

Company: Bonneville Power Administration

Name:

Date: 2/8/2007

Selection: Missing Fairbanks Vertical Turbines



Pump:

Size: 30D.1 (1 stage)
 Type: VERT.TURBINE
 Synch speed: 900 rpm
 Curve: 09-042
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 880 rpm
 Dia: 21.4 in
 Impeller:
 Ns: ---
 Nss: ---
 Suction: 27.25 in
 Discharge: 20 in
 Bowl size: 27.75 in
 Max lateral: 1 in
 Thrust K factor: 70 lb/ft

Search Criteria:

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

Fluid:

Water
 Density: 62.25 lb/ft³
 Viscosity: 1.105 cP
 NPSHa: --- ft
 Temperature: 60 °F
 Vapor pressure: 0.2563 psi a
 Atm pressure: 14.7 psi a

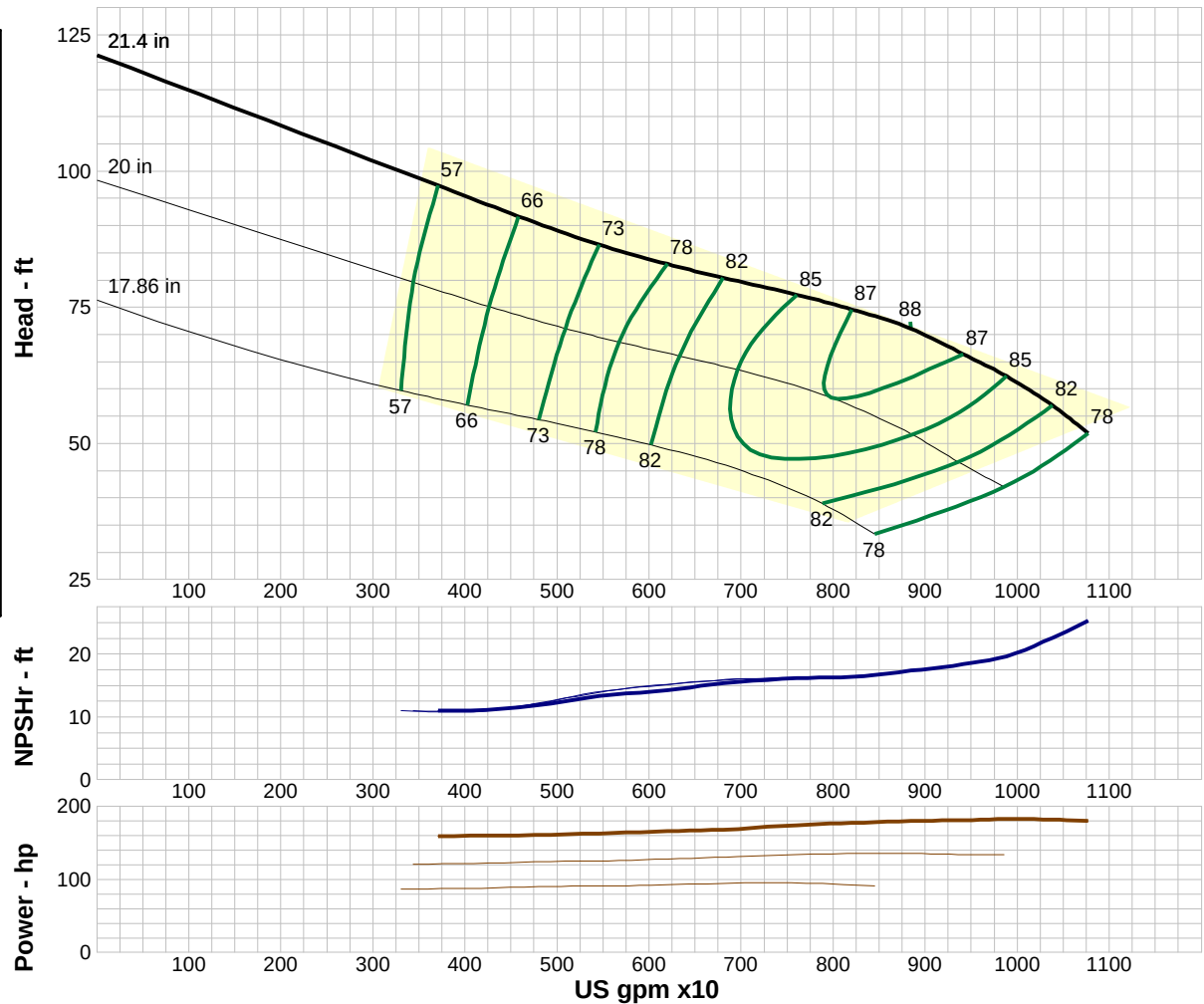
Motor:

Standard: NEMA
 Enclosure: TEFC
 Sizing criteria: Max Power on Design Curve
 Size: 200 hp
 Speed: 900
 Frame: 449T

Pump Limits:

Temperature: 150 °F
 Pressure: 300 psi g
 Sphere size: 1.81 in
 Power: 1184 hp
 Eye area: --- in²

---- Data Point ----	
Flow:	8837 US gpm
Head:	71.1 ft
Eff:	88%
Power:	180 hp
NPSHr:	17.4 ft
---- Design Curve ----	
Shutoff head:	121 ft
Shutoff dP:	52.4 psi
Min flow:	--- US gpm
BEP:	88% @ 8837 US gpm
NOL power:	183 hp @ 9877 US gpm
-- Max Curve --	
Max power:	183 hp @ 9877 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
10332	880	57.5	82.3	182	22.3
8610	880	72.3	87.6	179	17
6888	880	80.1	82.3	169	15.4
5166	880	88.2	70.7	162	12.7
3444	880	99	54.3	159	10.8

