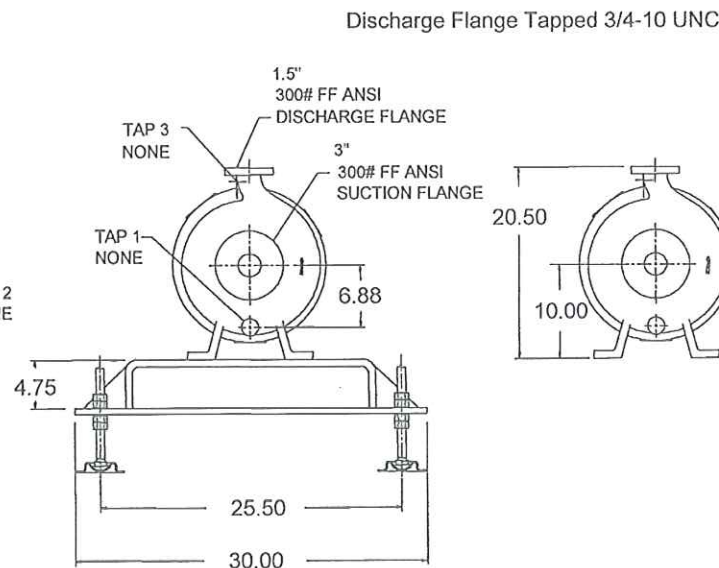
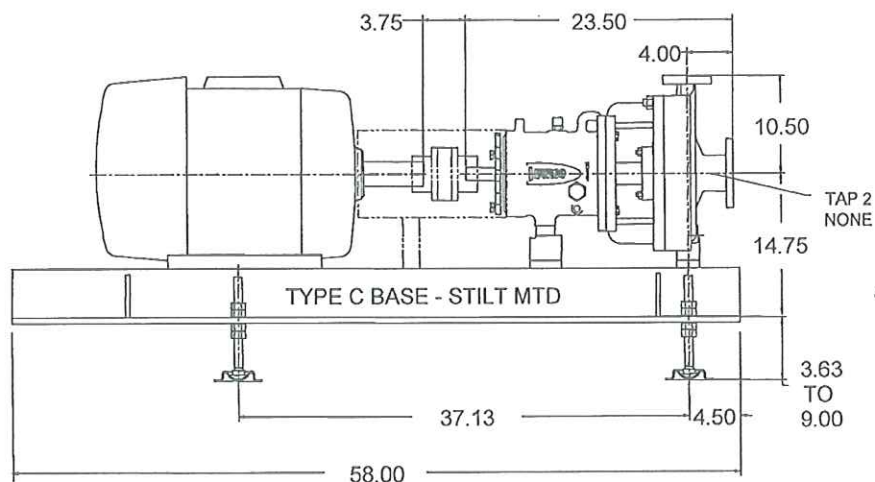


Dimensions certified for construction when properly endorsed below. Refer to factory for any "AS" dimensions. DO NOT SCALE DRAWING

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

DUPONT DANISCO
CELLULOSIC ETHANOL
CUSTOMER PO: DDCE110098
TAG NO.: P3600
SERVICE: HTST FEED PUMP
PUMP MODEL: MK3 2K3X1.5LF-130P
PUMP SERIAL NO: 0709-7799
FLOWERVE ORDER: 034-01430-16

Pump size & type	: 2K3x1.5LF-13 M3 LF
Pump speed / Stages	: 1750 rpm / 1
Flow / Head	: 66.0 USgpm / 185.00 ft
Driver power / Frame	: 30.0 hp / 22.4 kW : / 286T
Volts / Phase / Hz	: 460 / 3 / 60

Drawing number	
Date	: July 22, 2009
Certified by / Date	: <i>[Signature]</i>
Seal type	: -
Seal flush plan	: -

