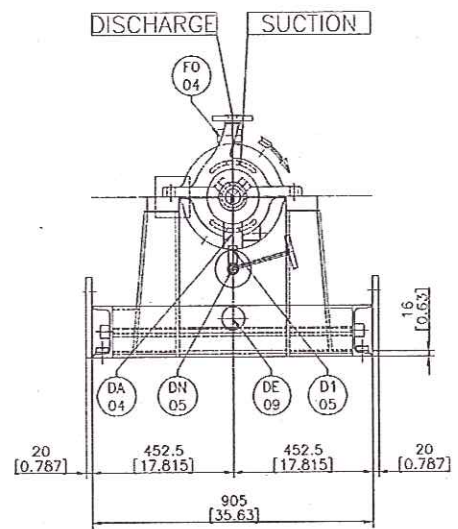
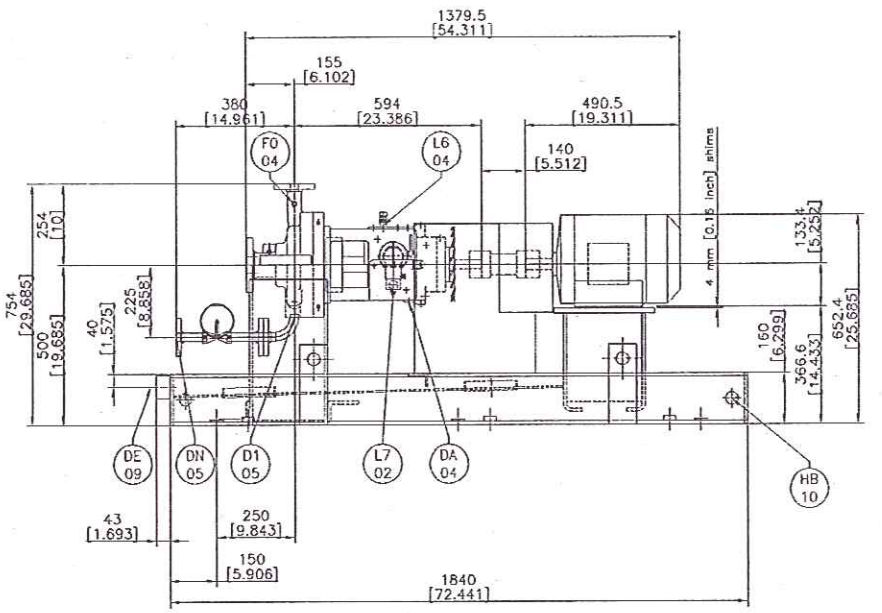


DWG024132
REV. C

Rev.	Date	Description	Draw.	Chk'd	Appr.
C	26/04/2007	OPERATING CONDITIOS WERE CHANGED	C. JAMES	M. SALCEDO	EDMUND
B	26/04/2007	SCH. PIPING SIZE WAS CHANGED	C. JAMES	M. SALCEDO	EDMUND
A	26/04/2007	PLAN SZ WAS CHANGED	C. JAMES	M. SALCEDO	EDMUND
#	07/03/2007	FIRST ISSUE	C. JAMES	M. SALCEDO	EDMUND



SELF VENTING PUMP
ALL FLANGE HOLES STRADDLE CENTERLINE
ALL FLANGES WILL BE SMOOTH FINISH 125-250 AARH
CONSTRUCTION AND DESIGN CODE: API 610 9th ED.
PUMP LUBRICATION: SLINGER

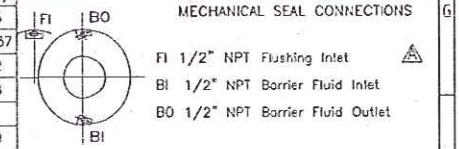
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	SUCTION		DISCHARGE	
	2" dia ASME 300 RF	1" dia ASME 300 RF	2" dia ASME 300 RF	1" dia ASME 300 RF
DB Nominal Bore Dia.	52	2	52	2
OD Outside Flange Dia.	165	6.5	125	4.88
BC Bolt Circle Dia.	127	5	85.9	3.5
NF Number of Holes	8	8	4	4
DF Holes Diameter	19	0.75	19	0.75
RF Raised Face Dia.	92.1	3.62	50.8	2
TK Raised Face Thick.	2	0.06	2	0.06
TF Flange Thick.	20.7	0.81	15.9	0.62

