

M & M Electric Motor Repair Inc.  
 205 Bucheimer Road  
 Frederick Maryland 21701  
 301 663-1100

## Quote/Estimate

Date	Quote/Estimate #	P.O. No.
8/15/2024	24-666	

Name / Address
Town of Boonsboro email invoices to: townmanager@townofboonsboro.com officemanager@townofboonsboro.com

Ship To
Pete Shumaker Rt., 34 Pumpoing Station

Job #	Make	HP	Model	PH//RPM/Voltage	Serial #	Other

Item	Description	Qty	Price	Total
	Replacement pump/motor for Fairbanks Morse Model 5432B, 4" x 3" S/N K2W1076538-1, 7.5hp 1800 230/460 213T Note: This existing pump is obsolete, they do have a replacement model; however the pricing is outrageous and the lead-time was over 30 weeks. We felt this wasn't a viable option. The pump we are quoting is designed to match and exceed the site conditions and demand of the existing dry-pit pumps, specifications attached. This Barnes/Crane unit will install in the same manner as the existing pump, and come with the same style of fitted "pump seat". There is a 4 week lead time with a 5 year warranty, and is also 10K less than the replacement pump Fairbanks was offering.			
PU	Barnes Vertical Dry Pit Pump, Liquid Temperature 40C, SH non clog, 4 inch discharge, hydraulic series MD, 10 hp, 1150 rpm, 460 volts, 3 phase, impeller trimmed to 285mm, Impeller Material Ductile Iron, Carbon / Sil Car Upper, Sil Car	1	26,670.56	26,670.56
Freight	Freight **TBD**			0.00
	Quote valid for 25 days.			

<b>Subtotal</b>	\$26,670.56
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<b>Sales Tax (6.0%)</b>	\$0.00
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<b>Total</b>	\$26,670.56
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**The above prices are good for 30 days**

Phone #	Fax #	E-mail	Web Site
301 663-1100	301 663-3120	mmmotorrepair@msn.com	www.wewindmotors.com

