

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: 1200 rpm
 Curve: 12-242
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 1180 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

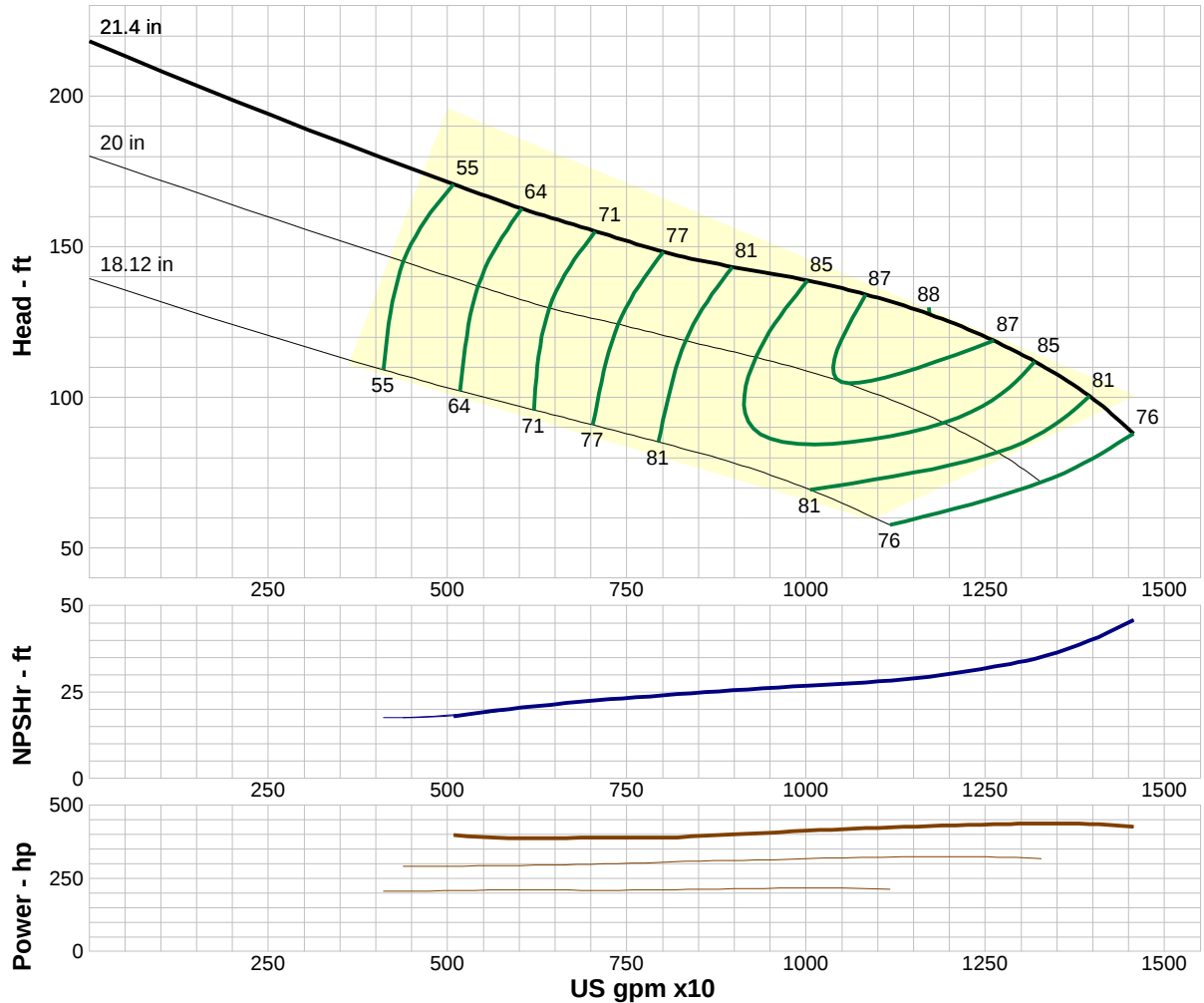
Motor:

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

Pump Limits:

Temperature: 150 °F
 Pressure: 300 psi g
 Sphere size: 1.81 in
 Power: 1574 hp
 Eye area: --- in²

---- Data Point ----	
Flow:	11717 US gpm
Head:	128 ft
Eff:	88%
Power:	429 hp
NPSHr:	29.4 ft
---- Design Curve ----	
Shutoff head:	218 ft
Shutoff dP:	94.3 psi
Min flow:	--- US gpm
BEP:	88% @ 11717 US gpm
NOL power:	438 hp @ 13184 US gpm
-- Max Curve --	
Max power:	438 hp @ 13184 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
13979	1180	99.8	80.7	436	40.2
11649	1180	128	87.9	428	29.3
9319	1180	142	82.3	405	25.9
6989	1180	156	70.5	389	22.4
4660	1180	175	51.1	403	16.9

