

Company: Bonneville Power Administration

Name:

Date: 2/8/2007

Selection: Missing Fairbanks Vertical Turbines



Pump:

Size: 31M.1 (1 stage)
 Type: VERT.TURBINE
 Synch speed: 900 rpm
 Curve:
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 880 rpm
 Dia: 19.36 in
 Impeller:
 Ns: ---
 Nss: ---
 Suction: 31.3 in
 Discharge: 24 in
 Bowl size: 29.56 in
 Max lateral: 1 in
 Thrust K factor: 62.04 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

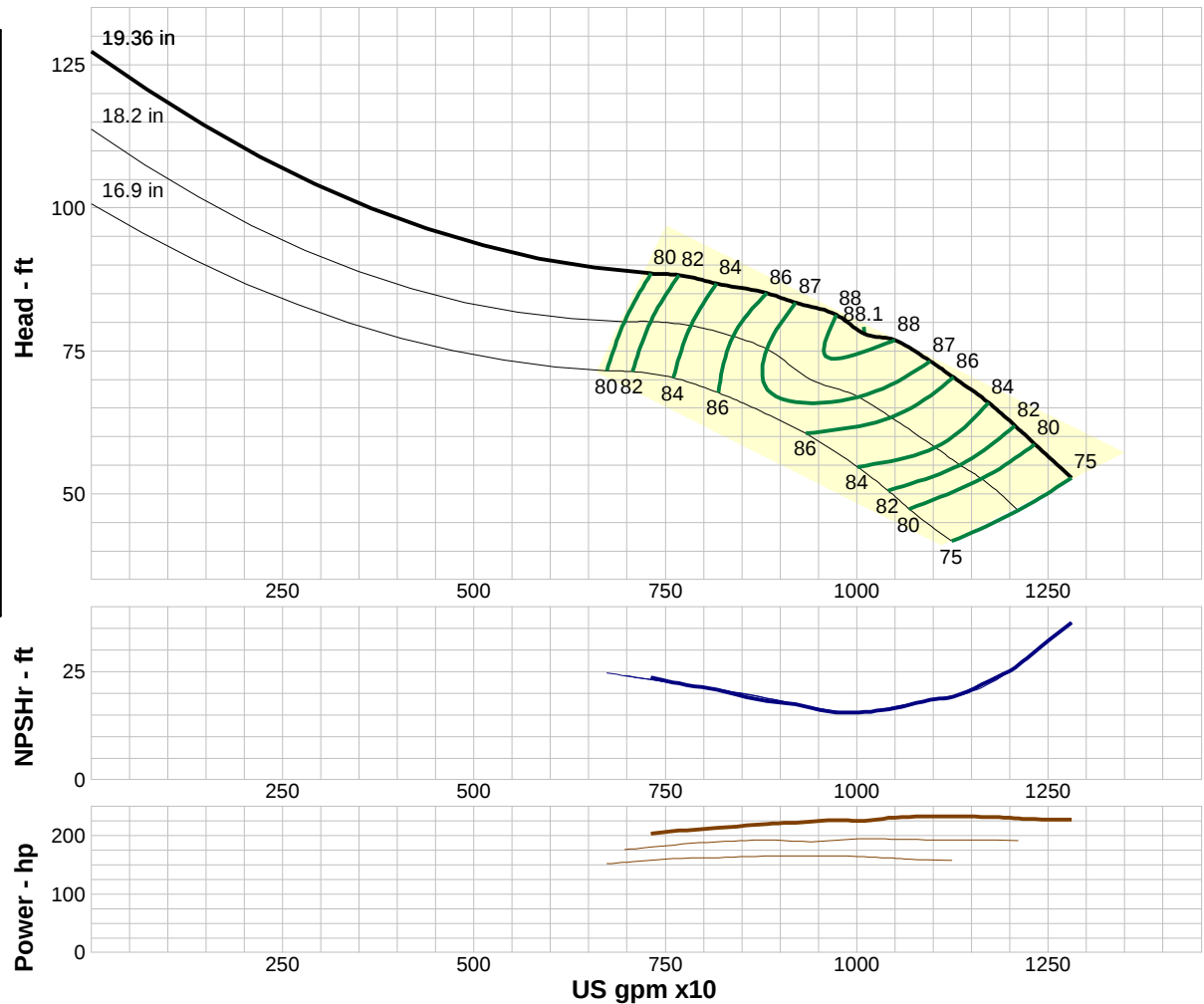
Motor:

Standard: NEMA
 Enclosure: TEFC
 Sizing criteria: Max Power on Design Curve
 Size: 250 hp
 Speed: 900
 Frame: 449T

Pump Limits:

Temperature: 150 °F
 Pressure: 485 psi g
 Sphere size: 3.25 in
 Power: 1841 hp
 Eye area: --- in²

---- Data Point ----	
Flow:	10095 US gpm
Head:	78 ft
Eff:	88.1%
Power:	226 hp
NPSHr:	15.7 ft
---- Design Curve ----	
Shutoff head:	127 ft
Shutoff dP:	55.1 psi
Min flow:	--- US gpm
BEP:	88.1% @ 10095 US gpm
NOL power:	233 hp @ 10953 US gpm
-- Max Curve --	
Max power:	233 hp @ 10953 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
12284	880	59.1	80.3	228	29.2
10237	880	77.6	88.1	228	16
8190	880	86.7	84.1	213	20.7
6142	880	---	---	---	---
4095	880	---	---	---	---