**CRANE**

PUMPS & SYSTEMS

**BARNES**

# 4(X)ESHMD – 10 HP

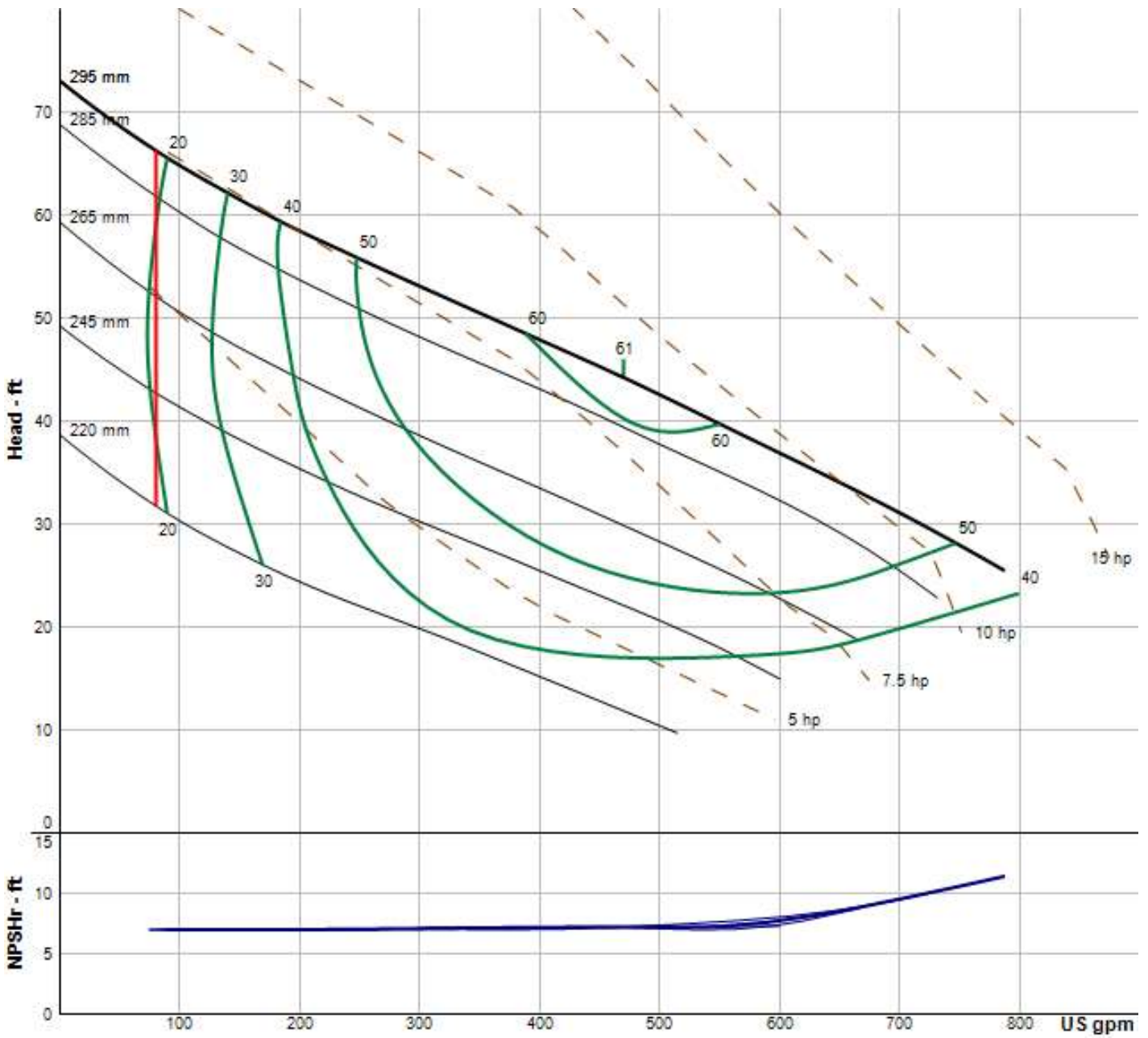
3" Spherical Solids Handling



## Specifications

<b>DISCHARGE:</b>	4", 125 lb. Horizontal flange slotted to accommodate 100mm ISO flanges
<b>SUCTION:</b>	125lb ANSI flange
<b>SPEED:</b>	1150 RPM
<b>WEAR RING:</b>	C954 Lead-Free Bronze
<b>IMPELLER:</b>	<ul style="list-style-type: none"> <li>• <b>Design:</b> Enclosed <b>Mono-Vane</b>, with pump out vanes on back side. Dynamically balanced ISO G6.3.</li> <li>• <b>Material:</b> Ductile iron ASTM A-536, 65-45-12</li> </ul>
<b>CORD TYPE:</b>	Custom Molded quick connected for sealing and strain relief ( <b>E21 &amp; E28 FRAME ONLY</b> )
<b>MAXIMUM LIQUID TEMPERATURE:</b>	104°F (40°C) Continuous
<b>MOTOR:</b>	<ul style="list-style-type: none"> <li>• <b>Design:</b> NEMA B three phase torque curve, air-filled, squirrel cage induction, inverter duty rated per NEMA MG1</li> <li>• <b>Insulation:</b> Class H</li> <li>• <b>Efficiency:</b> IE3</li> <li>• <b>Voltage:</b> 208, 230, 460, 575 (±10% voltage variation)</li> <li>• <b>Service Factor:</b> 1.15</li> </ul>
<b>SHAFT:</b>	416 Stainless steel
<b>STARTS PER HOUR:</b>	15 per hour, evenly spread
<b>COOLING SYSTEM:</b>	<ul style="list-style-type: none"> <li>• Closed loop cooling system</li> <li>• <b>Cooling Jacket:</b> <ul style="list-style-type: none"> <li>- <b>E21, E28, and E32 Frame:</b> 300 Series stainless steel</li> <li>- <b>E36 Frame:</b> Integral cast iron jacket ASTM A-48, Class 35B</li> </ul> </li> </ul>
<b>VOLUTE:</b>	Cast iron ASTM A-48, Class 30
<b>O-RINGS:</b>	Buna-N
<b>HARDWARE:</b>	300 Series stainless steel
<b>SUBMERGENCE:</b>	Max depth 66ft (20m)
<b>MOTOR HOUSING:</b>	Cast iron ASTM A-48, Class 35B
<b>SEAL BRACKET:</b>	Cast iron ASTM A-48, Class 35B
<b>LOWER BEARING:</b>	<ul style="list-style-type: none"> <li>• <b>Design:</b> Double Row, Ball, permanently Grease Lubricated</li> <li>• <b>Load:</b> Radial &amp; Thrust</li> </ul>
<b>UPPER BEARING:</b>	<ul style="list-style-type: none"> <li>• <b>Design:</b> Single Row, Ball, permanently Grease Lubricated</li> <li>• <b>Load:</b> Radial</li> </ul>
<b>BEARING BRACKET ASSEMBLY:</b>	Cast iron ASTM A-48, Class 35B
<b>HARDWARE AND LIFTING BAIL:</b>	300 Series stainless steel
<b>SEAL:</b>	<ul style="list-style-type: none"> <li>• <b>Design:</b> Tandem mechanical</li> <li>• <b>Material:</b> <ul style="list-style-type: none"> <li>- <b>Inboard:</b> Carbon rotating face, silicon carbide stationary face</li> <li>- <b>Outboard:</b> Silicon carbide rotating face, silicon carbide stationary face</li> <li>- <b>Elastomer:</b> Buna-N</li> <li>- <b>Hardware:</b> 300 Series stainless steel</li> </ul> </li> </ul>
<b>POWER CORD:</b>	CSA certified submersible power cable - ordered separately
<b>MOTOR END COATING SYSTEM:</b>	Resicoat® R4 Powder Coat Epoxy
<b>PUMP END COATING SYSTEM:</b>	Axalta Corlar® amidoamine epoxy
<b>OPTIONAL EQUIPMENT:</b>	White iron impeller, impeller trims, impeller types, cord length, seal options, certified testing
<b>MARKING:</b>	CSA
<b>MOISTURE SENSOR:</b>	Normally Open (N/O) Float Sensor with Resistor, Located in Seal Chamber, Requires Relay in Control Panel
<b>TEMPERATURE SENSOR:</b>	<b>Three Phase:</b> Three Normally Closed (N/C) Thermal Sensors, One per Phase, Embedded in Stator Windings, To be wired in series with control circuit.
<b>OVERLOAD PROTECTION:</b>	<b>Three Phase:</b> Must be included in control panel

