

Bates, Luke

From: Richard Agueros <ragueros@unitedcrown.com>
Sent: Tuesday, September 21, 2021 1:00 PM
To: Bates, Luke
Cc: Chris Agueros
Subject: RE: IDWR water permit question for Permit 95-17177
Attachments: E_Rock Domestic Well.pdf; Documents.pdf

Luke: because these pumps are both on a VFD (Variable Frequency Drive) – you will not see the conventional starter or something with motor data.

5HP 460V, 3 Phase, 35 GPM Potable Pump/Motor:

- So...the 1st attachment is one you already have. It shows the GPM but if you look at the top it has a 3HP 35 GPM pump end with a 5 HP motor.
- This combo is a “mixed” pump and motor – when the Drive can change the Cycles/Second or Hertz...then you can over-speed the motor – above 60 Hz.
- You will see on the curve of the 5 HP “80 HZ Performance.”
- So...this is a 5 HP system even though the pump is a mix.

125 HP 460V, 3 Phase, 1,725 GPM Fire Pump/Motor:

- Simple answer on this one is that the pump and motor is matched and classified as a 125 HP/1,725 GPM unit.
- If you are a pump-nerd – you may want an explanation of the data in the attachment.
- Chances are you will see this again.
- This document is electronically generated from a program provided by the pump company selling its product.
- It looks official but they can still twist the truth to sell product – it is not an official factory test...just one generated on the computer.
- Let me know if you want to go over it...once you have a copy we can go over it on the phone.

Hope this helps.

Rich


UNITED CROWN
PUMP & DRILLING
Richard Agueros, President
3125 W Hayden Ave
Hayden ID 83835

Phone: 208-772-7867 Cell: 208-699-7867

From: Bates, Luke [mailto:Luke.Bates@idwr.idaho.gov]
Sent: Wednesday, September 15, 2021 2:41 PM
To: Richard Agueros <ragueros@unitedcrown.com>
Subject: FW: IDWR water permit question for Permit 95-17177

Good afternoon Rich,

Following up on the EagleRockRVBoatStorage water permits, your information helped me finalized Permit 95-17177 which dealt with well D0046336.

I went out today to catch up the documentation for their 12" well D0073545, and while the pump house is very nice and clean, there was no pump control panel with a data plate showing the HP of the pump motor for that well. I was hoping you could assist in this endeavor. The 12" well is for the applicant's fire protection system.

I know you are a busy man, and I appreciate any assistance you may be able to provide.

v/r,



Luke Bates | Water Resource Agent
Idaho Department of Water Resources
Northern Regional Office
7600 N Mineral Drive, Suite 100
Coeur d'Alene, ID 83815-7763
Phone: (208) 762-2800

From: Bates, Luke
Sent: Wednesday, September 1, 2021 6:48 AM
To: 'Richard Agueros' <ragueros@unitedcrown.com>
Subject: RE: IDWR water permit question for Permit 95-17177

Good morning Mr. Agueros,

Thank you for the information. This will help greatly in determining how to license the applicant's water permit.

Appreciate your efforts Sir.

v/r,



Luke Bates | Water Resource Agent
Idaho Department of Water Resources
Northern Regional Office
7600 N Mineral Drive, Suite 100
Coeur d'Alene, ID 83815-7763
Phone: (208) 762-2800

From: Richard Agueros [<mailto:ragueros@unitedcrown.com>]
Sent: Tuesday, August 31, 2021 11:19 AM
To: Bates, Luke <Luke.Bates@idwr.idaho.gov>
Cc: Chris Agueros <chris@unitedcrown.com>
Subject: RE: IDWR water permit question for Permit 95-17177

Luke: attached is the curve for the pump we installed. It operates on a transducer so the pressure and speed can be controlled to hit a lower point...but our best guess on TDH puts it at 50 GPM max.

Your second question on interconnection:

- This well goes to the main pump house and is used as the “jockey” pump to keep the fire pump from coming on for irrigation.
- The Domestic water goes to the irrigation/fire main line through a RP Double Check Valve.
- The fire pump will only come on if the pressure demand exceeds what the Domestic well can produce or if it is not operational.

Please let me know if you have any additional questions.

