

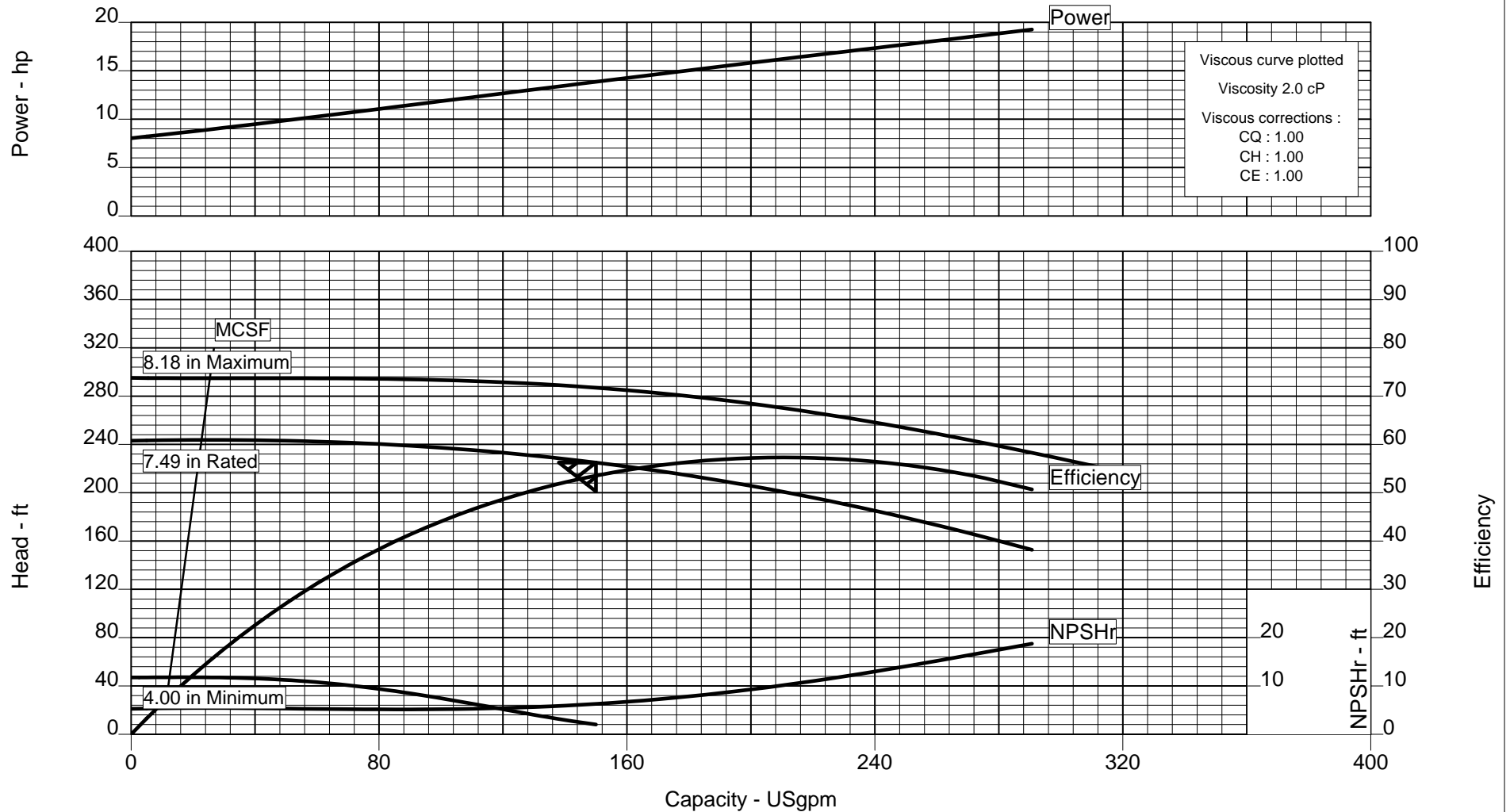
Customer : PRO ENERGY  
Item number : DIESEL FUEL  
Service :  
Vendor reference : 4459-10006  
Date : January 12, 2011