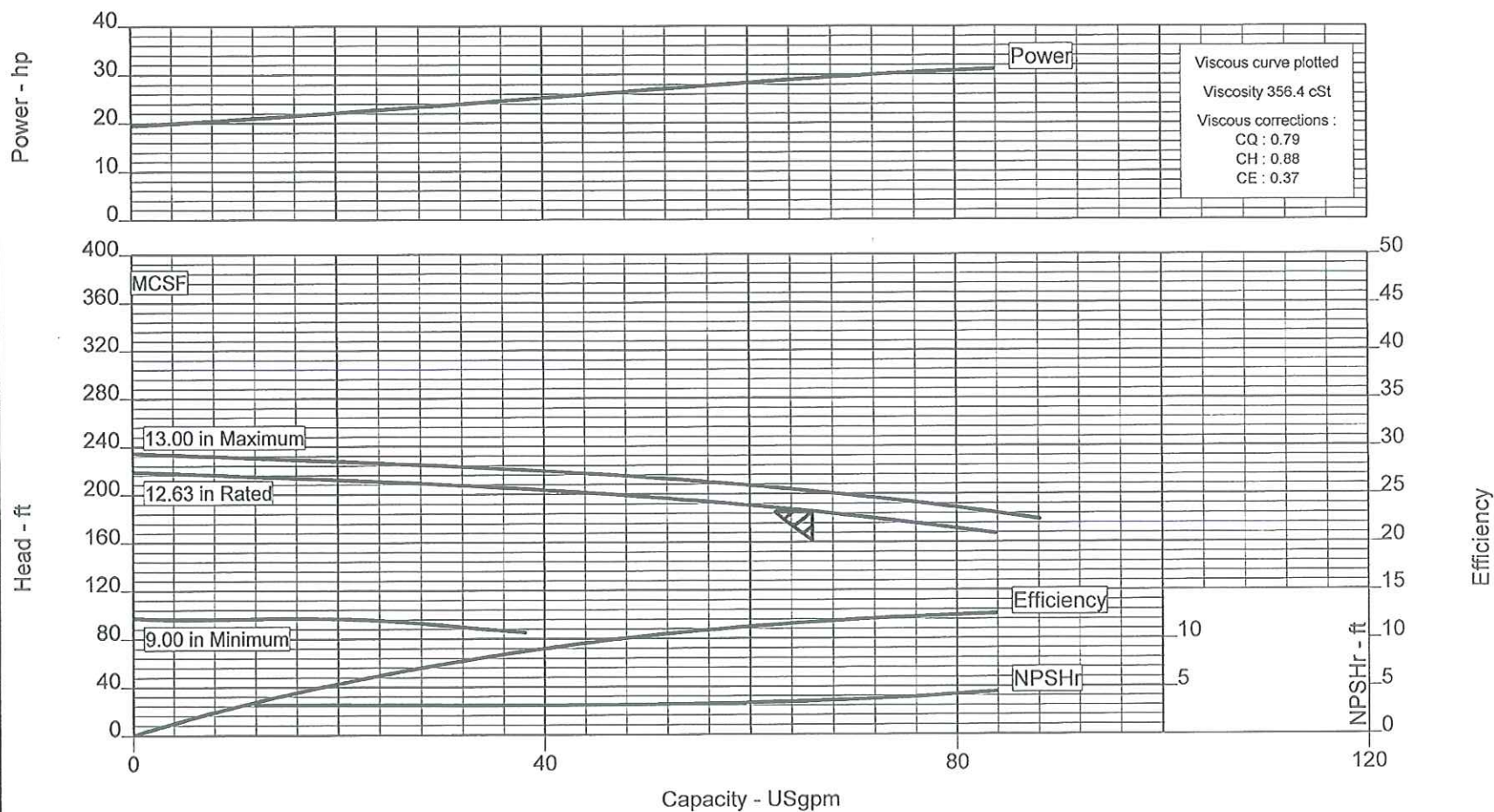
DUPONT DANISCO
CELLULOSIC ETHANOL
CUSTOMER PO: DDCE110098
TAG NO.: P3600
SERVICE: HTST FEED PUMP
PUMP MODEL: MK3 2K3X1.5LF-13OP
PUMP SERIAL NO: 0709-7799
FLOWERVE ORDER: 034-01430-16



Capacity : 66.0 USgpm
Head : 185.00 ft
Specific gravity : 1.100
Pump speed : 1750 rpm

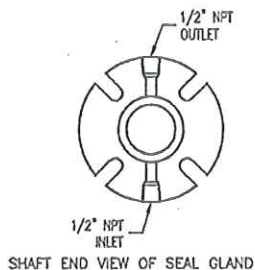
Pump size & type : 2K3x1.5LF-13 M3 LF
Based on curve no. : MIII7307V
Number of stages : 1

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.