Curves



Pump HP	Impeller Dia mm (in.)
15	295 (11.61)
10	285 (11.22)
7.5	265 (10.43)

## Model Information

PUMP MODEL NUMBER - VOLTAGE	4ESHMD10066-208/3	4ESHMD100N6*-208-230/3	4ESHMD100N6*-460/3	4ESHMD10056-575/3
DRIVER	E28	E28	E28	E28
VOLT / PH	208/3	208-230/3	460/3	575/3
HZ	60	60	60	60
RPM (NOM)	1150	1150	1150	1150
NEMA START CODE	H	H	H	H
FLA	27.5	26.8 / 24.7	12.4	9.9
LRA	188	146 / 160	80	66
CORD P/N	125496	125496	125497	125497
CORD SIZE	12/4 - 18/4	12/4 - 18/4	12/4 - 18/4	12/4 - 18/4
POWER FACTOR 100% LOAD	82.6	83.2	83.2	82.7
POWER FACTOR 75% LOAD	78.1	78.3	78.3	78.4
POWER FACTOR 50% LOAD	68.7	67.5	67.5	69.1
MOTOR EFFICIENCY 100% LOAD	91.4	91.1	91.1	91.5
MOTOR EFFICIENCY 75% LOAD	92	91.8	91.8	92.1
MOTOR EFFICIENCY 50% LOAD	91.5	91.5	91.5	91.6
WEIGHT (LBS)	559	559	559	559
WORKING PRESSURE (PSI)	38	38	38	38



### IMPORTANT

MOISTURE AND TEMPERATURE SENSOR LEADS ARE INTEGRAL TO POWER CORD.

PUMP RATED FOR OPERATION AT ± 10% VOLTAGE AT MOTOR.

▲ CORD SUFFIX: XC - 30 FEET, XF - 50 FEET, XJ - 75 FEET, OR XL - 100 FEET.