Rich



Richard Agueros, President
3125 W Hayden Ave
Hayden ID 83835

Phone: 208-772-7867 Cell: 208-699-7867

From: Bates, Luke [mailto:Luke.Bates@idwr.idaho.gov]
Sent: Friday, August 27, 2021 10:05 AM
To: Richard Agueros <ragueros@unitedcrown.com>
Subject: IDWR water permit question for Permit 95-17177

Good morning Sir,

Yesterday I was out at 930 N Beck RD to conduct a field exam for the Eagle Rock RV Boat & Storage facility.

I worked one of the owners, Mary Legg “Betsy”, during the exam. There are two wells, one of which was drilled for fire protection purposes, and an existing well D0046336 for domestic and irrigation uses.

A couple of questions came up, and Mary stated you all had done the install of the system.

1. I could not locate the well pump/motor control box to determine the HP of the motor for well D0046336, and was hoping you could provide some info to that end?
2. I asked Mary if the two wells were interconnected, and she did not know; from records can you determine whether both wells on the property are interconnected for uses? Or perhaps the domestic (office building) and irrigation system are separate systems than the fire suppression system.

I appreciate any information you may be able to exchange. This can be via email, or I can stop by and speak directly to you regarding this one.

Thank you Richard,

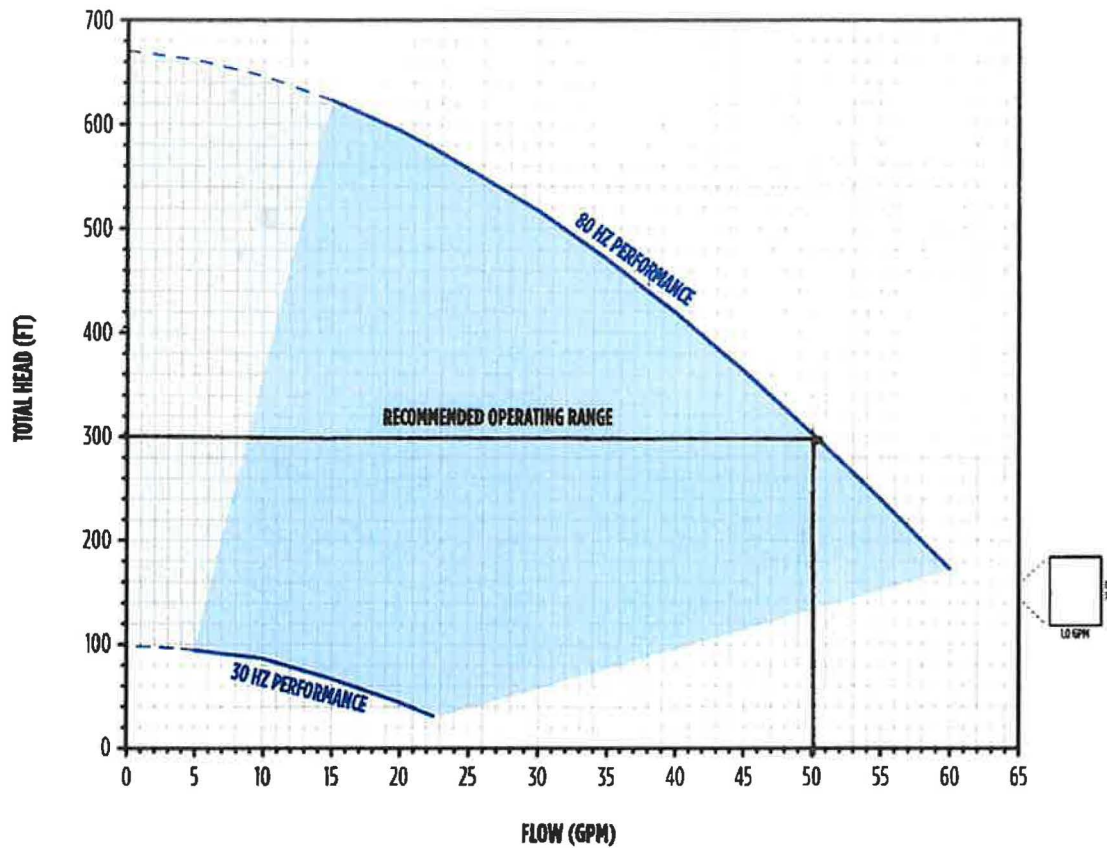


Luke Bates | Water Resource Agent
Idaho Department of Water Resources
Northern Regional Office
7600 N Mineral Drive, Suite 100
Coeur d'Alene, ID 83815-7763
Phone: (208) 762-2800



