



#108877

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Attached Document

Flowserve Hydraulic & Construction Data Sheet

Flowserve Document Description: Flowserve Hydraulic & Construction Data Sheet

Flowserve Document Number : 1027999-7-5008

Customer Name : UNIVERSITY OF FLORIDA%
Customer PO Number : 1100115743

Site/Location : PERRY, FL, 32348-7702, US

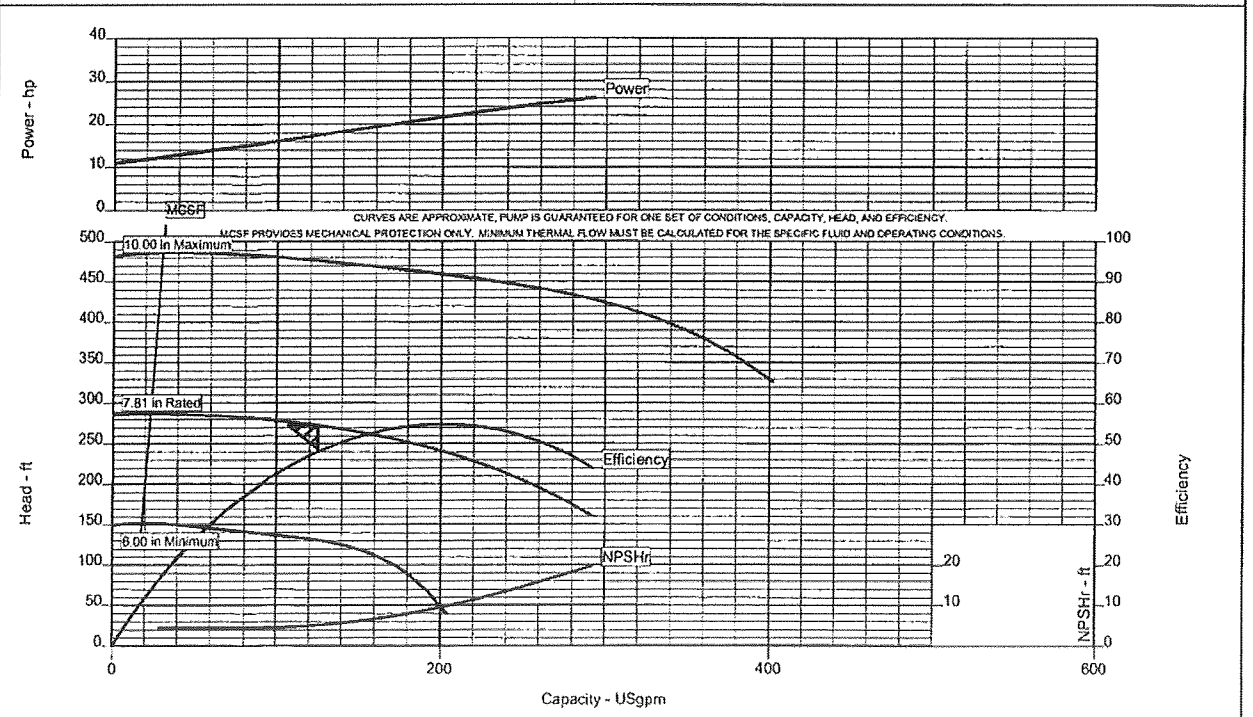
Flowserve Order/Line : 070-1027999 / 1027999-7
Equipment Tag No. : PC-8203
Equipment Type : MARK 3 STANDARD
Equipment Size : 2K3X1.5-10ARV
Flowserve serial no. : 1027999CHP007A
Quantity : 1

CK	CK	CK	00		04/29/2011
PREPARED	CHECKED	APPROVED	Revision No.	Status/Desc	Date Approved

Customer	: FBD, LLC	Pump / Stages	: 2K3x1.5-10ARV M3 S / 1
Customer reference	: Biorefinery Pilot	Based on curve no.	: MIII7705V
Item number	: PC-8203	Vendor reference	: 5477-00008
Service	: CCIP Rinse Pump	Date	: April 14, 2011

Operating Conditions	Materials / Specification
Capacity : 125.0 USgpm	Material column code : D4
Water Capacity (CQ=1.00) : -	Pump specification : ANSI B73.1
Normal capacity : -	
Total Developed Head : 273.00 ft	
Water head (CH=1.00) : -	
NPSH available (NPSHa) : 17.4 ft	
NPSHa less NPSH margin : -	
Maximum suction pressure : 3.5 psig	
Liquid	
Liquid type : Chemical	
Temperature / SG : 140 °F / 0.970	
Solid Size - Actual / Limit : - / 0.00 in	
Viscosity / Vapor pressure : 0.3 cSt / 13.90 psia	
	Other Requirements Hydraulic selection : No specification Construction : No specification Test tolerance : Hydraulic Institute Level B Driver Sizing : Max Power (SO to EOC) w/o SF Seal configuration : Single Seal

Performance	
Hydraulic power : 8.36 hp	Impeller diameter
Pump speed : 3550 rpm	Rated : 7.81 in
Efficiency (CE=1.00) : 47.9 %	Maximum : 10.00 in
	Minimum : 6.00 in
NPSH required (NPSHr) : 5.1 ft	Suction specific speed : 8480 US units
Rated power : 17.4 hp	Minimum continuous flow : 23.6 USgpm
Maximum power : 26.2 hp	Maximum head @ rated dia : 286.4 ft
Driver power : 30.0 hp / 22.4 kW	Flow at BEP : 201.1 USgpm
Casing working pressure : 123.8 psig	Flow as % of BEP : 62.2 %
(based on shut off @ cut dia)	Efficiency at normal flow : -
Maximum allowable : 259.0 psig	Impeller dia ratio (rated/max) : 78.1 %
Hydrostatic test pressure : 413.0 psig	Head rise to shut off : 4.9 %
Est. rated seal chamb. press. : -	Total head ratio (rated/max) : 57.3 %



