

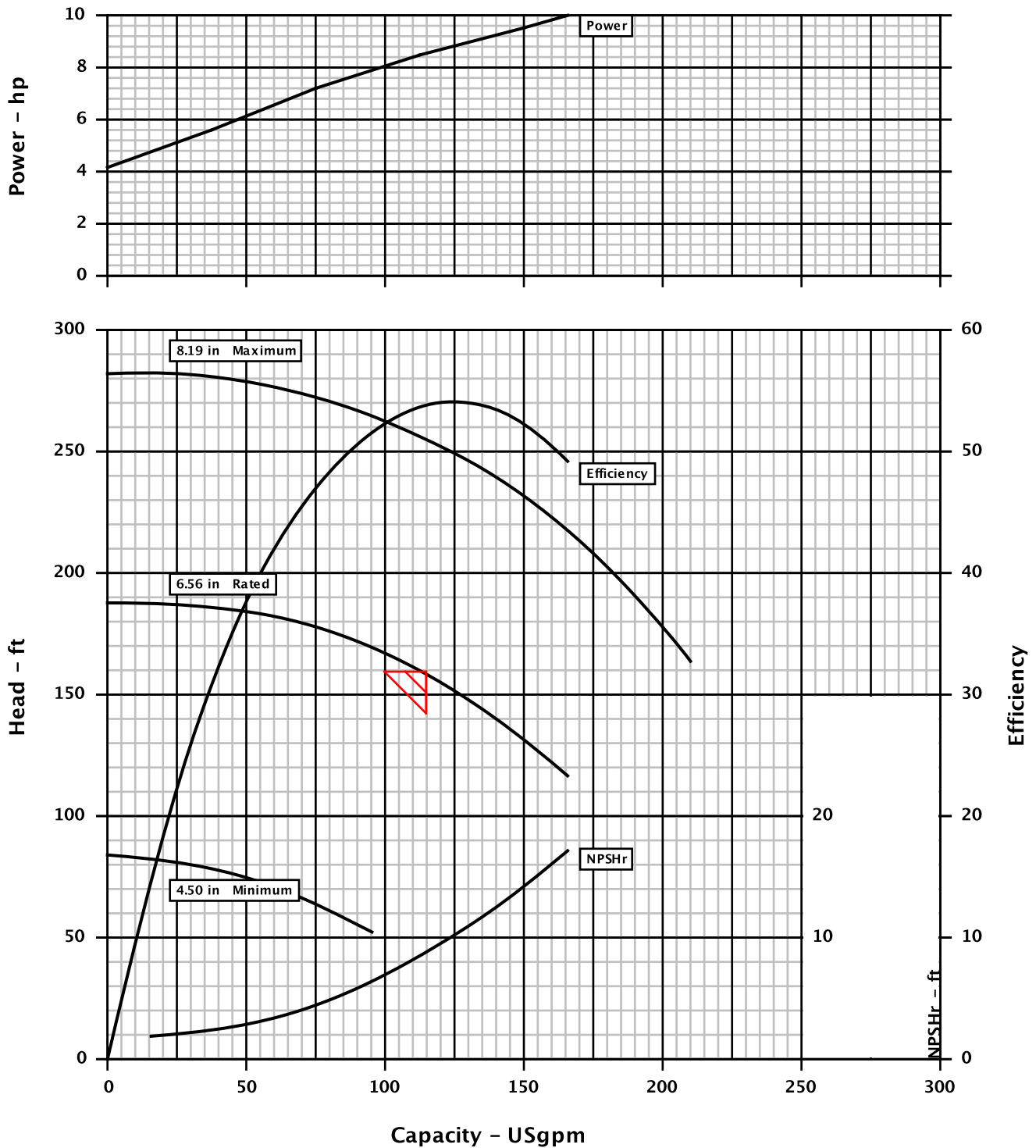


Pump size & type : 1K1.5x1-82RV M3 ST
Based on curve no. : MIII7040AV
Number of stages : 1

Customer : ProEnergy Services
Item number :
Service : Demineralized Water
Vendor reference : 59609 Version 1
Date : August 2, 2011

Capacity : 115.0 USgpm
Head : 159.00 ft
Specific gravity : 1.006
Pump speed : 3500 rpm

CURVES ARE APPROXIMATE. PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS, CAPACITY, HEAD, AND EFFICIENCY.
MCSF PROVIDES MECHANICAL PROTECTION ONLY. MINIMUM THERMAL FLOW MUST BE CALCULATED FOR THE SPECIFIC FLUID AND OPERATING CONDITIONS.

