

SALES ACKNOWLEDGEMENT

SULZER

Print Date 10/16/2000

Page 1

SULZER PROCESS PUMPS (CANADA) INC. 5055, rue Levy, Saint-Laurent, Québec H4R 2N9, Canada Phone 514-333-7760 Fax 514-333-6324		Sulzer Order No. CAE2000075	Item # 001	Order Date 10/11/2000
		Customer P.O. No. 445014	P.O. Date 09/22/2000	
Bill to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Equipment Number 310-1140-001/M94035		
		Serial Number	Currency USD	Net Amount 11499.00
		Terms of Payment SPECIAL TERMS, SEE NOTE		
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
		Way of Delivery Truck		Onsite Date 01/26/2001
Marks and Tagging PUMP, A-LINE PULPER DUMP 310-1140-001 / M94035 445014 4121001112 CAE2000 075 01		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT53-10	N.Am. Pump Size 12X10-21	Casing Material A890 3A	Consistency 3.7 % BD	Pumped liquid ONP/OMG REP. STOCK
Capacity Q 3813 USGPM	Head H 112 ft	NPSH av 26 ft	NPSH req 12.2 ft	pH 7-9
Capacity in alternative unit GAS CONTENT 7.2 BY VOL	Efficiency 80 %	Temperature 125 F	Dimensional drawing P20049	Characteristic curve K01968
Impeller Type Special open	Impeller No. 286097	Impeller diameter 465 mm	Pump power P 149 HP-139 HP	Base plate type Pump Motor/Steel/Zinc
Coupling Type Rex-Omega ES	Mechanical seal type	Coupling Guard material S + Z EN10025	Dynamic seal power	Shaft Seal Fitting P02
Motor IEC/NEMA code 447T 5010 US	Power 200 HP	Rotational Speed 1200 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 449T 5010 US
Frequency 60 Hz	Voltage 2.3 kV	Enclosure TEFC	Motor Supplied by Customer	Bearing Unit Lubrication Oil lubrication

Order Remarks:
TERMS OF PAYMENT:

ALL PAYMENTS ARE DUE NET THIRTY (30) DAYS AFTER
 COMPLETION OF EACH EVENT AND RECEIPT OF INVOICE
 COMPLETE WITH SUPPORTING DOCUMENTATION, WHICHEVER
 OCCURS LAST
 90% UPON DELIVERY OF EACH PUMP THAT HAS BEEN
 RELEASED AND THE CORRESPONDING CHANGE ORDER ISSUED
 10% HOLD BACK UNTIL COMMISSIONING AND ACCEPTANCE
 BY BUYER

PRICING:

FOR NON-MENA MOTORS, FINAL PRICES ARE SUBJECT TO
 CONFIRMATION AFTER RECEIPT OF CERTIFIED MOTOR
 PRINTS

=====

INSPECTION LOCATION:

FOR INSPECTION PURPOSES PLEASE CONTACT:
 MR. SAM SEWELL
 SULZER PROCESS PUMPS (US)
 155 AHLSTROM WAY (PUE FACTORY)
 EASLEY, SC, USA, 29640
 TEL: (864) 855-9090, FAX: (864) 855-9095

PAINTING:

SULZER STANDARD FACTORY APPLIED PAINTING WITH
 THE RAL 5019 (CAPRI BLUE) COLOR & GUARDS IN
 RAL 1021 (SAFETY YELLOW) AT NO EXTRA CHARGE

FINAL IMPELLER TRIMS:

SALES ACKNOWLEDGEMENT

SULZER

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Page 2

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Marks and Tagging PUMP, A-LINE PULPER DUMP 310-1140-001 / M94035 445014 4121001112 CAE2000 075 01	Serial Number	Currency USD	Net Amount 11499.00
Remarks Continued			
MUST BE PROVIDED SIX (6) WEEKS PRIOR TO DELIVERY EXCEPT FOR APT6, APT54 & APT55 WHICH WILL REQUIRE THEM NINE (9) WEEKS PRIOR TO DELIVERY ===== MOTOR MOUNTING: ===== SULZER WILL DRILL BASE PLATES AS PER CERTIFIED MOTOR PRINTS BY CUS. SULZER WILL MOUNT CUS. SUPPLIED NEMA MOTORS AT EASLEY, SC FACTORY CUS. RESPONSABLE FOR MOUNTING NON-NEMA MOTORS ===== <i>GAS CONTENT:</i> <i>DESIGN FLOW IS 3734 USGPM @ DESIGN HEAD OF 95 FT.</i> <i>1-1/2" DIA BY 1/2" NPT. FLOW AIR HEAD ARE GIVEN</i> <i>TO 3713 USGPM @ 112 FT. WITH 5% AIR BY 1/2" NPT</i> <i>FOR IMPELLER SELECTION.</i>			
Terms of Payment SPECIAL TERMS, SEE NOTE			
Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID			
Way of Delivery Truck			Onsite Date 01/26/2001
Order Contact TONY LIANE			
Sales Contact TONY GEDEON			
Document Requirements 4 Copies in English			

