



Company: Bonneville Power Administration

Name:

Date: 11/25/2006

#### Pump:

Size: 7ML (1 stage)  
 Type: Vertical  
 Synch speed: 1760 rpm  
 Curve: 7ML  
 Specific Speeds:  
 Dimensions:  
 Vertical Turbine:  
 Speed: 1760 rpm  
 Dia: 5.25 in  
 Impeller:  
 Ns: 1760  
 Nss: ---  
 Suction: --- in  
 Discharge: --- in  
 Bowl size: 7.13 in  
 Max lateral: 0.5 in  
 Thrust K factor: 3.5 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

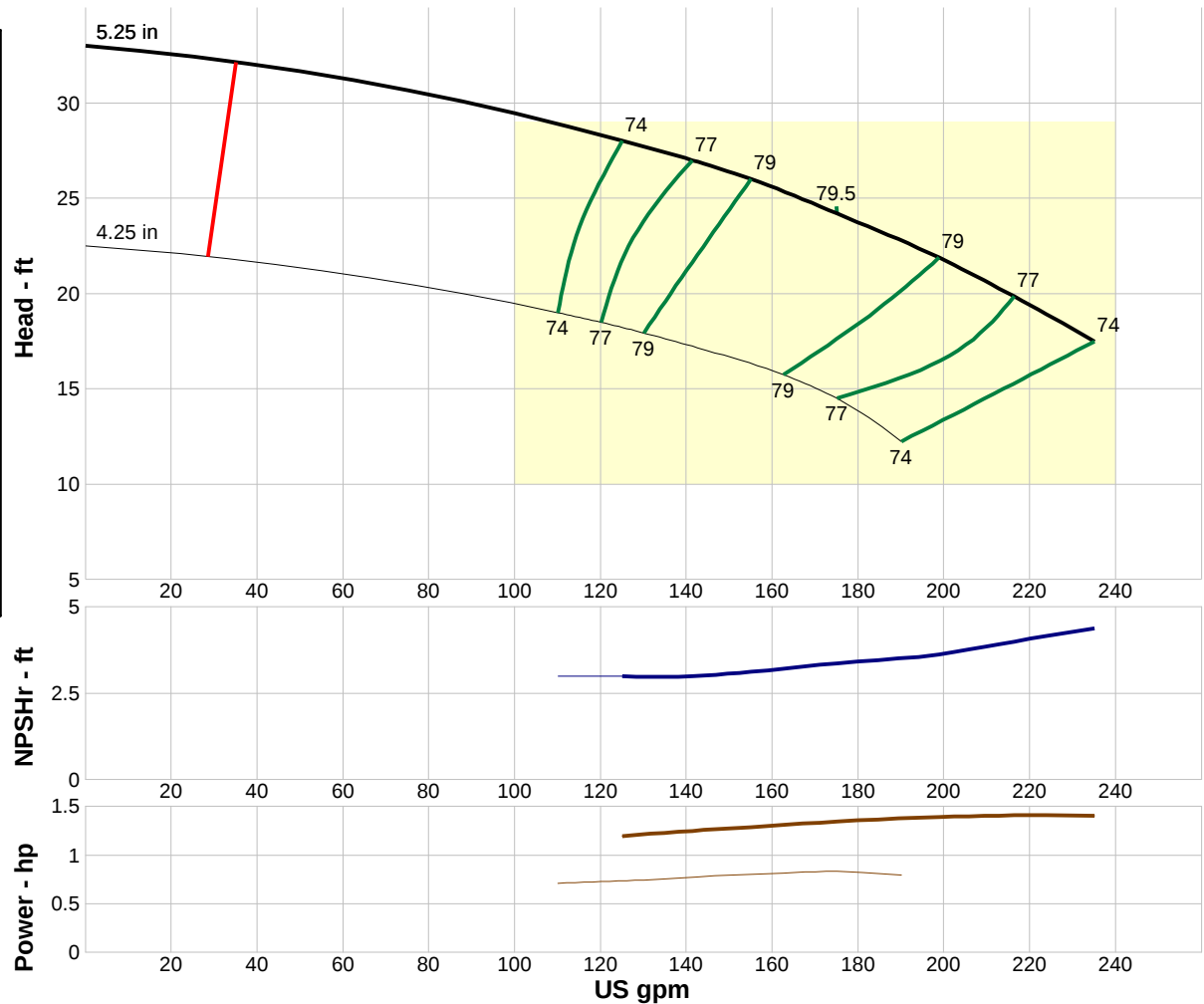
#### Motor:

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

#### Pump Limits:

Temperature: 140 °F  
 Pressure: 415 psi g  
 Sphere size: 0.25 in  
 Power: 150 hp  
 Eye area: --- in<sup>2</sup>

| ---- Data Point ----   |                      |
|------------------------|----------------------|
| Flow:                  | 175 US gpm           |
| Head:                  | 24.2 ft              |
| Eff:                   | 79.5%                |
| Power:                 | 1.35 hp              |
| NPSHr:                 | 3.38 ft              |
| ---- Design Curve ---- |                      |
| Shutoff head:          | 33 ft                |
| Shutoff dP:            | 14.3 psi             |
| Min flow:              | 35 US gpm            |
| BEP:                   | 79.5% @ 175 US gpm   |
| NOL power:             | 1.41 hp @ 216 US gpm |
| -- Max Curve --        |                      |
| Max power:             | 1.41 hp @ 216 US gpm |



#### Performance Evaluation:

| Flow<br>US gpm | Speed<br>rpm | Head<br>ft | Efficiency<br>% | Power<br>hp | NPSHr<br>ft |
|----------------|--------------|------------|-----------------|-------------|-------------|
| 226            | 1760         | 18.6       | 75.4            | 1.41        | 4.2         |
| 188            | 1760         | 22.9       | 79.2            | 1.37        | 3.51        |
| 150            | 1760         | 26.4       | 78.3            | 1.27        | 3.08        |
| 113            | 1760         | 28.5       | 71.8            | 1.16        | 3           |
| 75.2           | 1760         | 30         | 64.8            | 1.03        | 3           |