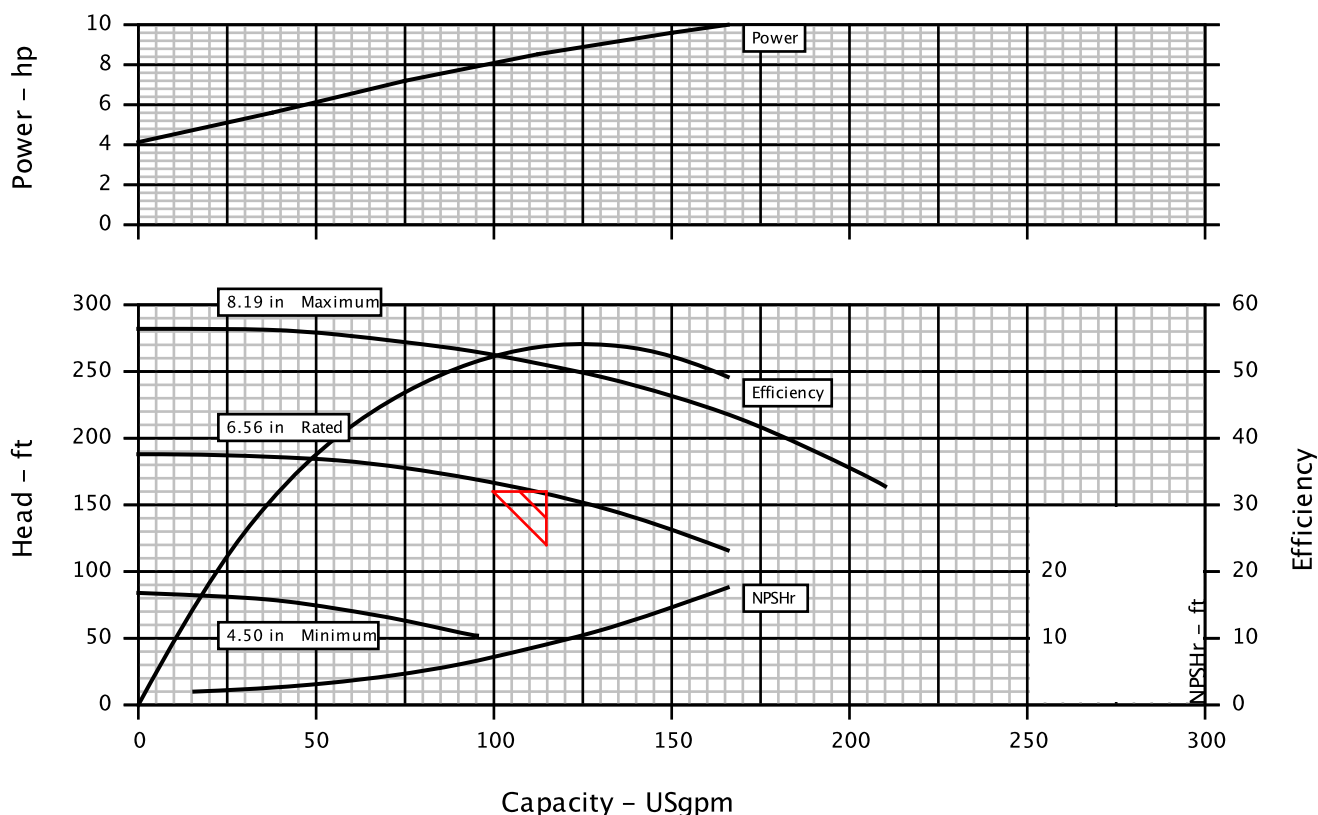


Customer	: ProEnergy Services	Pump / Stages	: 1K1.5x1-82RV M3 ST / 1
Customer reference	:	Based on curve no.	: MIII7040AV
Item number	:	Vendor reference	: 59609 Version 1
Service	: Demineralized Water	Date	: August 2, 2011

Operating Conditions	Materials / Specification
Capacity : 115.0 USgpm	Material column code : D4...
Water capacity (CQ=1.00) : 115.0 USgpm	Pump specification : ANSI B73.1
Normal capacity : -	
Total Developed Head : 159.00 ft	Other Requirements
Water head (CH=1.00) : 159.00 ft	Hydraulic selection : No specification
NPSH available (NPSHa) : Ample	Construction : No specification
NPSHa less NPSH margin : -	Test tolerance : Hydraulic Institute Level A
Maximum suction pressure : 0.0 psig	Driver Sizing : Max Power(MCSF to EOC)with SF
	Performance data based on standard impeller
	Seal configuration : Single Seal
Liquid	
Liquid type : Other	
Temperature / SG : 105 F / 1.006	
Solid Size - Actual / Limit : - / -	
Viscosity / Vapor pressure : 1.0 cSt / -	