Capacity : 150.0 USgpm  
Head : 225.00 ft  
Specific gravity : 0.870  
Pump speed : 3500 rpm

Pump size & type : 1K3x1.5-82RV M3 ST  
Based on curve no. : MIII7140V  
Number of stages : 1

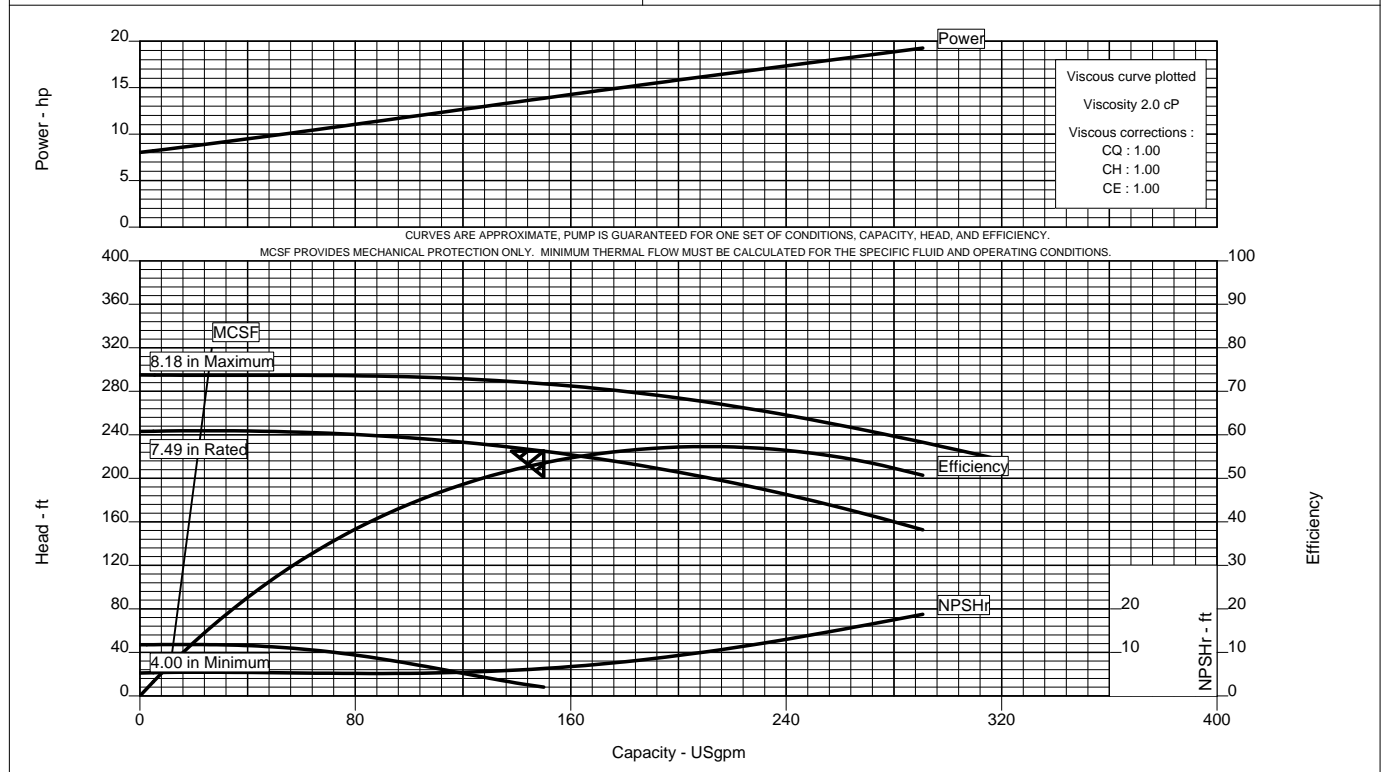
CURVES ARE APPROXIMATE, PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS, CAPACITY, HEAD, AND EFFICIENCY.  
MCSF PROVIDES MECHANICAL PROTECTION ONLY. MINIMUM THERMAL FLOW MUST BE CALCULATED FOR THE SPECIFIC FLUID AND OPERATING CONDITIONS.



