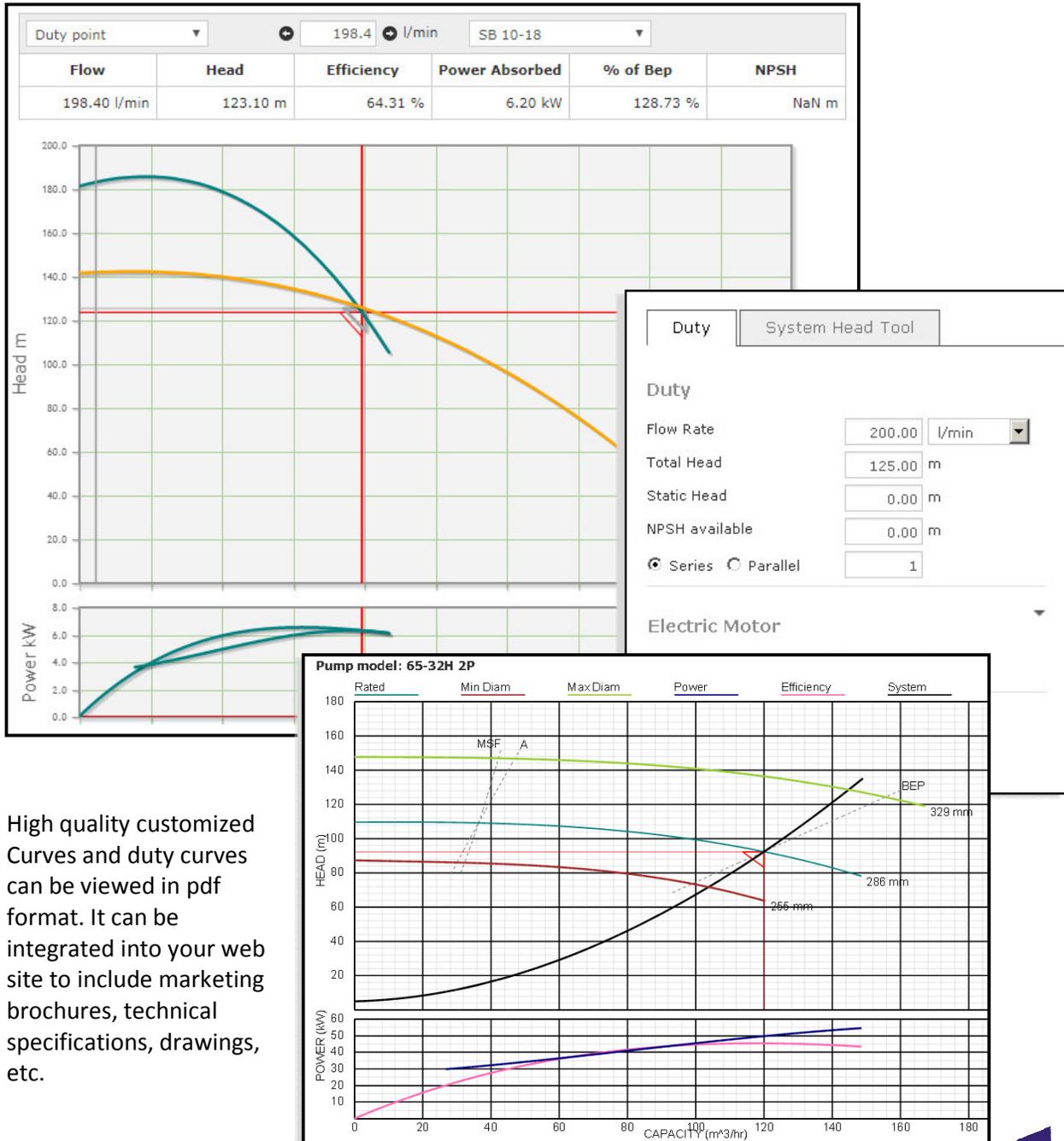


TAS Engineering Software Design

Aquatec Online (AOL) - Basic Pump Selection

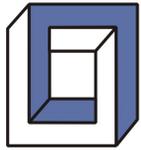


High quality customized Curves and duty curves can be viewed in pdf format. It can be integrated into your web site to include marketing brochures, technical specifications, drawings, etc.



