Speed	1800 rpm
RPM @ Duty Point	1780 rpm
NPSHr	8.95 ft
Minimum Shutoff Head	89 ft
Minimum Flow at RPM	265 gpm
Flow @ BEP	1151 gpm
Fluid Temperature	68 °F
Fluid Type	Water
Weight (approx. - consult rep for exact)	1535 lbs
Pump Floor Space Calculation	--- ft ²

VSX-VSCS

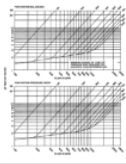
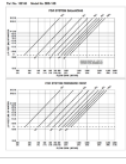
5x6x10.5A

The submittal at the top of the list gives the curve and dimensions, but the summary has a great deal for you to schedule including efficiency, NPSH, and the weight. You may also download the Revit or CAD file.

The schedule portion is still work in progress, but most engineers have a schedule format they use anyway. Finally, if we scroll down, there is an IOM and a parts list that will be used later in the construction process.

Finally, we can select the triple duty valve for the discharge. We would not use a suction diffuser and instead look to detail the 5 pipe diameters coming directly into the pump with an eccentric reducer. The triple-duty valve and pressure drop is available with a click on the left-hand side navigation bar.

view 

Curve	Model	Size (in)	Pressure Drop @ Design Flow and Designated Stem Position (ft)	Stem Position	Connection Ty
	3DS-8S	8.0	3.39'	90%	Flanged
	3DS-10B	10.0	3.44'	80%	Flanged