Company: Bonneville Power Administration

Name:

Date: 2/8/2007

Selection: Missing Fairbanks Vertical Turbines



Pump:

Size: 30D.2+ (2 stage)

Type: VERT.TURBINE
Synch speed: 900 rpm

Curve: 09-042

Specific Speeds:

Dimensions:

Vertical Turbine:

Speed: 880 rpm
Dia: 21.4 in

Impeller:

Ns: ---
Nss: ---

Suction: 27.25 in
Discharge: 20 in

Bowl size: 27.75 in
Max lateral: 1 in
Thrust K factor: 70 lb/ft

Search Criteria:

Flow: --- US gpm

Head: --- ft

Fluid:

Water
Density: 62.25 lb/ft³
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

--- hp
Speed: ---
Frame: ---

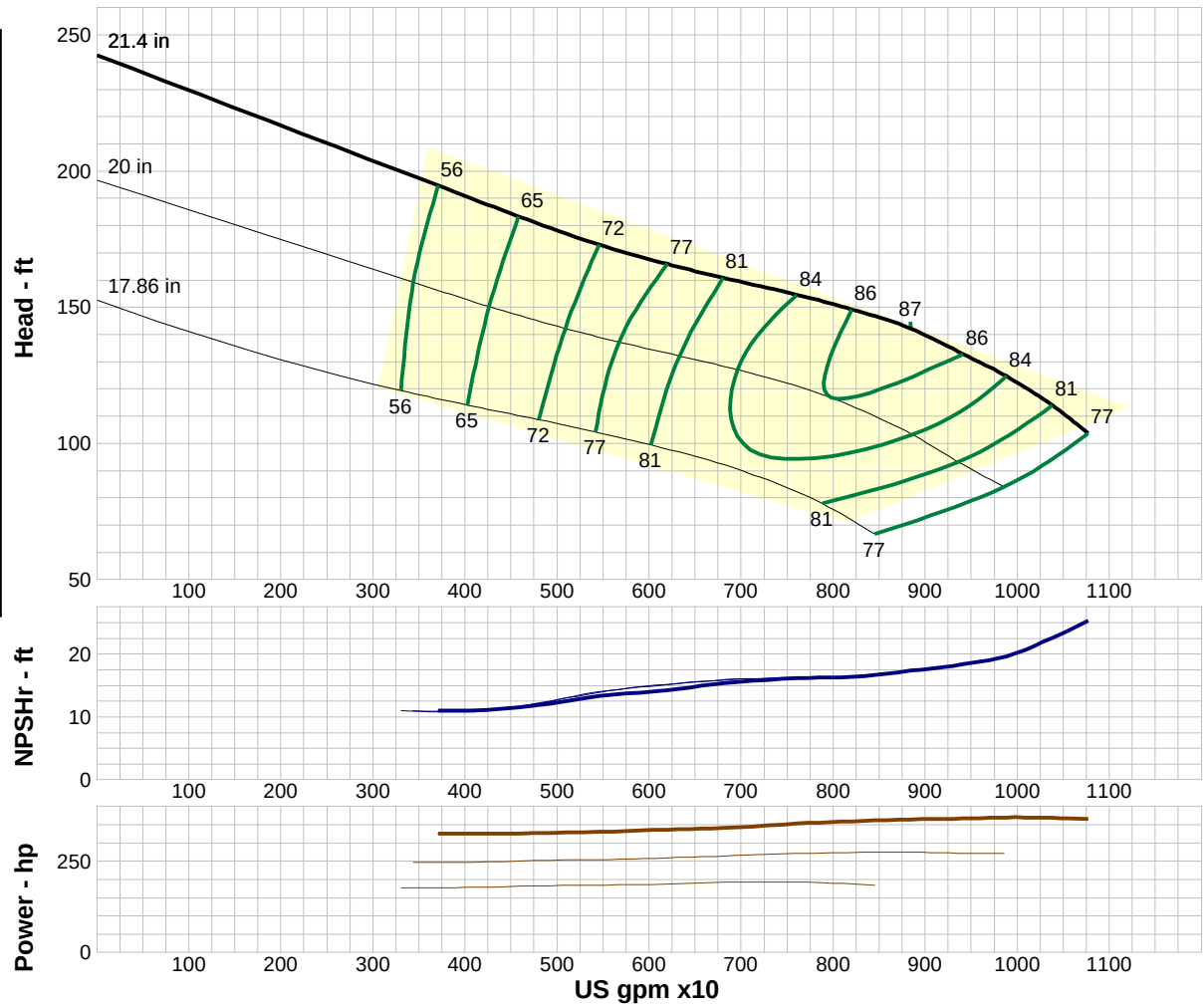
Sizing criteria: Max Power on Design Curve

Pump Limits:

Temperature: 150 °F
Pressure: 300 psi g
Sphere size: 1.81 in

Power: 1184 hp
Eye area: --- in²

---- Data Point ----	
Flow:	8837 US gpm
Head:	142 ft
Eff:	87%
Power:	365 hp
NPSHr:	17.4 ft
---- Design Curve ----	
Shutoff head:	243 ft
Shutoff dP:	105 psi
Min flow:	--- US gpm
BEP:	87% @ 8837 US gpm
NOL power:	370 hp @ 9877 US gpm
-- Max Curve --	
Max power:	370 hp @ 9877 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
10332	880	115	81.3	369	22.3
8610	880	145	86.6	363	17
6888	880	160	81.3	342	15.4
5166	880	176	69.7	329	12.7
3444	880	198	53.3	325	10.8