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Advanced Selection Criteria

Use the benchmarking parameters to hone in on the best pumps for your pumping system.

- Set benchmarking limits on pump operating envelope
- Automatically select orifice size for minimum head rise
- Add losses for seal and drive, select different electric motors

Benchmarking

Enter your benchmark information here. Deviations from these values will be highlighted in the results.

Enable benchmarking
 Disable benchmarking
 List non conforming pumps

Target Operating Range

	Min	Max	
Flow limits			
<input type="checkbox"/> % of BEP	80	110	%
<input checked="" type="checkbox"/> Allowable operating region			
<input type="checkbox"/> Headrise - duty to closed valve	100	125	%
<input type="checkbox"/> Headrise - BEP to closed valve	150	250	%
<input type="checkbox"/> NSS (suction specific)	0	213	SI
<input type="checkbox"/> Impeller tip speed		43	m/s
<input type="checkbox"/> Rated impeller - % of max diameter	5	95	%
<input type="checkbox"/> Rated impeller - head increase to max diameter	5	% (max)	
<input type="checkbox"/> System pressure limit		20	bar
@ duty	0.00		m
@ 120% BEP	0.00		m

Orifice Correction

Nozzle Type: Loose

Orificed end of curves: 130 % QBep

Safety factor: 5 %

Headrise - duty to closed valve: 100 125 %

Min: 100 Max: 125 %

Losses

Seal losses: 0 kW

Drive losses: 0 %

Other losses: 0 kW

Include losses in absorbed power calcs

Electric Motor

Motor Standard: IEC NEMA

Safety factor: 25 % @ Duty

Motor Supplier: ABB

Type: Ex d

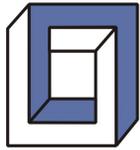
[View selected pump](#)

	Pump Model	Speed	NPSH	Effcy %	kW Abs	NSS	% BEP
✘	C080050175OB250-6	2900	8.04	53.1	12.31	151	150.5
⚠	C080050175OB250-2	2950	2.50	68.2	9.59	174	85.8
⚠	C080050175SB250-5	2950	2.17	71.2	9.18	189	83.7
⚠	C080050175SX250-1	2950	3.17	71.2	9.18	151	83.7
⚠	C080050225OB250-2	2950	2.77	63.0	10.37	175	98.9
⚠	C080050225OB250-3	2950	2.73	61.7	10.59	173	94.6
⚠	C080050225SB250-6	2950	2.39	70.8	9.23	189	90.6



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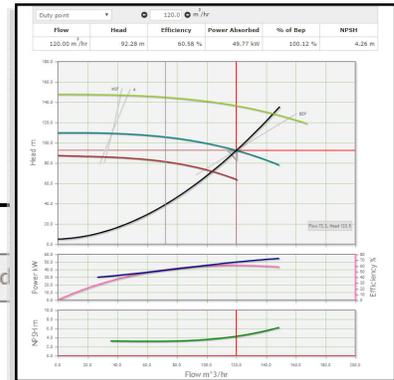
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System Design

Calculate the total pump system head when static head, pipe sizes, fittings and other components are specified.



Duty
System Head Tool
Customer details
Additional d

Surface System Head Tool

Surface

Flow Rate: 120.00 m³/hr

Suction Height: 5 m

Discharge Height: 10 m

Discharge Press: 500 kPa

Site Altitude: 0 m

Barometric Pressure: 10.34 m
[Calculate Barometric Pressure](#)

Specific Gravity: 1

Temperature: 26 °C

Vapour Pressure: 0.31 m
[Calculate Vapour Pressure](#)

Suction Pipe

Pipe Material: STEEL "Bare" Std Pipes

Roughness Factor: 0.2500 mm

Nom Diam: 100 mm

Internal Diam: 98.3 mm

Length: 50 m

Pipe Fittings: 0

Discharge Pipe

Pipe Material: STEEL "Bare" Std Pipes

Roughness Factor: 0.2500 mm

Nom Diam: 100 mm

Internal Diam: 94.3 mm

Length: 75 m

Pipe Fittings: 0

Friction loss calculation formula: Hazen-Williams Darcy-Weisbach

Calculated Results

Static Head: 5 m

Friction Head: 87.28 m

Total Head: 92.28 m

NPSH Available: 2.35 m

[Calculate](#)