Performance
<div> Hydraulic power : 4.65 hp Pump speed : 3500 rpm Efficiency (CE=1.00) : 54.1 % NPSH required (NPSHr) : 8.5 ft Rated power : 8.59 hp Maximum power : 10.00 hp Driver power : 10.00 hp / 7.46 kW Casing working pressure : 81.7 psig (based on shut off @ cut dia) Maximum allowable : 273.0 psig Hydrostatic test pressure : 413.0 psig Est. rated seal chamb. press. : - </div> <div> Impeller diameter Rated : 6.56 in Maximum : 8.19 in Minimum : 4.50 in Suction specific speed : 7660 US units Minimum continuous flow : 12.7 USgpm Maximum head @ rated dia : 187.71 ft Flow at BEP : 127.1 USgpm Flow as % of BEP : 90.5 % Efficiency at normal flow : - Impeller dia ratio (rated/max) : 80.2 % Head rise to shut off : 18.1 % Total head ratio (rated/max) : 62.3 % </div>

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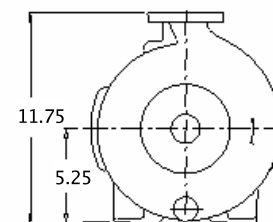
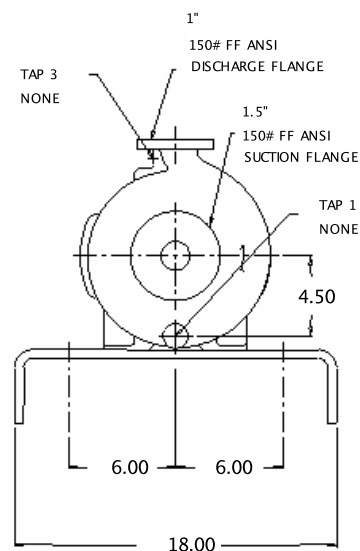
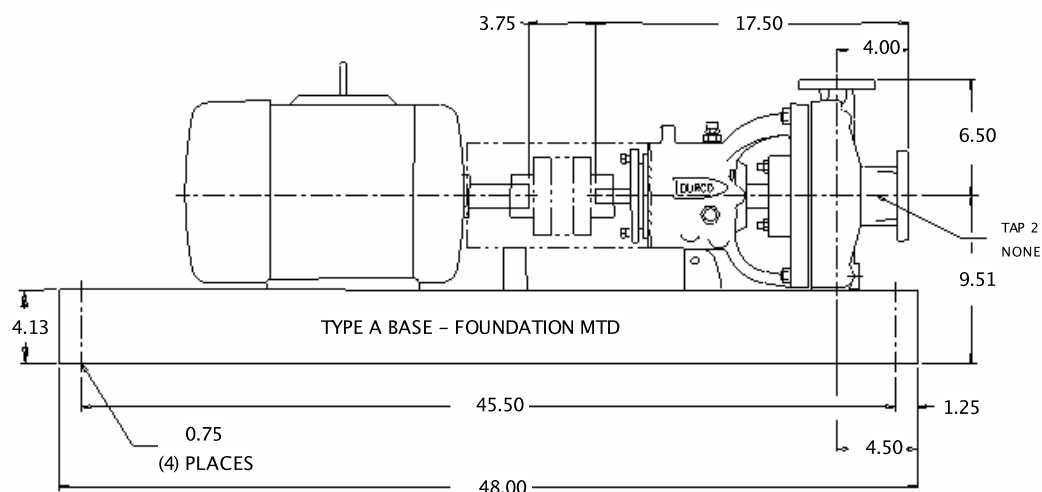
Customer	: ProEnergy Services	Pump / Stages	: 1K1.5x1-82RV M3 ST / 1				
Customer reference	:	Based on curve no.	: MIII7040AV				
Item number	:	Vendor reference	: 59609 Version 1				
Service	: Demineralized Water	Date	: August 2, 2011				
Construction		Driver Information					
Nozzles	Size	Rating	Face	Pos'n	Manufacturer	: By Others	
Suction	1.50	150#	FF	End	Power	: 10.00 hp / 7.46 kW	
Discharge	1.00	150#	FF	Top	Service factor (req'st / act)	: 1.0 / 1.15	
Casing mounting					: Foot	Speed	: 3600
Casing split					: Radial	Orientation / Mounting	: Horizontal / Foot
Impeller type					: Reverse Vane	Driver Type	: -
Bearing type (radial)					: Sgl Row	Frame-size / material	: 215T / CAST IRON
Bearing number (radial)					: 6207-C3	Enclosure	: -
Bearing type (thrust)					: Dbl Row	Hazardous area class	: -
Bearing number (thrust)					: 5306-AC3	Explosion 'T' rating	: -
Bearing lubrication					: Flood	Volts / Phase / Hz	: 190 V / 3 / 60.0
Rotation (view from cplg)					: CW per Hyd.	Amps-full load/locked rotor	: - / -
Materials					Motor starting	: Direct on line (DOL)	
Casing					: 316SS (D4/CF8M)	Insulation	: F
Impeller					: CD4M/CD-4MCu	Temperature rise	: -
Seal chamber					: FML Box / (316SS)	Bearings	: Ball
Shaft					: ZH/316SS ButtWelded	Lubrication	: Grease
Sleeve					: No Sleeve	Motor mounted by	: Flowserve
Baseplate, Coupling and Guard					Sound Pressure (dBA @ 1.0 m)		
Baseplate type					: Type A Founda	Driver, expected	: -
Baseplate material					: Steel	Pump & driver, estimated	: N/A
Baseplate size					: 148 Baseplate	Seal Information	
Coupling manufacturer					: T.B. Woods	Arrangement	: Sgl Int O-Ring
Coupling size					: Sureflex SC7	Size	: 1.375
Coupling / Shaft guard					: Steel	Manufactu... / Type	: Flowserve / ISC Pusher
Shaft / seal guard					: None Supplied	Material code (Man'f/API)	: CSCPX----ECXV- / BSTFN
Weights (Approx.)					Internal neck bushing	: Not Available	
Bareshaft pump(nett)					: 103.0 lb	Gland	
Baseplate(nett)					: 163.0 lb	Gland material	: 316SS
Driver(nett)					: -	Flush	: .375" NPT
Shipping gross weight/vol.					: 305.9 lb / 15211 cu.in	Vent	: .375" NPT
Testing					Drain	: .375" NPT	
Hydrostatic test					: Non witness	Auxiliary seal device	: Carbon Bushing
Performance test					: None	Piping	
NPSH test					: None	Seal flush plan	: None
Paint and Package					Seal flush construction	: -	
Pump paint					: Std.Polyurethane	Seal flush material	: -
Base grout surface prep					: Standard	Aux seal flush plan	: None
Shipment type					: Domestic	Aux seal flush construction	: -
					Aux seal flush material	: -	
Notes							
-							
Mark 3A w/Watchdog oiler							
-							
-							
-							
-							