El Motor: RELANCE
Type: TEFC-XEX
HZ: 60 HP: 7.5 PHASE: 3 V: 460 RPM: 3600
ENCL/FRAME: 213T DWG: LATER
Coupling: METASTREAM TSCS
Type: FLEXIBLE WITH SPACER
with non sparking guard Material: Aluminum

Aux. Piping Slope
as per API 682
1000 40

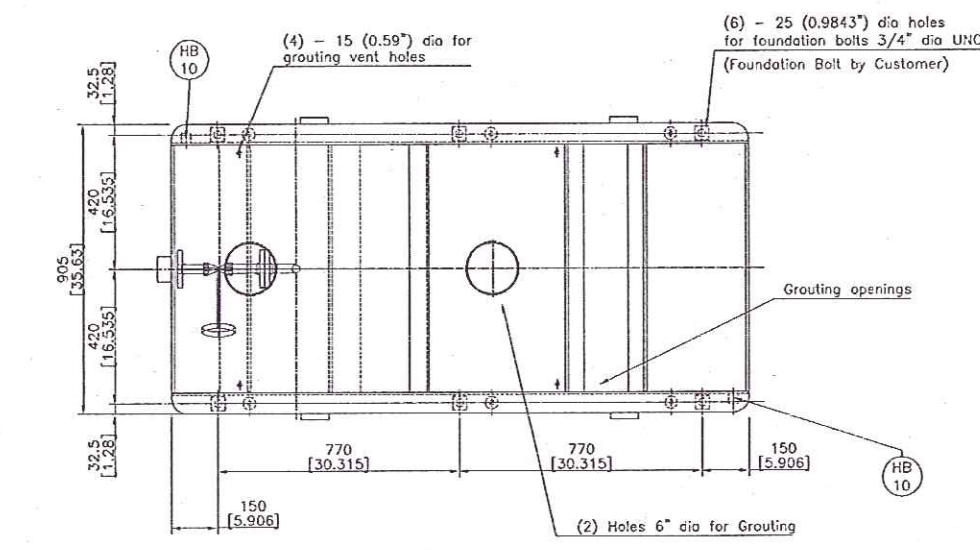
CENTERS OF GRAVITY (mm) (Inch.)	
PUMP	X 484 19.055
DRIVER	Y -10 -0.3937
DRIVER	Z 520 20.472
DRIVER	X 1559 61.378
DRIVER	Y 10 0.394
DRIVER	Z 525 20.669
TOTAL	X 1114 43.858
TOTAL	Y 0 0
TOTAL	Z 364 14.331



FORCES	N				lb			
	Fx	Fy	Fz	Fr	Mx	My	Mz	Mr
DISCHARGE	1420	1160	1780	2560	920	460	700	1240
SUCTION	320	260	400	580	680	340	520	920
	1780	1420	1160	2560	920	460	700	1240
	400	320	260	580	680	340	520	920

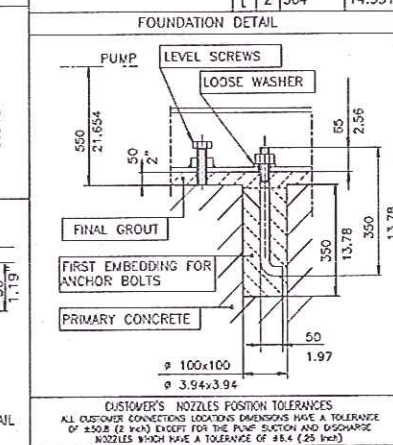
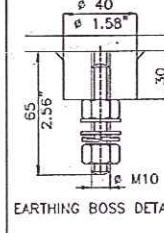
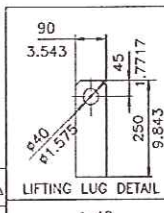
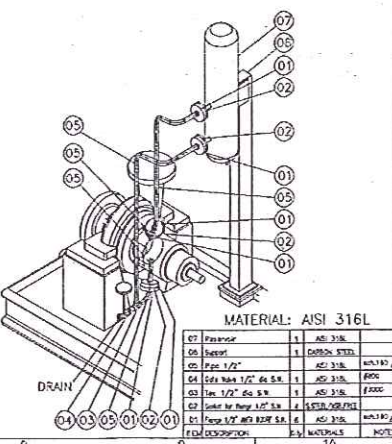
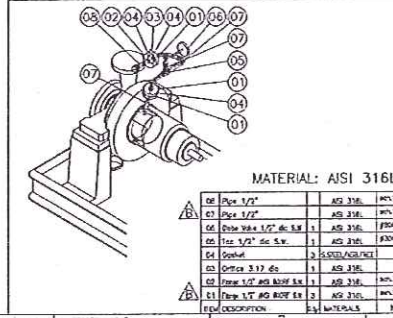
FOUNDATION LOADS (approx. Weight)			
PUMP	KG	131	Lb. 288.8
BASE & COUPL.	KG	280	Lb. 617.3
MOTOR	KG	135	Lb. 297.6
TOTAL	KG	546	Lb. 1203.7