Suction

Fluid Velocity: 4.393

Friction Fitting: 0

Friction Loss: 12.68

Discharge

Fluid Velocity: 4.773 m/s

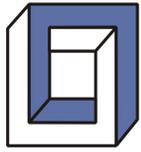
Friction Fitting: 0 m

Friction Loss: 23.65 m



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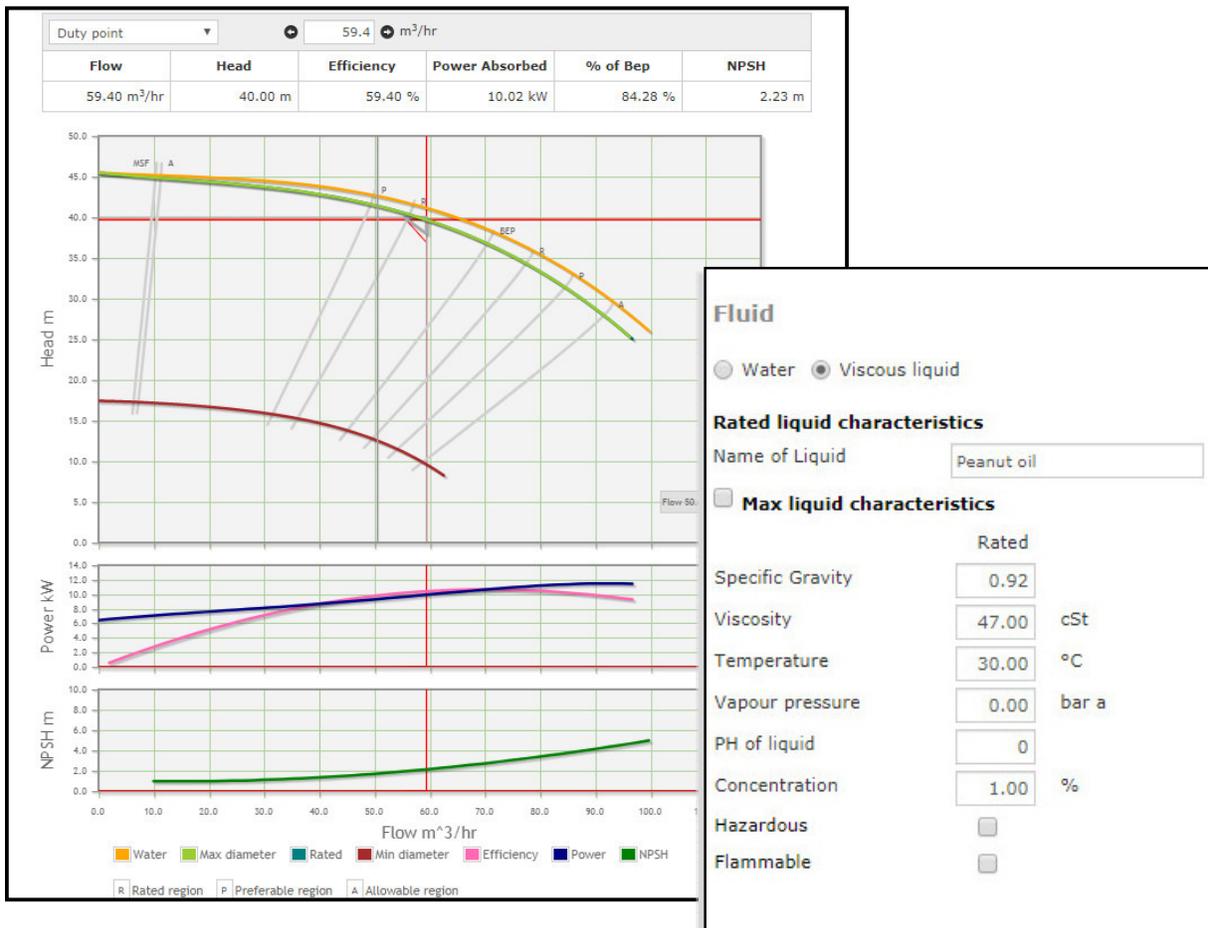
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Viscous Pump Selection

Importance of viscosity and density

If you do not consider the properties of the liquid being pumped, it is highly unlikely you will make the right choice when choosing a pump for your pumping system.