Dimensions certified for construction when properly endorsed below.
Refer to factory for any "x" dimensions.
DO NOT SCALE DRAWING

NOTES:

1. Consult pump I.O.M. before installing the pump.
2. Installation dimensions are +/- .13" (3mm), unless otherwise noted.
3. Foundation bolts and piping should not be set rigidly before receipt of equipment.
4. Allow a minimum of .75" (19mm) under baseplate for adjustment and grouting.
5. All holes in flanges are offset from centerlines.

6. Piping, foundations, and systems are the responsibility of others.
Flowserve Pump Division data and comments are offered as an aid, but Flowserve Pump Division cannot assume responsibility for the system design or operation. It is recommended that a specialist skilled in this area be consulted to ensure a successful installation.
7. Dimension shown from bottom of base to centerline of pump includes any blocks under pump, as necessary.



All dimensions are in inches unless otherwise specified

Customer	: ProEnergy Services	Pump size & type	: 1K1.5x1-82RV M3 ST	Drawing number	: -
Item number	:	Pump speed / Stages	: 3500 rpm / 1	Date	: August 2, 2011
Service	: Demineralized Water	Flow / Head	: 115.0 USgpm / 159.00 ft	Certified by / Date :	: -
Customer PO #	: -	Driver power / Frame	: 10.00 hp / 7.46 kW / 215T	Seal type	: ISC Pusher
Vendor reference	: 59609 Version 1	Volts / Phase / Hz	: 190 / 3 / 60.0	Seal flush plan	: None