KIT NO.			DESCRIPTION		ORDER NO.
BP4251BS			KIT, ANSI PLAN 7353, GP.2		
ITEM	REQ'D	MAT'L	PART NUMBER	DESCRIPTION	SOURCE OR VENDOR
1	2	316	AY45236F	FITTING, TUBE, MALE CONNECTOR, 1/2" NPT	
2	10	316	AY45641A	TUBING, 1/2", .035" WALL	
3	1	316	AY56517E	FITTING, TUBE COMBINATION, 1/2" TUBE-1/2" NPT	
4	1	316	AY48895D	VALVE, BALL, 1/2"	
5	1	316	BY53142D	BRACKET, TANK MTG.	
6	6	316	Y24863K10	HCS, 1/2-13 x 1", TANK & BRACKET MTG.	
7	6	316	Y21609A	WASHER, LOCK, 1/2", TANK & BRACKET MTG.	
8	1	316	PURCH.A.S.	TANK, 3 GALLON	
9	2	316	AY45240F	FITTING, TUBE, 90° ELBOW, 1/2" TUBE-1/2" NPT	
10	2	316	Y24888K80	NIPPLE, PIPE, 1/2", PE & THRD., 8" LONG *	

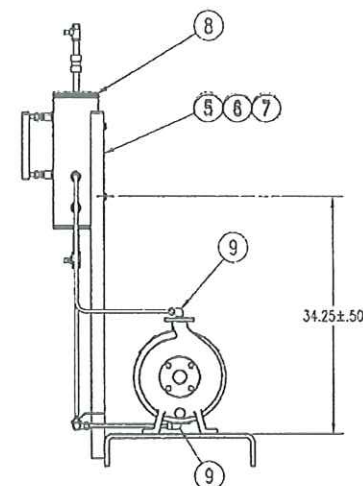
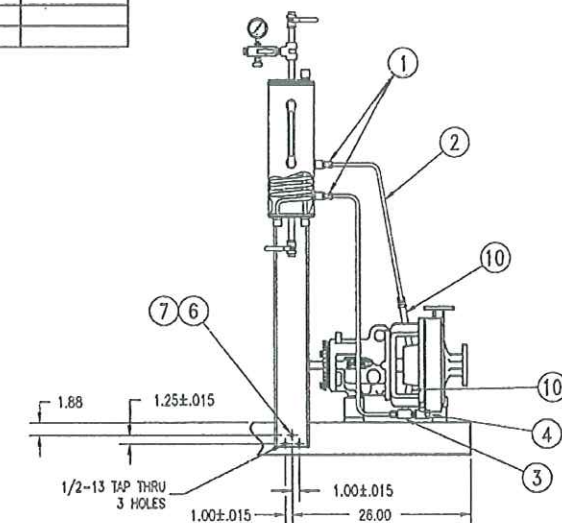
TAP 8 = 1/2" NPT
* CUT & FIT AS REQUIRED.



NOTE: FOR RESERVOIR DETAILS
SEE DWG 09145HP

		UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.
(a)		
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NOTE: THIS DRAWING CONFORMS TO ANSI STD. Y14.5			
UNSPECIFIED TOLERANCES			
2 PL. DEC. +/- .02	3 PL. DEC. +/- .005	SYN	GEOMETRY
INT. CORNER .035" MAX	EXT. CORNER .015 R	○	CONCENTRICITY
ANGULARITY +/- 1°	MACH. FIN. 125RMS	□	FLATNESS
TORCH CUT +/- .08		⊥	PERPENDICULARITY
WARNING: THE EXPORT OR REEXPORT OF THIS DRAWING OR A PRODUCT PRODUCED BY THIS DRAWING IS SUBJECT TO U.S. EXPORT ADMINISTRATION REGULATIONS AND OTHER APPLICABLE GOVERNMENTAL RESTRICTIONS OR REGULATIONS.			
		∥	PARALLELISM
		⊙	CIRCULARITY
		⊕	POSITION
		⊖	TOTAL RUNOUT



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	REVISED TO CHANGE PIPING CONFIGURATION	CDG 8/27/02	DJC/DJC

INITIAL PART NO.	INITIAL MATERIAL
------------------	------------------

U.E. APPVL.	THIRD ANGLE PROJECTION
Q.C. APPVL.	DRN. ALB DATE 10/19/01
PATTERN NO.	DKD. DJC 10/19/01
WEIGHT (RAW)	APP. DJC 10/19/01
WEIGHT (FINISH)	ENG. APPVL. DJC 10/19/01