Customer	: PRO ENERGY	Pump / Stages	: 1K3x1.5-82RV M3 ST / 1
Customer reference	: P203A & B	Based on curve no.	: MIII7140V
Item number	: DIESEL FUEL	Vendor reference	: 4459-10006
Service	:	Date	: January 12, 2011

Operating Conditions	Materials / Specification
Capacity : 150.0 USgpm	Material column code : D/C
Water Capacity (CQ=1.00) : 150.0 USgpm	Pump specification : ANSI B73.1
Normal capacity : -	<b>Other Requirements</b>  Hydraulic selection : No specification Construction : No specification Test tolerance : Hydraulic Institute Level A Driver Sizing : Max Power (SO to EOC) w/o SF Seal configuration : Single Seal
Total Developed Head : 225.00 ft	
Water head (CH=1.00) : 225.00 ft	
NPSH available (NPSHa) : Ample	
NPSHa less NPSH margin : -	
Maximum suction pressure : 7.1 psig	
Liquid	
Liquid type : Hydrocarbon	
Temperature / SG : 90 °F / 0.870	
Solid Size - Actual / Limit : - / 0.00 in	
Viscosity / Vapor pressure : 2.0 cP / -	

Performance			
Hydraulic power : 7.41 hp	Impeller diameter		
Pump speed : 3500 rpm	Rated	: 7.49 in	
Efficiency (CE=1.00) : 54.2 %	Maximum	: 8.18 in	
	Minimum	: 4.00 in	
NPSH required (NPSHr) : 6.3 ft	Suction specific speed	: 7810 US units	
Rated power : 13.68 hp	Minimum continuous flow	: 23.2 USgpm	
Maximum power : 19.2 hp	Maximum head @ rated dia	: 243.1 ft	
Driver power : 20.0 hp / 14.91 kW	Flow at BEP	: 210.7 USgpm	
Casing working pressure : 98.7 psig	Flow as % of BEP	: 71.2 %	
(based on shut off @ cut dia)	Efficiency at normal flow	: -	
Maximum allowable : 250.0 psig	Impeller dia ratio (rated/max)	: 91.6 %	
Hydrostatic test pressure : 375.0 psig	Head rise to shut off	: 8.0 %	
Est. rated seal chamb. press. : -	Total head ratio (rated/max)	: 78.4 %	



Customer : PRO ENERGY					Pump / Stages : 1K3x1.5-82RV M3 ST / 1				
Customer reference : P203A & B					Based on curve no. : MIII7140V				
Item number : DIESEL FUEL					Vendor reference : 4459-10006				
Service :					Date : January 12, 2011				
<b>Construction</b>					<b>Driver Information</b>				
Nozzles	Size	Rating	Face	Pos'n	Manufacturer : Flowserve Choice				
Suction	3.00	150#	FF	End	Power : 20.0 hp / 14.91 kW				
Discharge	1.50	150#	FF	Top	Service factor (req'st / act) : 1.00 / 1.25				
Casing mounting : Foot					Speed : 3600 rpm				
Casing split : Radial					Orientation / Mounting : Horizontal / Foot				
Impeller type : Reverse Vane					Driver Type : NEMA				
Bearing type (radial) : Sgl Row					Frame-size / material : 256T / Aluminum				
Bearing number (radial) : 6207-C3					Enclosure : TEFC				
Bearing type (thrust) : Dbl Row					Hazardous area class : -				
Bearing number (thrust) : 5306-AC3					Explosion 'T' rating : -				
Bearing lubrication : Flood					Volts / Phase / Hz : 230/460 / 3 / 60				
Rotation (view from cplg) : CW per Hyd. Institute					Amps-full load/locked rotor : 24.05 / 157.00				
<b>Materials</b>					Motor starting : Direct on line (DOL)				
Casing : Duct.Cast Iron (DCI)					Insulation : F				
Impeller : CD4M/CD-4MCu					Temperature rise : -				
Seal chamber : FML Box / (DCI)					Bearings : Ball				
Shaft : 316 SS					Lubrication : Grease				
Sleeve : No Sleeve					Motor mounted by : Flowserve				
<b>Baseplate, Coupling and Guard</b>					<b>Sound Pressure (dBA @ 1.0 m)</b>				
Baseplate type : Type A Founda					Driver, expected : 86.1				
Baseplate material : Steel					Pump & driver, estimated : -				
Baseplate size : 148 Baseplate					<b>Seal Information</b>				
Coupling manufacturer : T.B. Woods					Arrangement : Sgl Int O-Ring				
Coupling size : Sureflex S					Size : 1.375				
Coupling / Shaft guard : Steel					Manufacturer / Type : Flowserve / ISC Pusher				
Shaft / seal guard : None Supplied					Material code (Man'f/API) : CSCPX----ECXV- / BSTFN				
<b>Weights (Approx.)</b>					Internal neck bushing : Not Available				
Bareshaft pump(nett) : 124.0 lb					<b>Gland</b>				
Baseplate(nett) : 163.0 lb					Gland material : 316SS				
Driver(nett) : 210.1 lb					Flush : .375" NPT				
Shipping gross weight/vol. : 571.7 lb / 10.25 cu.ft					Vent : .375" NPT				
<b>Testing</b>					Drain : .375" NPT				
Hydrostatic test : Non witnessed					Auxiliary seal device : Carbon Bushing				
Performance test : None					<b>Piping</b>				
NPSH test : None					Seal flush plan : Plan 12				
<b>Paint and Package</b>					Seal flush construction : Tubing				
Pump paint : Std.Polyurethane					Seal flush material : Carbon steel				
Base grout surface prep : Standard					Aux seal flush plan : None				
Shipment type : Domestic					Aux seal flush construction : -				
					Aux seal flush material : -				
<b>Notes</b>									
Mark 3A w/Watchdog oiler									
Casing w/1/2" Plugged Drain (NPT)									