SUBDRIVE 300 35 GPM (3 HP PUMP END, 5 HP MOTOR)

UCLPD 2. AGAENS 8/31/21



NOTE: Actual maximum performance of the SubDrive QuickPAK system is power limited by the SubDrive unit. This limit is based on the maximum allowable AMP load of the submersible motor. The result is in some installations an 80 Hz speed may not be attained. SubDrive 300 data is to be used for performance reference only; products are not offered as a QuickPAK system

EST. TDH = 300 + - (50 GPM)

Installed in Well DØØ46336



125HP Pump/Motor
Installed in Well DØØ73545

Customer :
Reference :

Pump Performance Datasheet

American-Marsh Pumps Quotation System 17.3.3.0

Item number : 016
Service :
Quantity : 1
Quote number : 309338

Size : 10WC
Stages : 2
Based on curve number : 10WC
Date last saved : 15 Aug 2017 2:52 PM

Operating Conditions

Flow, rated : 1,725.0 USgpm
Differential head / pressure, rated (requested) : 221.0 ft
Differential head / pressure, rated (actual) : 221.8 ft
Suction pressure, rated / max : 0.00 / 0.00 psi.g
NPSH available, rated : Ample
Frequency : 60 Hz

Performance

Speed, rated : 3500 rpm
Impeller diameter, rated : 7.88 in
Impeller diameter, maximum : 8.25 in
Impeller diameter, minimum : 6.75 in
Efficiency (bowl / pump) : 77.49 / 73.42 %
NPSH required / margin required : 39.63 / 0.50 ft
Ns (total flow) / Nss (imp. eye flow) : 3,544 / 9,126 US Units
MCSF : 1,010.6 USgpm
Head, maximum, rated diameter : 435.4 ft
Head rise to shutoff (bowl / pump) : 96.97 / 106.88 %
Flow, best eff. point (bowl / pump) : 1,611.5 / 1,543.9 USgpm
Flow ratio, rated / BEP (bowl / pump) : 107.04 / 111.73 %
Diameter ratio (rated / max) : 95.45 %
Head ratio (rated dia / max dia) : 73.50 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00
Selection status : Acceptable

Liquid

Liquid type : Water
Additional liquid description :
Solids diameter, max : 0.00 in
Solids concentration, by volume : 0.00 %
Temperature, max : 68.00 deg F
Fluid density, rated / max : 1.000 / 1.000 SG
Viscosity, rated : 1.00 cP
Vapor pressure, rated : 0.34 psi.a