Company: Bonneville Power Administration

Name:

Date: 2/8/2007

Selection: Missing Fairbanks Vertical Turbines



Pump:

Size: 31M.2+ (2 stage)
 Type: VERT.TURBINE
 Synch speed: 900 rpm
 Curve:
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 880 rpm
 Dia: 19.38 in
 Impeller:
 Ns: ---
 Nss: ---
 Suction: 31.3 in
 Discharge: 24 in
 Bowl size: 29.56 in
 Max lateral: 1 in
 Thrust K factor: 62.04 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

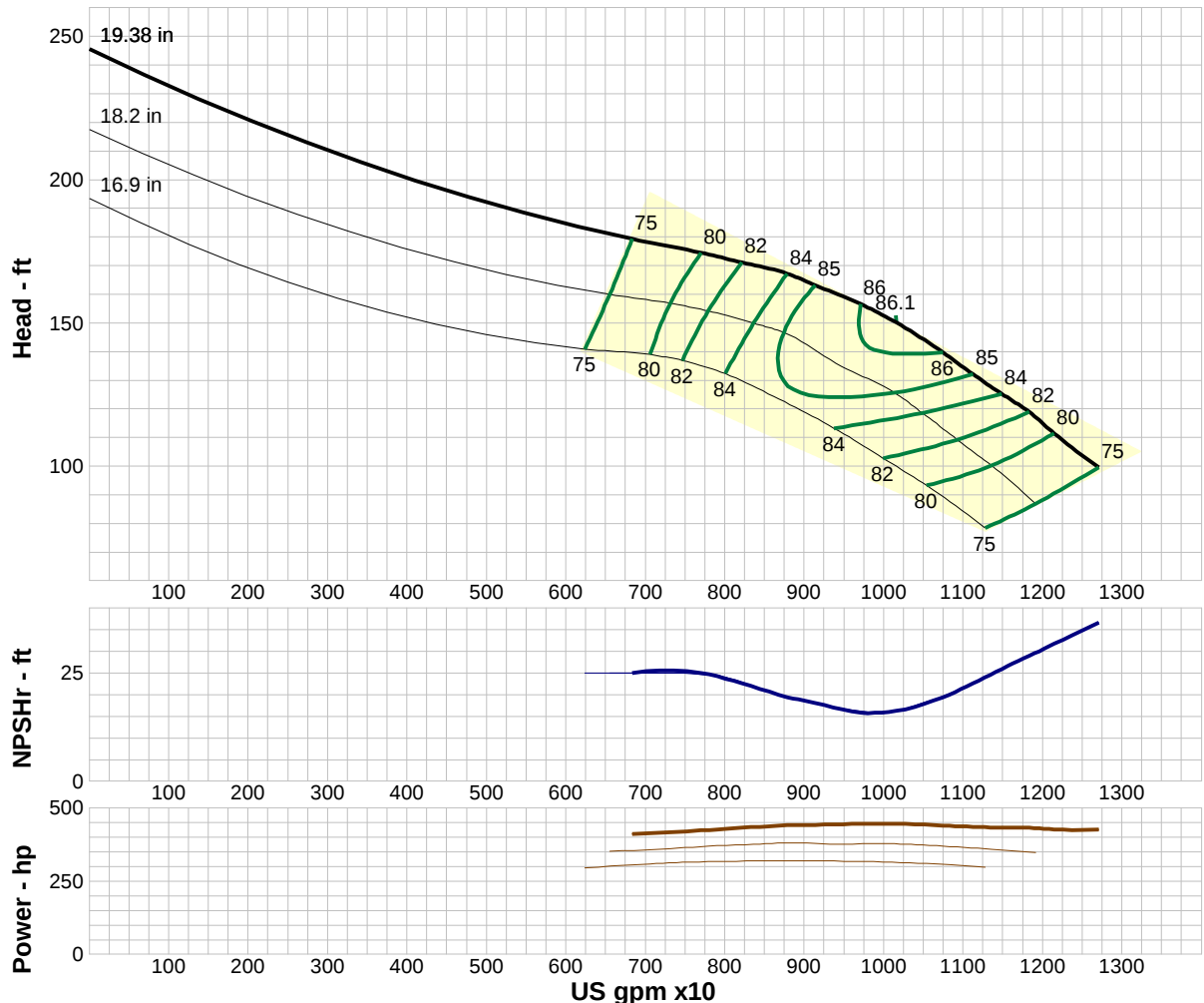
Motor:

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

Pump Limits:

Temperature: 150 °F
 Pressure: 485 psi g
 Sphere size: 3.25 in
 Power: 1841 hp
 Eye area: --- in²

---- Data Point ----	
Flow:	10151 US gpm
Head:	150 ft
Eff:	86.1%
Power:	447 hp
NPSHr:	16.3 ft
---- Design Curve ----	
Shutoff head:	246 ft
Shutoff dP:	106 psi
Min flow:	--- US gpm
BEP:	86.1% @ 10151 US gpm
NOL power:	447 hp @ 10151 US gpm
-- Max Curve --	
Max power:	447 hp @ 10151 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
12197	880	110	79.5	427	32.3
10164	880	150	86.1	447	16.3
8131	880	172	81.7	431	23
6098	880	---	---	---	---
4066	880	---	---	---	---