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Service : CCIP Rinse Pump					Date : April 14, 2011				
Construction					Driver Information				
Nozzles	Size	Rating	Face	Pos'n	Manufacturer : Flowserve Choice				
Suction	3.00	150#	RF	End	Power : 30.0 hp / 22.4 kW				
Discharge	1.50	150#	RF	Top	Service factor (req'st / act) : 1.15 / 1.15				
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 : 286TS / Iron				
Bearing number (radial) : 6310-C3					Enclosure : TEFC-PE				
Bearing type (thrust) : Dbl Row					Hazardous area class : -				
Bearing number (thrust) : 5310-AHC3					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 : 34.30 / 218.40				
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 : 316 SS					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 : 78.2				
Baseplate material : Steel					Pump & driver, estimated : -				
Baseplate size : 258 Baseplate					Seal Information				
Coupling manufacturer : T.B. Woods					Arrangement : Sgl Int O-Ring				
Coupling size : Sureflex S					Size : 1.875				
Coupling / Shaft guard : Steel					Manufacturer / 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(net) : 220.0 lb					Gland				
Baseplate(net) : 234.0 lb					Gland material : 316SS				
Driver(net) : 399.9 lb					Flush : .375" NPT				
Shipping gross weight/vol. : 982.0 lb / 16.67 cu.ft					Vent : .375" NPT				
Testing					Drain : .375" NPT				
Hydrostatic test : Non witnessed					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									
Casing w/1/2" Plugged Drain (NPT)									

Attached Document

GA Drawing - PROS

Flowserve Document Description: GA Drawing - PROS

Flowserve Document Number : 1027999-7-5010

Customer Name : UNIVERSITY OF FLORIDA%
Customer PO Number : 1100115743

Site/Location : PERRY, FL, 32348-7702, US

Flowserve Order/Line : 070-1027999 / 1027999-7
Equipment Tag No. : PC-8203
Equipment Type : MARK 3 STANDARD
Equipment Size : 2K3X1.5-10ARV
Flowserve serial no. : 1027999CHP007A
Quantity : 1

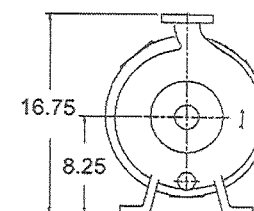
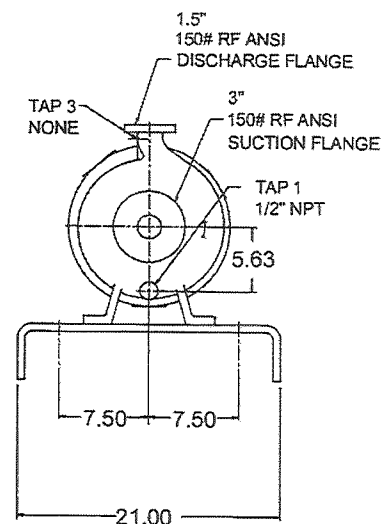
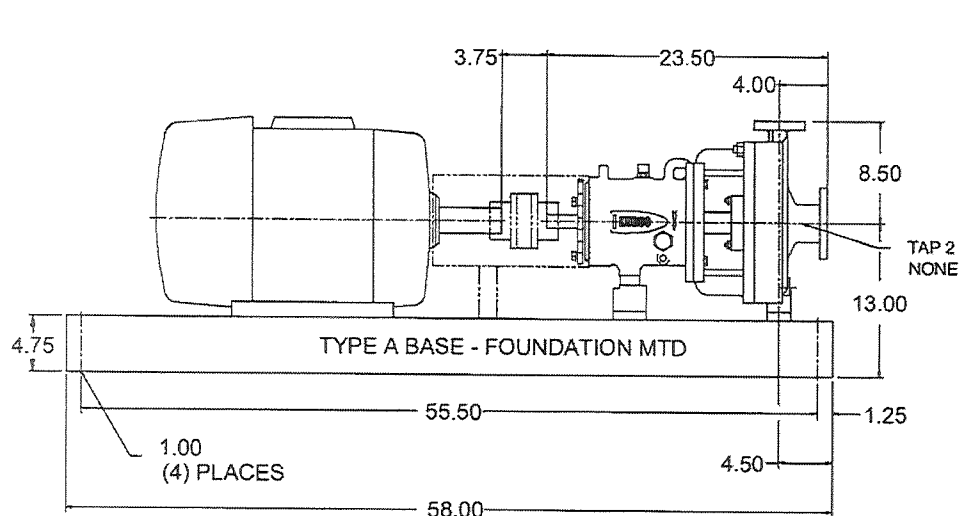
CK	CK	CK	00		04/29/2011
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Dimensions certified for construction when properly endorsed below.
Refer to factory for any "" dimensions.
DO NOT SCALE DRAWING

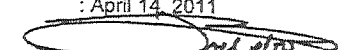
NOTES:

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.



All dimensions are in inches unless otherwise specified

Customer	: FBD, LLC	Pump size & type	: 2K3x1.5-10ARV M3 S	Drawing number	
Item number	: PC-8203	Pump speed / Stages	: 3550 rpm / 1	Date	: April 14, 2011
Service	: CCIP Rinse Pump	Flow / Head	: 125.0 USgpm / 273.00 ft	Certified by / Date :	
Customer PO #	:	Driver power / Frame	: 30.0 hp / 22.4 kW / 286TS	Seal type	: ISC Pusher
Vendor reference	: 5477-00008 Rev. A	Volts / Phase / Hz	: 230/460 / 3 / 60	Seal flush plan	: None