		FLOWSERVE CORPORATION INDUSTRIAL PUMP DIVISION 3900 COOK BLVD. CHESAPEAKE, VIRGINIA 23323	
KIT-BYPASS PLAN 7353, GP.2		BUS UNIT DRAWING NUMBER C/BP4251BS	
SCALE: NTS	DWG SIZE: B	SHEET 1 OF 1	

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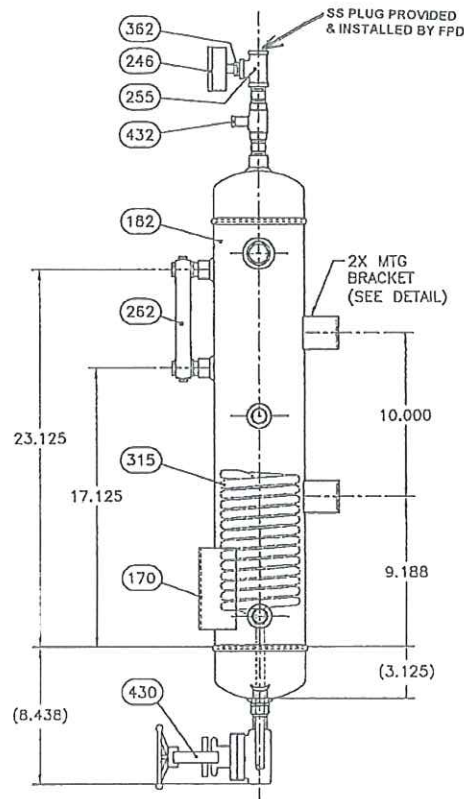
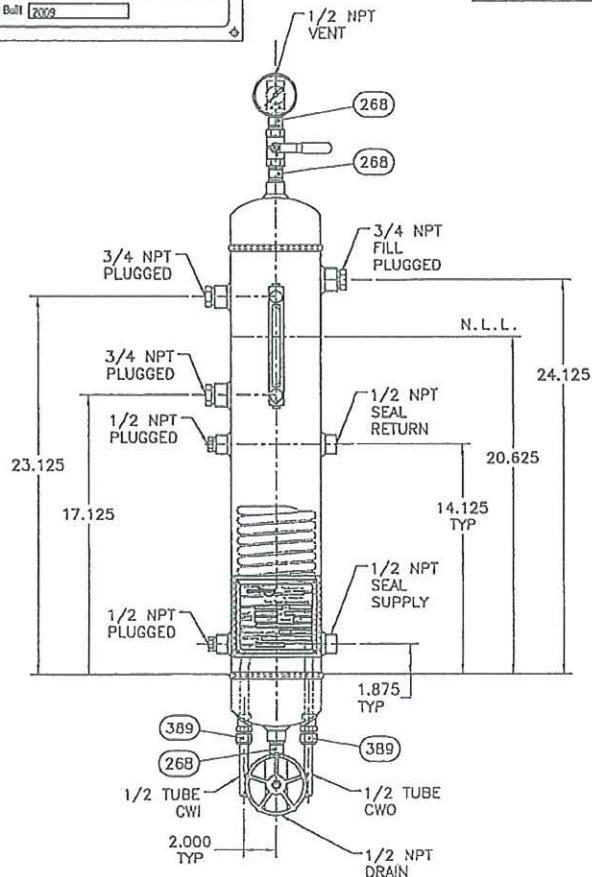
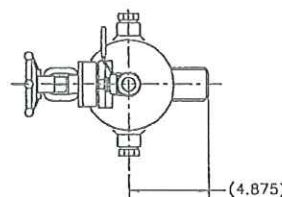
DUPONT DANISCO
CELLULOSIC ETHANOL
CUSTOMER PO: DDCE110098
TAG NO.: P3600
SERVICE: HTST FEED PUMP
PUMP MODEL: MK3 2K3X1.5LF-13OP
PUMP SERIAL NO: 0709-7793
FLOWSERVE ORDER: 034-01430-16

NO: 09145HP
REV: P2

Flowserve Flow Solutions Division Tulsa, OK USA Phone: (918) 581-4353 Fax: (918) 583-1011	
Seal Reservoir	
MAWP	160 PSI at 160°F
MDMT	-20°F at 160 PSI
Capacity	3 GALLONS Hydro at 240 PSI
Part Code	
Flowserve Factory Order No.	09145HP
Serial Number	
Date Built	2009