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: 1200 rpm
 Curve: 12-242
 Specific Speeds:
 Dimensions:
 Vertical Turbine:
 Speed: 1180 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

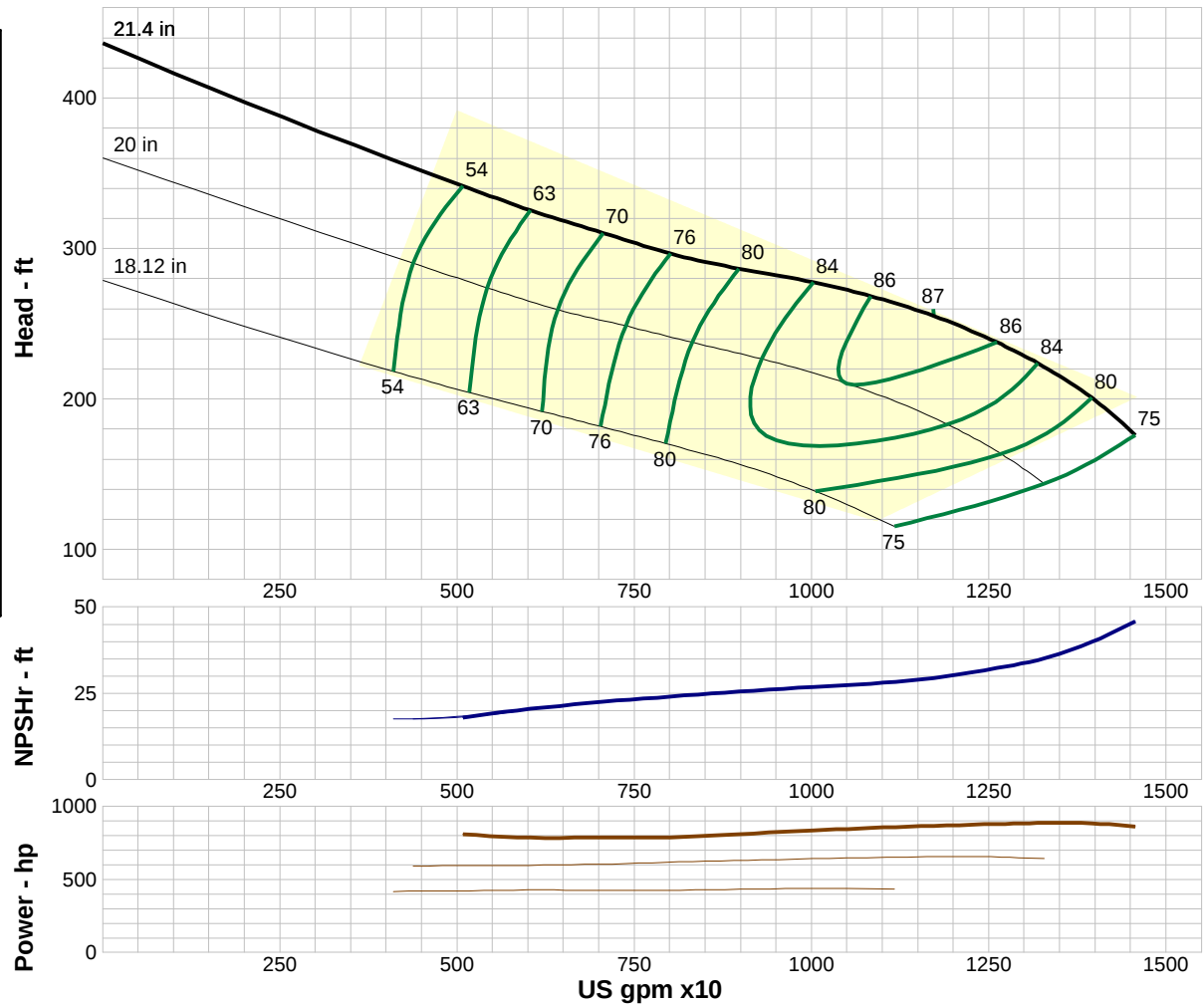
Motor:

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

Pump Limits:

Temperature: 150 °F
 Pressure: 300 psi g
 Sphere size: 1.81 in
 Power: 1574 hp
 Eye area: --- in²

---- Data Point ----	
Flow:	11717 US gpm
Head:	255 ft
Eff:	87%
Power:	868 hp
NPSHr:	29.4 ft
---- Design Curve ----	
Shutoff head:	436 ft
Shutoff dP:	189 psi
Min flow:	--- US gpm
BEP:	87% @ 11717 US gpm
NOL power:	887 hp @ 13184 US gpm
-- Max Curve --	
Max power:	887 hp @ 13184 US gpm



Performance Evaluation:

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
13979	1180	200	79.7	883	40.2
11649	1180	256	86.9	867	29.3
9319	1180	284	81.3	820	25.9
6989	1180	311	69.5	790	22.4
4660	1180	349	50.1	821	16.9