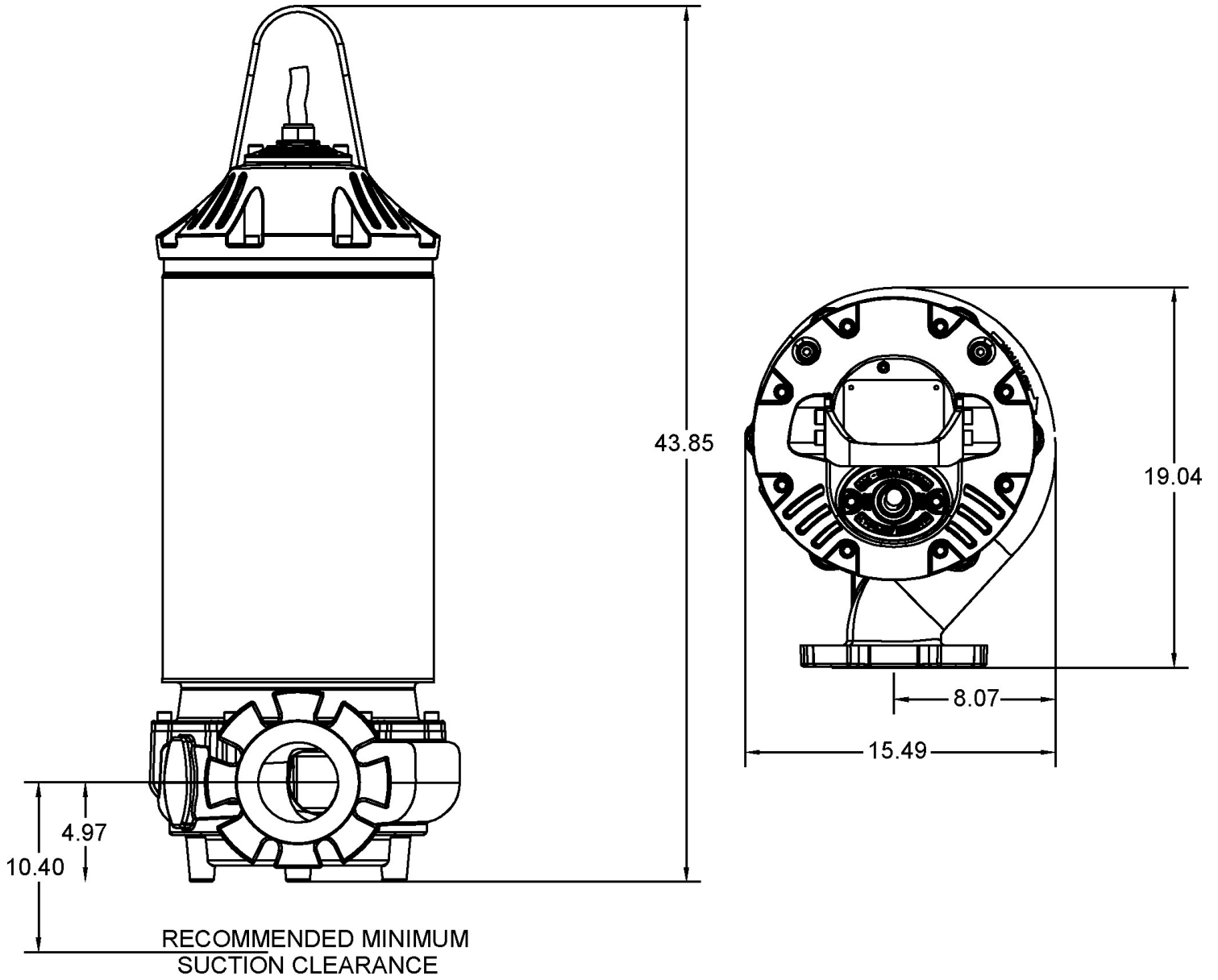
▲ CORD SOLD SEPARATELY.

\* TRI-VOLTAGE PUMPS (I.E. 208-230/460V) ARE OPERABLE AT 208V, BUT WILL NOT MEET IE3 EFFICIENCY. A TRUE 208V, SINGLE VOLTAGE PUMP MUST BE ORDERED TO OBTAIN AN IE3 RATING

NOTE: ENVIE3 DRY RUN SUBMERSIBLE MOTORS TESTED PER CSA C390/IEEE-112. EFFICIENCY LEVELS ARE COMPARABLE TO THAT OF MOTORS MEETING THE IEC60034-30 STANDARD.