2.188
2.0001.000
0.625
MTG HOLE
(TYP)
2.000 1.000

MTG. BRACKET DETAIL



BILL OF MATERIAL NO: 09145HP

1 SUGGESTED SPARE PARTS
2 CODE/ESC (N)/OFF, STD (V)

NO	PARTCODE	QTY	DESCRIPTION	MATERIAL	1	2
182	W8034Y0000	1	RESERVOIR 5" PIPE SCH 10 (SHELL 26" LG)	304 SS		
170	U3DPU22A209	1	NAMEPLATE FOR RESERVOIR	STAINLESS STEEL		
262	U3DPU17A285	1	LIQUID LEVEL INDICATOR 1/2" NPT, TUBULAR, 6 C-C LUBE DEVICES: 6807-06-A-1-4	ALUMINUM		
315	4R98173X958	1	COOLING COIL 1/2" X .065 WALL X 20' LG. FOR 5" PIPE	SA-249 Gr. 316 / 316L WELDED		
389	U3DPU011985	2	TUBE FITTING (M) CONN. 1/2" TUBE X 1/2" (M) PIPE, BORE THROUGH	316		
246	U3DPU15A791	1	PRESSURE INDICATOR 2.5" DIAL, 0-160 PSI ASHCROFT: 25-1005-02B-160	BRASS		
255	0055004815	1	TEE FITTING 1/2" NPT SCD #150	304/304L SS		
268	3804004925	3	PIPE NIPPLE 1/2" X 2" S/ 40S SWLS TBE	SA-312 Gr. 304 / 304L SWLS		
362	3765004850	1	PIPE FITTING 1/2" X 1/4" HEX BUSHING	SA-182 Gr. F304 / 304L		
430	U3DPU230600	1	GATE VALVE 1/2" NPT CL800 CONVENTIONAL PORT	316 SS		
432	U3DPU230900	1	BALL VALVE 1/2" NPT 1-PC CL. 800 VOG	316		

NOTES:

1. MFG PER FLOWERVE SPEC 1T-8107.
2. ALL DIMENSIONS ARE $\pm .250$ UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS IN () ARE REFERENCE.
4. MAWP 160 PSI @ -20° TO 150° F.
5. VESSEL HYDRO @ $1.5 \times$ MAWP (160 PSI) = 240 PSI.
6. FOR LEVEL GAUGE (NO. 262) O-RING KIT, USE PART CODE U3DPU17A285.
7. CRN OH0843.3 & OH11516.52671.

DUPONT DANISCO
CELLULOSIC ETHANOL
CUSTOMER PO: DDCE110098
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PUMP MODEL: MK3 2K3X1.5LF-130P
PUMP SERIAL NO: 0709-7799
FLOWERVE ORDER: 034-01430-16

CUSTOMER: FLOWERVE PUMP DIVISION
ADDRESS: CHESAPEAKE, VA
API PLAN: 53A
PROJECT NO.: 70443
FPD JOB#

THIS SEAL IS DESIGNED TO OPERATE
WITHIN SPECIFIC OPERATING
CONDITIONS. REFER TO THE PUBLISHED
APPLICATION INFORMATION AVAILABLE
FROM YOUR FLOWERVE SALES
REPRESENTATIVE.

AUXILIARY TYPE: RESERVOIR 3 GALLON ANSI PLAN 53A

AUX CODE: PLAN 53A

REF PART CODE:

SEAL REF:

SCALE: TO SCALE

PARTS LIST NO:

DRAWN: AORTEGA

REF DWG:

DATE:

FORM DWG:

CHKD:

DRAWING NO:

APPROV:

PART: 1 OF 1

JOB NO: 09145HP

09145HP

REV: P2

REVISION: P2 DATE: 28-JUL-2009 BY: AORTEGA (CHKD: KHICKMAN) (TECH NO:)
REVISION NOTE: BALL VALVE FOR DRAIN REPLACED BY GATE VALVE. RELEASE FOR CUSTOMER APPROVAL

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FOR CUSTOMER REVIEW

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SPECIFIED OTHERWISE.
DIM'S IN: INCHES

C/A2
JULY
2009

THIRD ANGLE