Material

Material selected : Cast iron - Standard

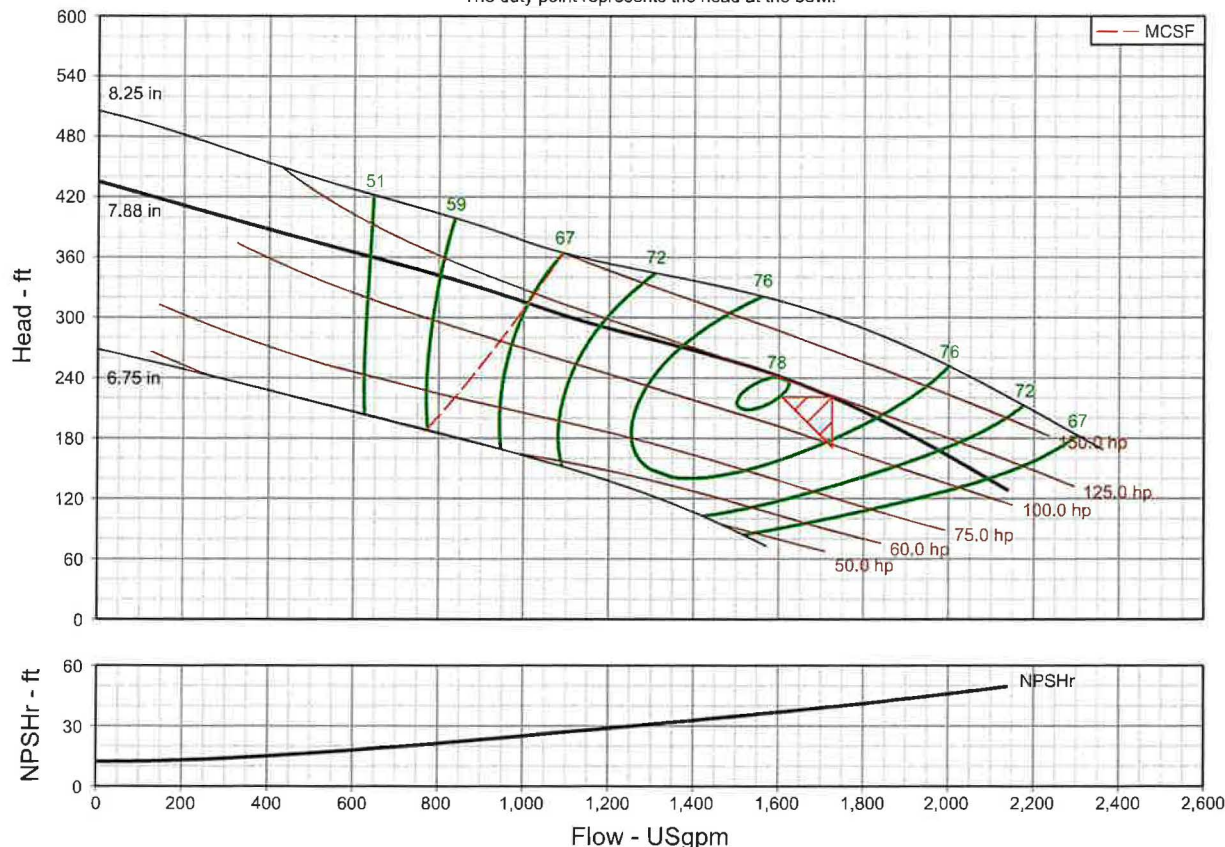
Pressure Data

Maximum working pressure : See the Additional Data page
Maximum allowable working pressure : See the Additional Data page
Maximum allowable suction pressure : N/A
Hydrostatic test pressure : See the Additional Data page

Driver & Power Data (@Max density)

Driver sizing specification : Maximum power
Margin over specification : 0.00 %
Service factor : 1.15
Power, hydraulic : 96.26 hp
Power (bowl / pump) : 124 / 125 hp
Power, maximum, rated diameter : 126 hp
Minimum recommended motor rating : 150 hp / 112 kW

Bowl performance. Adjusted for construction and viscosity.
The duty point represents the head at the bowl.