CROSS SECTION
MECHANICAL SEAL FLOWERVE
TYPE: QBD/QB DWG: LATER
FLUSHING LINE API PLAN 11/52
COOLING LINE N.A.
P.O. NUMBER 56603-P-13-47
CUSTOMER D-COX/GIANT INDUSTRIES
JOB -
PLANT GIANT INDUSTRIES - YORKTOWN REFINERY
UNIT SERVICE PUMP/OUT PUMP
ITEM G-850 A/B
SERIAL N. 07HE0019-020
OPERATING CONDITION
FLOW: 25.0 GPM
HEAD: 158.6 FT
NPSH: 5.7 FT
BHP: 4.77 HP
RPM: 3460
FLUID HYDROCARBON
TEMPERATURE: 225 F
S.G.: 0.80



FLUSHING LINE API PLAN 52

FLUSHING LINE API PLAN 11



TOLERANCES UNLESS OTHERWISE SPECIFIED
MM IN
.X ± 0.5 .X ± .5
.XX ± 0.25 .XX ± .25
.XXX ± 0.05 .XXX ± .125
.XXXX ± 0.005 .XXXX ± .0625

STATUS OF APPROVAL
CERTIFIED
ORDER NO. 07HE0019-020
DRAWN BY C. JAMES
CHECKED BY M. SALCEDO
APPROVED BY EDMUND
DATE 07/03/2007
DATE 07/03/2007
DATE 07/03/2007
Engr. No. K190940900
Substituted
CAD File: 207HE0019-020-1

POS	Q.	CONN. TYPE	DESCRIPTION
D1	1	3/4" S.W.	Case Drain
DA	4	1/2" NPT	Support Frame Oil Drain
DE	1	2" NPT	Baseplate Drain
DN	1	3/4" 300 RF	Drain with Valve & Term. Flange
FO	1	1/2" S.W.	Flushing
HB	2	M10	Earth. Bosses on opposite side
L6	1	1/2" NPT	Breath. & Oil Filling Hole
L7	1	1/4" NPT	Constant Level Oiler
L8	1	1/4" NPT	Constant Level Oiler