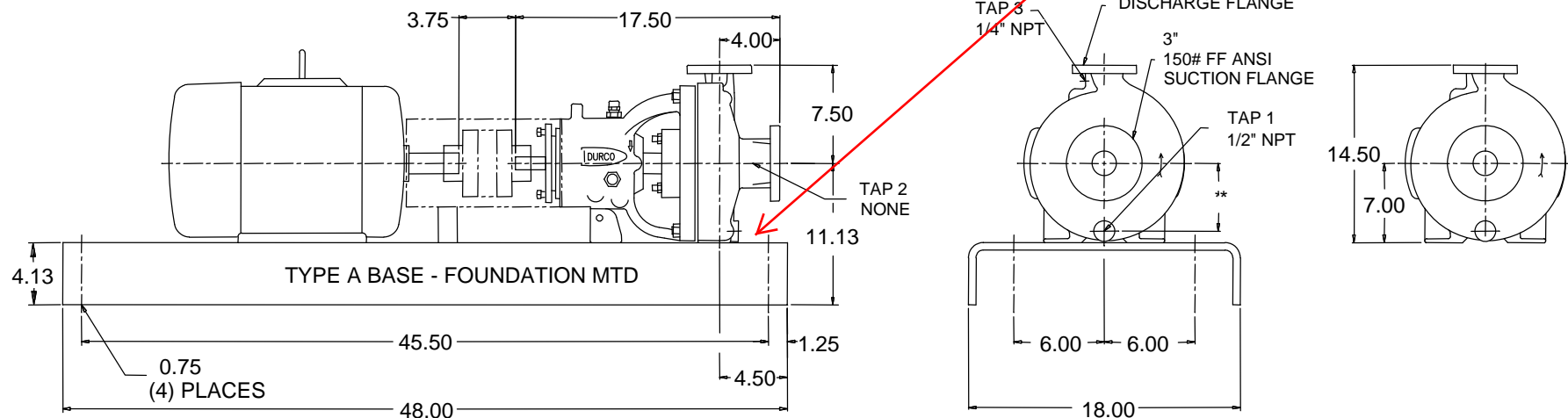
Dimensions certified for construction when properly endorsed below.  
Refer to factory for any "\*" dimensions.  
**DO NOT SCALE DRAWING**

**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.

**304SS DRIP PAN  
UNDER PUMP  
ONLY**



All dimensions are in inches unless otherwise specified

Customer : PRO ENERGY  
Item number : DIESEL FUEL  
Service :  
Customer PO # :  
Vendor reference : 4459-10006 Rev. A