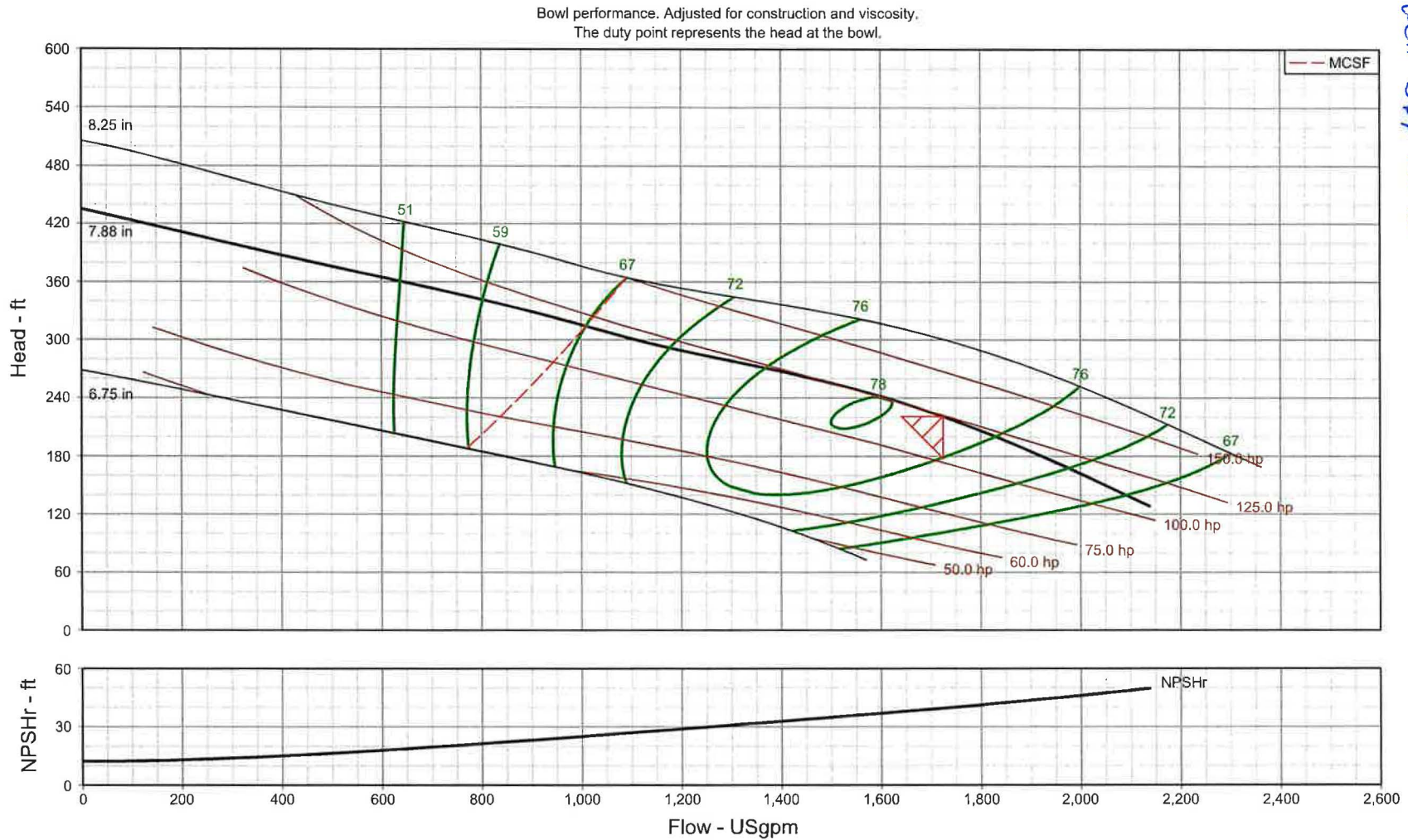


Customer
Reference

Pump Performance Curve

American-Marsh Pumps Quotation System 17.3.3.0

125 HP Pump/Motor
1211 000 73545



Item number : 016
Service :
Quantity : 1
Quote number : 309338
Date last saved : 15 Aug 2017 2:52 PM

Size : 10WC
Stages : 2
Speed, rated : 3500 rpm
Based on curve number : 10WC
Efficiency (bowl / pump) : 77.49 / 73.42 %
Power (bowl / pump) : 124 / 125 hp

Flow, rated : 1,725.0 USgpm
Differential head / pressure, rated : 221.0 ft
NPSH required : 39.63 ft
Fluid density, rated / max : 1.000 / 1.000 SG
Viscosity : 1.00 cP
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00