KEY - LRA: LOCKED ROTOR AMPS, FLA: FULL LOAD AMPS

Drawings



 All dimensions are in inches (mm)

Company: Ames Inc  
 Name: 4ESHMD Curve  
 Date: 08/13/2024



**Pump:**

Size: 4ESHMD / 4XESHMD **Dimensions:**  
 Type: envie ESH 4" SolidsHan Suction: 4 in  
 Synch Speed: 1200 rpm Discharge: 4 in  
 Dia: 285 mm  
 Curve: ---

**Fluid:**

Name: Water  
 SG: 1 Vapor Pressure: 0.256 psi a  
 Density: 62.4 lb/ft³ Atm Pressure: 14.7 psi a  
 Viscosity: 1.1 cP  
 Temperature: 60 °F Margin Ratio: 1

**Search Criteria:**

Flow: 400 US gpm Near Miss: ---  
 Head: 42 ft Static Head: 0 ft

**Pump Limits:**

Temperature: 104 °F Sphere Size: 3 in  
 Wkg Pressure: ---

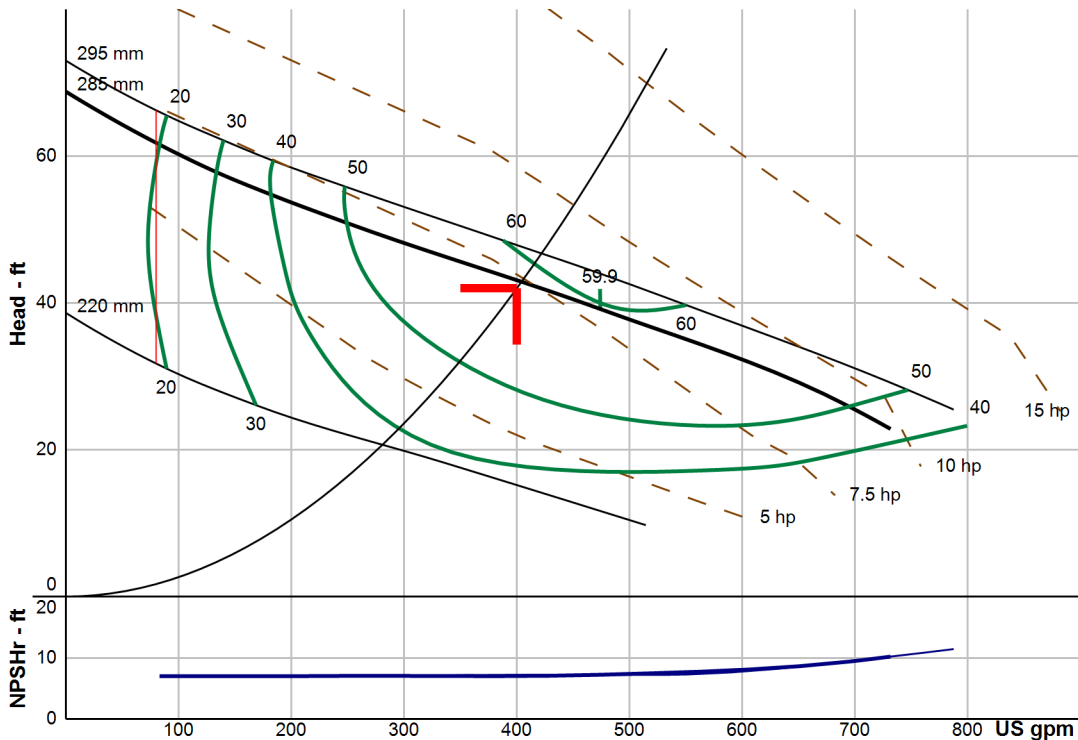
**Motor:**

Standard: NEMA Size: 10 hp  
 Enclosure: TEFC Speed: 1200 rpm  
 Frame: 256T  
 Sizing Criteria: Max Power on Design Curve

**Pump Selection Warnings:**

None

--- Duty Point ---	
Flow:	404 US gpm
Head:	42.8 ft
Eff:	56.8%
Power:	7.39 hp
NPSHr:	7.18 ft
Speed:	1150 rpm
--- Design Curve ---	
Shutoff Head:	68.8 ft
Shutoff dP:	29.8 psi
Min Flow:	80 US gpm
BEP:	59.9% @ 474 US gpm
NOL Power:	9.74 hp @ 732 US gpm
--- Max Curve ---	
Max Power:	11.5 hp @ 788 US gpm



**Performance Evaluation:**

Flow US gpm	Speed rpm	Head ft	Efficiency %	Power hp	NPSHr ft
480	1150	38.8	60	7.86	7.29
400	1150	43	57	7.36	7.18
320	1150	47.2	53	6.86	7.11
240	1150	51.4	49	6.39	7.04
160	1150	56.2	35	6.38	7