

Company: Bonneville Power Administration

Name:

Date: 11/25/2006



#### Pump:

Size: 7LH (1 stage)  
 Type: Vertical  
 Synch speed: 1760 rpm  
 Curve: 7LH  
 Specific Speeds:  
 Dimensions:  
 Vertical Turbine:  
 Speed: 1760 rpm  
 Dia: 5.4 in  
 Impeller:  
 Ns: 1760  
 Nss: ---  
 Suction: --- in  
 Discharge: --- in  
 Bowl size: 7.13 in  
 Max lateral: 0.5 in  
 Thrust K factor: 2.63 lb/ft

#### Search Criteria:

Flow: --- US gpm Head: --- ft

#### Fluid:

Water  
 Density: 62.25 lb/ft<sup>3</sup>  
 Viscosity: 1.105 cP  
 NPSHa: --- ft  
 Temperature: 60 °F  
 Vapor pressure: 0.2563 psi a  
 Atm pressure: 14.7 psi a

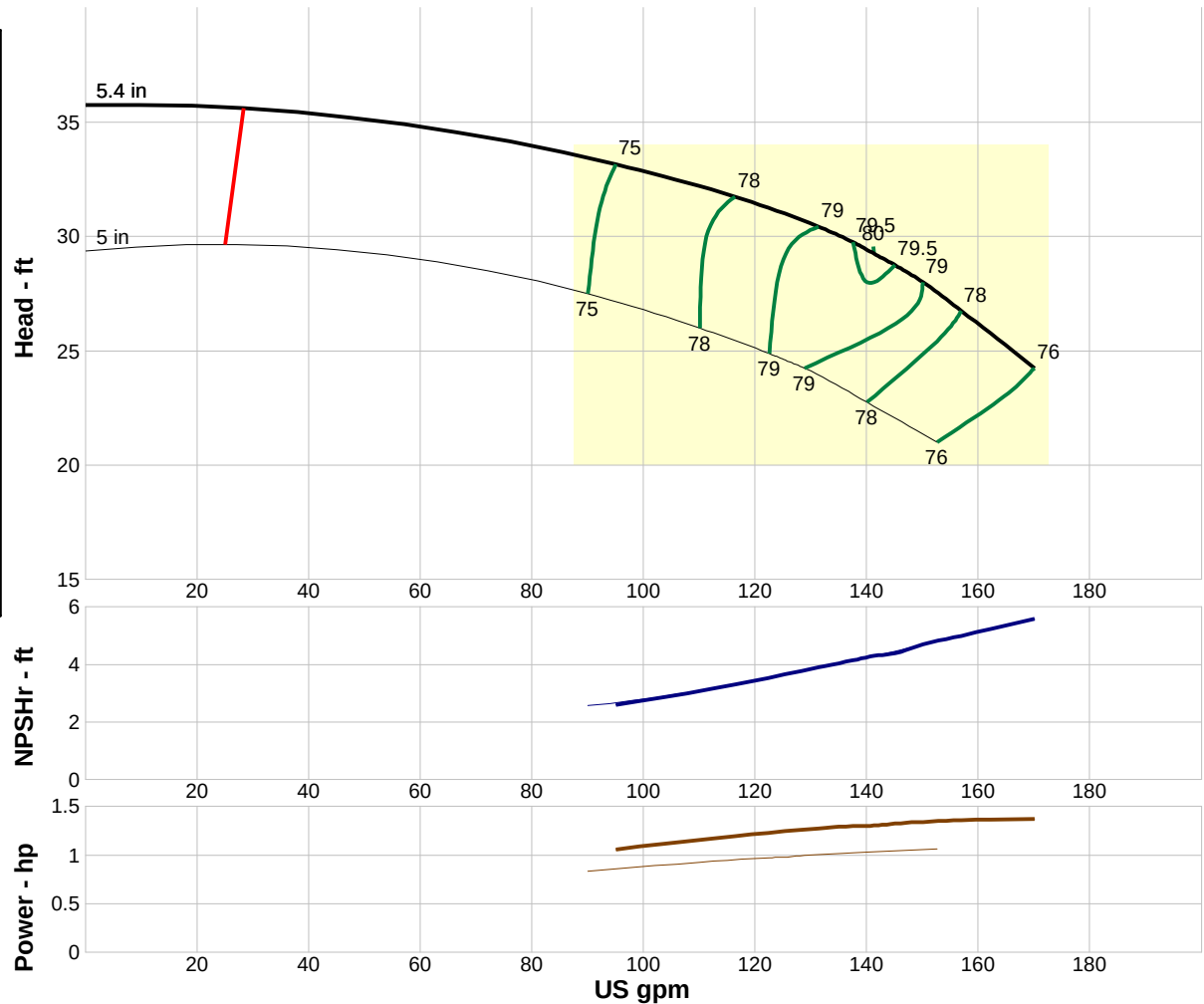
#### Motor:

Standard: NEMA  
 Enclosure: TEFC  
 Sizing criteria: Max Power on Design Curve  
 --- hp  
 Speed: ---  
 Frame: ---

#### Pump Limits:

Temperature: 140 °F  
 Pressure: 475 psi g  
 Sphere size: 0.25 in  
 Power: 150 hp  
 Eye area: --- in<sup>2</sup>

| ---- Data Point ----   |                      |
|------------------------|----------------------|
| Flow:                  | 141 US gpm           |
| Head:                  | 29.3 ft              |
| Eff:                   | 80%                  |
| Power:                 | 1.3 hp               |
| NPSHr:                 | 4.29 ft              |
| ---- Design Curve ---- |                      |
| Shutoff head:          | 35.8 ft              |
| Shutoff dP:            | 15.5 psi             |
| Min flow:              | 28.3 US gpm          |
| BEP:                   | 80% @ 141 US gpm     |
| NOL power:             | 1.37 hp @ 170 US gpm |
| -- Max Curve --        |                      |
| Max power:             | 1.37 hp @ 170 US gpm |



#### Performance Evaluation:

| Flow<br>US gpm | Speed<br>rpm | Head<br>ft | Efficiency<br>% | Power<br>hp | NPSHr<br>ft |
|----------------|--------------|------------|-----------------|-------------|-------------|
| 163            | 1760         | 25.6       | 77.1            | 1.36        | 5.28        |
| 136            | 1760         | 29.9       | 79.4            | 1.29        | 4.09        |
| 109            | 1760         | 32.2       | 77              | 1.15        | 3.06        |
| 81.6           | 1760         | 33.5       | 73.1            | 0.976       | 2.16        |
| 54.4           | 1760         | 34.3       | 69.3            | 0.804       | 1.27        |