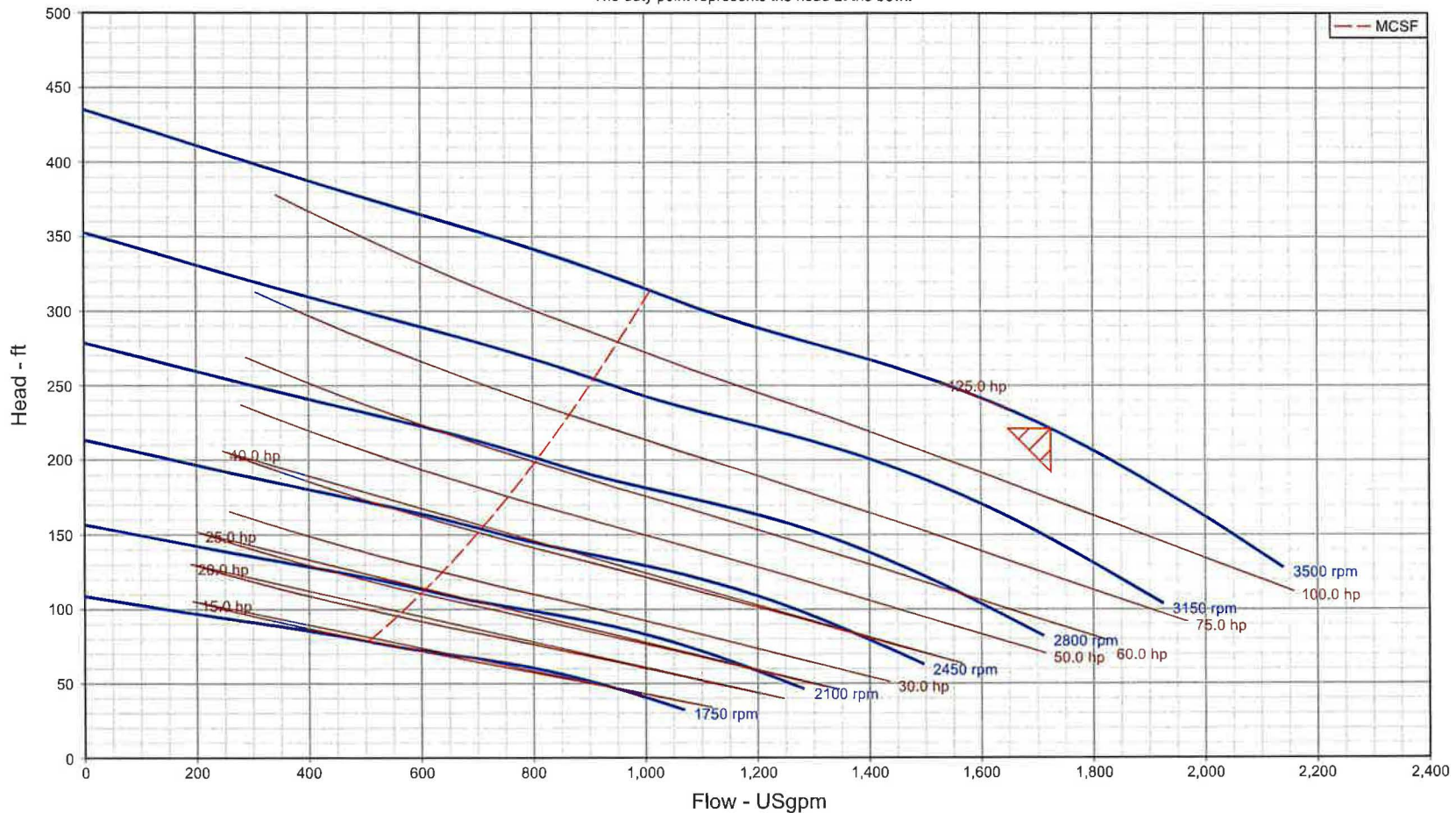


Customer
Reference

Multi-Speed Performance Curve

American-Marsh Pumps Quotation System 17.3.3.0

Bowl performance. Adjusted for construction and viscosity.
The duty point represents the head at the bowl.



125 HP Pump/Motor
Well DDD 73545

Item number : 016
Service :
Quantity : 1
Quote number : 309338
Based on curve number : 10WC
Date last saved : 15 Aug 2017 2:52 PM

Size : 10WC
Stages : 2
Efficiency (bowl / pump) : 77.49 / 73.42 %
Power (bowl / pump) : 124 / 125 hp
NPSH required : 39.63 ft
Frequency : 60 Hz
Nominal speed : 3500 rpm

Flow, rated : 1,725.0 USgpm
Differential head / pressure, rated : 221.0 ft
Speed, rated : 3500 rpm
Impeller diameter, rated : 7.88 in
Fluid density, rated / max : 1.000 / 1.000 SG
Viscosity : 1.00 cP
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00



Customer :
Reference :

Pump Performance - Additional Data

American-Marsh Pumps Quotation System 17.3.3.0

125 HP Pump/Motor
Well 00073545

Item number : 016
Service :
Quantity : 1
Quote number : 309338

Size : 10WC
Stages : 2
Speed, rated : 3500 rpm
Intellicode :
Date last saved : 15 Aug 2017 2:52 PM