Based on the latest viscosity loss coefficients from American Hydraulic Institute, AOL calculates correction factors for flow, head and efficiency to make sure that your selected pump can handle the liquid you intend pumping, no matter what the viscosity or density. AOL includes a benchmarking section where you can preset allowable operating ranges for the pump, specifically catering to the latest requirements from API 610 12th edition. For low density fluids you have the option to select the motor size based on max conditions to ensure the motor is not overloaded when pumping water.



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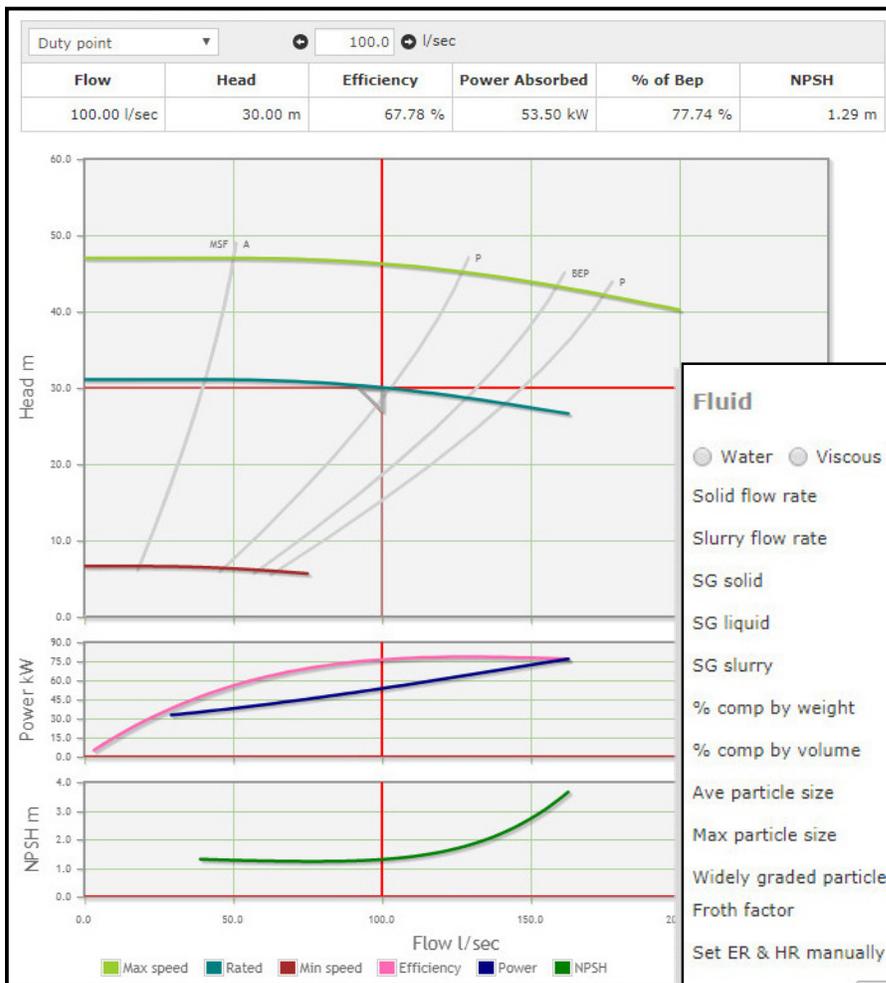


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Slurry Pump Selection

The Slurry selection module within AOL calculates the following parameters:

- Minimum fluid velocity to avoid settling of particles in pipes.
- Slurry density based on solid and liquid density, and concentration by mass or volume.
- Actual flow and solid tonnage based on slurry properties.
- Effect of solids on the generated pump head and pump efficiency.
- Selects pump size for the specified duty and calculates required pump speed.
- Recommends motor size and drive for the duty.



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