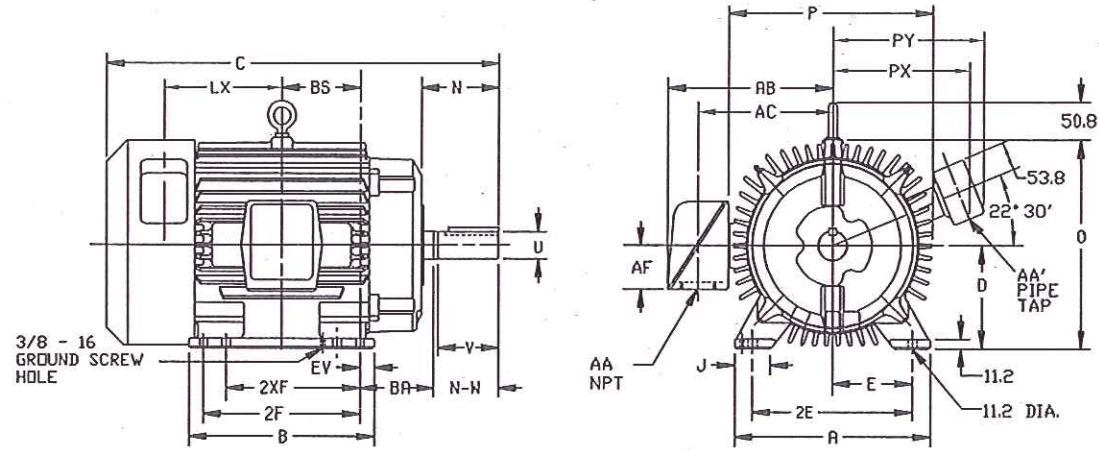
DUTY MASTER ALTERNATING CURRENT MOTORS

SQUIRREL-CAGE INDUCTION
CAST IRON CONSTRUCTION

ENCLOSURE: TOTALLY ENCLOSED
MOUNTING: FOOT

COOLING: FAN COOLED
ACCESSORIES: AUXILIARY
CONDUIT
BOX

FRAMES 180T THRU 210T
841XL



DIMENSIONS ARE IN MILLIMETERS; SEE SHEET 1 FOR DIMENSIONS IN INCHES

FRAME	A	D(2)	E	J	D	P	CAST IRON TERMINAL BDX				
							AA(7)	AB	AC	BA	
182T-L184T	228.6	114.3	95.3	44.5	251.0	241.3	1	214.4	169.9	53.8	69.9
213T-L215T	266.7	133.4	108.0	50.8	285.8	279.4	1-1/4	249.2	198.4	63.5	88.9
(1)											

FRAME SIZE	C	BS	B	EV	2F	(4) 2XF	N	SHAFT AND KEY				WEIGHT KGS. (5)	
								N-W(6)	UK(3)	V	SQ. LGTH		
182T	396.7	69.9	177.8	19.1	---	114.3	76.2	69.9	28.575	63.5	6.35	44.5	39
184T	396.7	69.9	177.8	19.1	139.7	---	76.2	69.9	28.575	63.5	6.35	44.5	41
L182T	434.8	88.9	215.9	19.1	---	114.3	76.2	69.9	28.575	63.5	6.35	44.5	53
L184T	434.8	88.9	215.9	19.1	139.7	---	76.2	69.9	28.575	63.5	6.35	44.5	55
213T	490.5	88.9	215.9	19.1	---	139.7	91.9	85.9	34.925	79.2	7.92	60.5	61
215T	490.5	88.9	215.9	19.1	177.8	---	91.9	85.9	34.925	79.2	7.92	60.5	66
L213T	512.8	100.1	231.6	15.7	---	139.7	91.9	85.9	34.925	79.2	7.92	60.5	79
L215T	512.8	100.1	231.6	15.7	177.8	---	91.9	85.9	34.925	79.2	7.92	60.5	84
(1)													

FRAME SIZE	CAST IRON AUX. TERM. BOX (8)			
	LX	PX	PY	AA'(7)
180T	101.6	179.3	220.7	3/4
L180T	120.7			
210T	130.0	196.1	237.2	3/4
L210T	141.2			
(1)				

(1) SPECIAL DIMENSIONS APPLYING TO THIS ORDER ON THIS LINE.

(2) 'D' MAY VARY +.0, -.8

(3) 'U' VARIES +.000, -.013

(4) ALL FRAMES HAVE MOUNTING HOLES FOR DUAL MOUNTING. FRAME SIZES WITHOUT THE 'L' DESIGNATION ARE SUITABLE FOR CONVERSION TO F-2 MOUNTING. FRAME SIZES WITH THE 'L' DESIGNATION ARE NOT SUITABLE FOR CONVERSION TO F-2 MOUNTING.

(5) MOTOR WEIGHTS MAY VARY BY 15% DEPENDING UPON RATING.

(6) 'N-W' VARIES +.0, -6.4

(7) DIMENSIONS ARE IN INCHES.

(8) AUXILIARY TERMINAL BDX SUPPLIED ONLY WHEN SPECIFIED

CONDUIT BDX LOCATED ON OPPOSITE SIDE WHEN F-2, W-1, W-4, W-5, W-7, OR C-1 MOUNTING IS SPECIFIED.

IF MOUNTING CLEARANCE DETAILS ARE REQUIRED, CONSULT FACTORY.

MAXIMUM PERMISSIBLE SHAFT RUNOUT WHEN MEASURED AT END OF STD. SHAFT EXTENSION IS .03 T.I.R.

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FRAME _____ TYPE _____ CERTIFIED FOR _____
 ORDER _____ ITEM _____ HP _____ RPM _____ PH _____ HZ _____ VOLTS _____
 LIANCE SALES ORDER _____ APPROVED BY _____ DATE _____

RELIANCE
ELECTRIC
CLEVELAND, OHIO 44117 U.S.A.

DR. BY BCHRISTIAN
 CK. BY C.P.WILLBY
 APP. BY C.P.WILLBY
 DATE 11-24-03

DIMENSION
SHEET
SHEET 2 OF 2

615470-844
ISSUE DATE: NOVEMBER 24, 2003