Performance Data

Head, maximum diameter, rated flow : 300.7 ft
Head, minimum diameter, rated flow : 34.50 ft
Head, maximum, rated diameter : 435.4 ft
Efficiency adjustment factor, total : 0.98
Power adjustment, total : 2.48 hp
Head adjustment factor, total : 1.00
Flow adjustment factor, total : 1.00
NPSHR adjustment factor, total : 1.00
User applied performance adjustment comments :
NPSH margin dictated by pump supplier : 0.50 ft
NPSH margin dictated by user : 0.00 ft
NPSH margin used (added to 'required' values) : 0.50 ft

Mechanical Limits

Torque, rated power, rated speed : 3.57 hp/100 rpm
Torque, maximum power, rated speed : 3.59 hp/100 rpm
Torque, driver power, full load speed : 4.20 hp/100 rpm
Torque, driver power, rated speed : 4.29 hp/100 rpm
Torque, pump shaft limit : 18.14 hp/100 rpm
Radial load, worst case : -
Radial load limit : -
Impeller peripheral speed, rated : -
Impeller peripheral speed limit : -

Stage, Speed and Solids Limits

Stages, maximum : 26
Stages, minimum : 1
Pump speed limit, maximum : 3600 rpm
Pump speed limit, minimum : 800 rpm
Curve speed limit, maximum : 3600 rpm
Curve speed limit, minimum : 300 rpm
Variable speed limit, minimum : 100 rpm
Solids diameter limit : 0.88 in

Typical Driver Data

Driver speed, full load : 3570 rpm
Driver speed, rated load : 3575 rpm
Driver efficiency, 100% load : N/A
Driver efficiency, 75% load : N/A
Driver efficiency, 50% load : N/A

Various Performance Data

	Flow (USgpm)	Head (ft)	Efficiency (%)	NPSHr (ft)	Power (hp)
Shutoff, rated diameter	0.00	435.4	-	-	95.23
Shutoff, maximum diameter	0.00	505.8	-	-	104
MCSF	1,010.6	314.2	67.02	25.34	120
Rated flow, minimum diameter	1,725.0	34.50	43.92	-	34.20
Rated flow, maximum diameter	1,725.0	300.7	77.27	-	169
BEP flow, rated diameter	1,611.5	240.0	78.00	37.21	125
120% rated flow, rated diameter	2,070.0	145.3	68.08	47.87	112
End of curve, rated diameter	2,140.3	128.0	64.32	49.81	108
End of curve, minimum diameter	1,571.4	72.80	62.79	36.39	46.00
End of curve, maximum diameter	2,362.8	168.8	63.86	56.87	158
Maximum value, rated diameter	-	435.4	78.00	-	126
Maximum value, maximum diameter	-	-	77.41	-	170

System differential pressure

Differential pressure, rated flow, rated diameter (psi)
Differential pressure, shutoff, rated diameter (psi)
Differential pressure, shutoff, maximum diameter (psi)

@ Density, rated

95.66
188.4
218.9

@ Density, max

95.66
188.4
218.9

Discharge pressure

Discharge pressure, rated flow, rated diameter (psi.g)
Discharge pressure, shutoff, rated diameter (psi.g)
Discharge pressure, shutoff, maximum diameter (psi.g)

@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
95.66	95.66	95.66	95.66
188.4	188.4	188.4	188.4
218.9	218.9	218.9	218.9

Ratios

Maximum flow / rated flow, rated diameter : 124.08 % Head rated diameter / head minimum diameter, rated flow : 640.77 %



Customer :
Reference :