Pump size & type : 1K3x1.5-82RV M3 ST  
Pump speed / Stages : 3500 rpm / 1  
Flow / Head : 150.0 USgpm / 225.00 ft  
Driver power / Frame : 20.0 hp / 14.91 kW / 256T  
Volts / Phase / Hz : 230/460 / 3 / 60

Drawing number :  
Date : January 12, 2011  
Certified by / Date :  
Seal type : ISC Pusher  
Seal flush plan : Plan 12



## Pricing Sheet / Scope of supply

Customer: PRO ENERGY  
Cust / Proj Ref: P203A & B  
Item Number: DIESEL FUEL  
Service:

Pump / Stg: 1K3x1.5-82RV M3 ST / 1  
Curve Number: MIII7140V  
FPD Reference: 4459-10006  
Date: Jan 12, 2011

Qty	Description	Average Unit Price	Extended Price
1	1K3x1.5-82RV M3 ST FPD - D/C Pump - Standard Duty Packaging by Chesapeake Safe(non explosive) atmosphere Alloy Surcharge / Chesapeake Flowserve Single Cartridge Seal Flowserve ISC2 Pusher w/o Pumping Ring SilCar Rotary vs. Carbon Seat Atlas Elastomers 316SS Metal Parts 316SS Large Bore Gland No Seal Price Adder Required Cover - FML Gland Provided By Seal Manufacturer ANSI Plan 7312 Seal Flush 1/4" .035 Wall Tube Tube Fittings FPD Choice Carbon Steel - Seal Flush Material Casing - Ductile Cast Iron (DCI) Cover - Ductile Cast Iron (DCI) Cover Gasket - TM Impeller - CD4M/CD-4MCu Impeller Gasket - TFR No O-ring required Bearing Housing - DCI2 No Bearing Housing Adapter Required Bearing Housing Foot - CI Shaft - Standard Shaft - 316 Stainless Stud B7 / Nut SR2H (Steel) Casing - Standard 150# FF ANSI Drilling 1/2" NPT Casing Drain Tap (Plugged) No Suction Tap 1/4" NPT Discharge Tap (Tap 3) Plastic Flange Covers		

\*\* - additional pricing to follow

Feature quantities match pump quantity unless otherwise noted.

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Prices may be subject to exchange rate fluctuations.  
Proposal is valid for 30 days.

Customer: PRO ENERGY  
 Cust / Proj Ref: P203A & B  
 Item Number: DIESEL FUEL  
 Service:

Pump / Stg: 1K3x1.5-82RV M3 ST / 1  
 Curve Number: MIII7140V  
 FPD Reference: 4459-10006  
 Date: Jan 12, 2011

ISO 1940 G6.3 Impeller Balance Power End - Mark 3A Oil Lubricated Bearings Watchdog Trico Oiler Oiler/Sight on Rgt Side-Viewed From Cplg Oil Seals - TSSR 3.5" Coupling Spacer Woods Coupling Sureflex Type SC7 EPDM Spacer Type A - Foundation Baseplate Baseplate Drip Rim - (Pump End Only) 148 Baseplate Steel - Baseplate Polybloc - Driver Mounting Steel - Fasteners Baseplate - Drip Rim (Pump end only) Std. Steel Cplg Guard (Safety Yellow) Paint - Plant Standard Paint - Entire Pump & Baseplate Paint Over Standard Flowserve Primer One Coat of Paint (4-6 mils DFT) No Customer Inspection No PMI Testing No 2.1 Certificate of Compliance No 2.2 Cert of Compliance No 3.1 CMTRs No Radiography / X-Ray No Dye Penetrant of 100% Machined Surf. No Dye Penetrant of Gasketed Surfaces Standard Domestic Packaging (6 Months) No Documentation Required Nameplate w/US Customary Units  Driver Driver Mounted to Base by Factory NEMA Motor Flowserve Choice TEFC [20.0 hp 3600 RPM 256T] 230/460 Volts No Space Heaters		
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\*\* - additional pricing to follow

Feature quantities match pump quantity unless otherwise noted.

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Prices may be subject to exchange rate fluctuations.  
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