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Chris Haslego  
President  
Cheresources, Inc.

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1422 Goswick Ridge Road  
Midlothian VA 23114

Fax: 561-658-6489  
Email: [support@cheresources.com](mailto:support@cheresources.com)

***Content Based  
Chemical Engineering***

Pump vs. System Curve, based on the Pump Affinity Laws

**BASIS:** CRANE TECHNICAL PAPER 410, and MARKS' MECHANICAL ENGINEERS HANDBOOK

**NOTE:** Always begin a new case by retrieving the original file. Direct entry of data in cells that originally contain table lookups could cause functions to be lost, or incorrect calculations. I format cells requiring entry colored **RED**; calculated values are black.

- 1.) Enter the pump identification at [D3].
  - 2.) Enter the design capacity at [E4].
  - 3.) Enter the design head at [E5].
  - 4.) Enter the liquid specific gravity at [E6].
  - 5.) Enter the liquid elevation (suction) at [J4].
  - 6.) Enter the centerline elevation of the pump at [J5].
  - 7.) Enter the liquid elevation (discharge) at [J6].
- 8.) From a "vendor supplied curve" add the X-Y coordinate (flow, in gpm & resulting pressure expressed in feet) at [D8:D17] & [F8:F17]. This information will be the basis for the curve shown beginning at [ROW 23].

**Print out using direct Excel commands. This application is provided by Chemical Engineers Resource Website, visit [cheresources.com](http://cheresources.com) for additional selections.**

***Print out using direct EXCEL commands.***

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Consistent with GOOD ENGINEERING PRACTICE, the burden rests with the USER of these spreadsheets to review ALL calculations, and assumptions. The USER IS FULLY RESPONSIBLE for the results or decisions based on calculations.

This Spreadsheet Requires MACROS to be ENABLED to ASSURE proper operation. See the Workbook Help Sheet for Additional Instructions on Use.

dmcoffman@aol.com

Pump vs. System Curve, based on the Pump Affinity Laws

**PUMP: WATER SUPPLY PUMP TO STORAGE**

Pump Capacity Q, = 1000      elevation in = 0  
 Design Head = 250      Pump Centerline = 0  
 sp. gr. = 1.000      elevation out = 0

	Q (flow)	Head	Hf total
- point 1 -	0	365	0.0
- point 2 -	200	363	10.0
- point 3 -	400	355	40.0
- point 4 -	600	332	90.0
- point 5 -	800	300	160.0
- point 6 -	1000	250	250.0
- point 7 -	1200	195	360.0
- point 8 -	1400	120	490.0
- point 9 -	1600		640.0
- point 10 -	1800		810.0