Pump Performance - Additional Data

American-Marsh Pumps Quotation System 17.3.3.0

125HP Pump/Motor

Well D0073545

Mixed Stage Performance	Set #1	Set #2	Set #3	Set #4	Alternate First Stage
Size	10WC	-	-	-	-
Stages	2	-	-	-	-
Based on curve number	10WC	-	-	-	-
Impeller diameter, rated	7.88 in	-	-	-	-
Head and Power Losses			Dimensions		
Friction loss rate, column	: 4.16 %		Minimum clearance below suction bell lip/case	: 0.00 in	
Friction loss, column	: 8.32 ft		Minimum well diameter	: 0.00 in	
Friction loss, discharge head	: 2.26 ft		Suction nozzle centerline height	: -	
Friction loss, can/barrel	: -		Bowl assembly length, first stage	: 16.00 in	
Friction loss, suction bell and strainer	: 0.00 ft		Bowl assembly length, upper stage	: 8.50 in	
Friction loss, bowl/column adaptor	: 0.00 ft		Bowl assembly length, total	: 24.50 in	
Friction loss, total	: 10.58 ft		Suction bearing hub length	: 0.00 in	
Power loss, lineshaft bearings	: -		Strainer length	: 0.00 in	
Power loss, thrust bearing	: 0.60 hp		Bowl to column adaptor length	: 0.00 in	
Power loss, total	: 0.60 hp		Discharge head stick-down	: -2.00 in	
Bowl vs. Pump Performance			Submersible motor adaptor length	: 15.13 in	
Head (bowl / pump)	: 221.0 ft / 210.5 ft		Submersible motor length	: 66.50 in	
Efficiency (bowl / pump)	: 77.49 % / 73.42 %		Column length	: 200.0 ft	
Power (bowl / pump)	: 124 hp / 125 hp		Total pump length	: 208.7 ft	
NPSH required at first stage impeller eye	: 39.63 ft		Can / barrel length	: -	
Weights and Down Thrust			Stuffing box sleeve diameter	: -	
Weight, lineshaft	: -		Suction bell diameter	: -	
Weight, bowl assembly rotating element	: 33.76 lb		Minimum submergence to prevent vortexing	: 28.00 in	
Thrust factor	: 10.30 lb/ft		Discharge head height	: 28.00 in	
Thrust, hydraulic (rated / max)	: 2,272.8 / 4,476.9 lbf		Discharge nozzle centerline height	: 10.00 in	
Thrust, bowl shaft end (rated / max)	: -0.00 / -0.00 lbf		Min distance discharge nozzle centerline to suction bell	: 0.00	
Thrust, shaft step (rated / max)	: 0.00 / 0.00 lbf		Lineshaft length	: -	
Thrust, stuffing box sleeve (rated / max)	: - / -		Bowl shaft diameter	: 1.69 in	
Thrust, total (rated / max)	: 2,306.6 / 4,510.6 lbf		Bowl diameter, outside	: 9.50 in	
Thrust Limit	: -		Bowl diameter, exit	: 7.97 in	
Pressure Data			Column diameter, inside	: 8.07 in	
	Maximum working pressure (psi.g)	Maximum allowable working pressure (psi.g)	Column internal obstruction diameter	: -	
Bowl	188.4	343.0	Can/barrel diameter, inside	: -	
Column	188.4	1,030.0	Can/barrel obstruction diameter	: -	
Discharge head	188.4	275.0			
Can/Barrel	-	-			
Torque Limits			NPSH		
Torque, lineshaft limit	: -		NPSH at bowl (available / required)	: Ample / 39.63 ft	
			NPSH at low liquid level (available / required)	: Ample / 17.75 ft	
			NPSH at suction flange (available / required)	: - / -	
			Liquid Velocities		
			Column liquid velocity	: 10.82 ft/s	
			Can liquid velocity	: -	
			Suction nozzle liquid velocity	: -	



Customer
Reference

Pump Performance - Additional Data

American-Marsh Pumps Quotation System 17.3.3.0

Additional Design Conditions

Pump Design	: Submersible	Length Value	: 200.0 ft
Impeller Type	: Enclosed Impeller	Well Inside Diameter	: 10.00 in
Driver Type	: Submersible Motor	Pumping Level (From Bottom of Head to Liquid)	: 180.0 ft
Head Measurement Location	: Top of bowl	NPSH Measurement Location	: Bowl
Pump Length Definition	: Column length (Setting)		

Bowl Options

Impeller Fastener	: Collet	Bowl Suction Connection Size	: Submersible
Bowl Shaft Material	: 416ss	Bowl Suction Type	: Submersible
Bolting	: Standard Bolting	Submersible Motor Adaptor Size	: 8" Motor Bracket
Bowl Discharge Type	: Threaded		

Column Options

Column Diameter	: 8 inch
Column Type	: Threaded

Discharge Head Options

Discharge Head Type	: Fabricated Steel	Discharge Head Column Connection	: Threaded
Discharge Head Size	: 8" Discharge		
Discharge Head Flange Rating	: Class 150		