PRODUCT SPECIFICATION		Description	APT53-10
		Serial Number	
		Time of delivery/EXW	01/19/2001
		Date printed	10/16/2000
		Page 1	
Customer		ALLIANCE FOREST PRODUCTS U.S. CORP.	
17589 PLANT ROAD		17589 PLANT ROAD	
COOSA PINES, AL 35044-0555		COOSA PINES, AL 35044-0555	
UNITED STATES		UNITED STATES	
Cust. order #	445014		
Cust. PO Line #	ZOR		
Country code	US	Equipment No	310-1140-001/M94035

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	3813 USGPM
Application	A - LINE PULPER DUMP	Head H	112 ft
Pumped liquid	ONP/OMG REP. STOCK	Characteristic curve	K01968
Temperature	125 F	Pump power P	149 HP <i>139 HP</i>
pH	7-9	Motor power	200 HP
Consistency	3.7 % BD	Efficiency	80 %
Gas content	7 %	Pump rotational speed	1185 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	8 (STATIC) ft	NPSH req	12.2 ft

PUMP

Supplier	Easley
Dimensional drawing	P20049
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT53-10
Impeller Type	Special open
Impeller No.	286097
Impeller diameter	465 mm
Impeller turning angle	0 °
Impeller max.diameter	530 mm
Flange Drilling	ASME B16.5 CLASS 150

IMPELLER MATERIAL *A8903A*
SHAFT MATERIAL *SS2324*

Casing Material	A890 3A
Gasket Material	Klinger SIL-4430
O-ring Material	NBR
Bearing Unit Lubrication	Oil lubrication
Bearing unit model	01 SS2324/NotSpec
Constant level oiler 638	Yes
Shaft Seal Fitting	P02
Customer documents lang./q	EN/04
Component documents lang./	EN/04
Special parts	METCO 16 SLEEVE

DRIVE MOTOR For Information Only

Motor Supplied by	Customer	Rotational Speed	1200 RPM
Motor IEC/NEMA code	447T <i>50/045</i>	Power	200 HP
Manufacturer	TOSHIBA		

SULZER PROCESS PUMPS (CANADA) INC.
5055, rue Levy
Saint-Laurent, Québec
H4R 2N9
Canada

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	001
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT53-10	
	Serial Number		
	Time of delivery/EXW	01/19/2001	
	Date printed	10/16/2000	Page 2
Customer	ALLIANCE FOREST PRODUCTS U.S. CORP.		
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UNITED STATES	UNITED STATES		
Cust. order #	445014		
Cust. PO Line #	ZOR		
Country code	US	Equipment No	310-1140-001/M94035

COUPLING

Coupling Type Rex-Omega ES

COUPLING GUARD

Coupling Guard material S+Z EN10025

BASE PLATE

Base plate type Pump Motor/Steel/Zinc Foundation screw type Grouted
 Future motor IEC/NEMA code ~~449F~~ 5010US

MOTOR ALIGNMENT BLOCK

ORDER REMARKS

TERMS OF PAYMENT:

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COOSA PINES, AL 35044-0555		
UNITED STATES		
Equipment No		310-1140-001/M94035

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FINAL IMPELLER TRIMS:

MUST BE PROVIDED SIX (6) WEEKS PRIOR TO DELIVERY
EXCEPT FOR APT6, APT54 & APT55 WHICH WILL REQUIRE
THEM NINE (9) WEEKS PRIOR TO DELIVERY

MOTOR MOUNTING:

SULZER WILL DRILL BASE PLATES AS PER CERTIFIED
MOTOR PRINTS BY CUS. SULZER WILL MOUNT CUS.
SUPPLIED NEMA MOTORS AT EASLEY, SC FACTORY
CUS. RESPONSABLE FOR MOUNTING NON-NEMA MOTORS

P A I N T I N G

Painting E180/3-Fe Sa2 1/2 SFS4962
Color Shade RAL-5019

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5055, rue Levy
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AHLSTROM

Version 01> / en / 920907 / Replaces 890401 / K01968

A graph showing pressure P (in Hp) on the vertical axis versus distance on the horizontal axis. The vertical axis ranges from 0 to 300 Hp, and the horizontal axis ranges from 0 to 7500. Five curves are plotted, labeled with their respective depths: 530, 500, 470, 440, and 415. The curves show that pressure increases with distance, and the rate of increase decreases as distance increases. The curves are ordered by depth, with 530 being the highest and 415 being the lowest.

NPS Hr	(ft)	IMPELLER DIA		
		mm	in	deg
25	0	530	20.87	0
		525	20.67	0
		520	20.47	0
		515	20.28	0
		510	20.08	0
		505	19.88	0
		500	19.69	0
		495	19.49	0
		490	19.29	0
		485	19.09	0
		480	18.9	0
		475	18.7	0
		470	18.5	0
		465	18.31	0
		460	18.11	0
		455	17.91	0
		450	17.72	0
		445	17.52	0
		440	17.32	0
		435	17.13	0
		430	16.93	0
		425	16.73	0
		420	16.54	0
		415	16.34	0
		410	16.14	0
405	15.94	0		
400	15.75	0		
395	15.55	0		
390	15.35	0		

Q (USGPM)

SERVICE:	A-Line Pulper Dump Pump	FLOW (USGPM)	TDH (ft)
EQUIP. No.:	310-1140-001 / M94035	3813.00	112.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 01	80	200.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		BY OWNER	BY OWNER

APT Process Pumps Dimensional drawing P20049

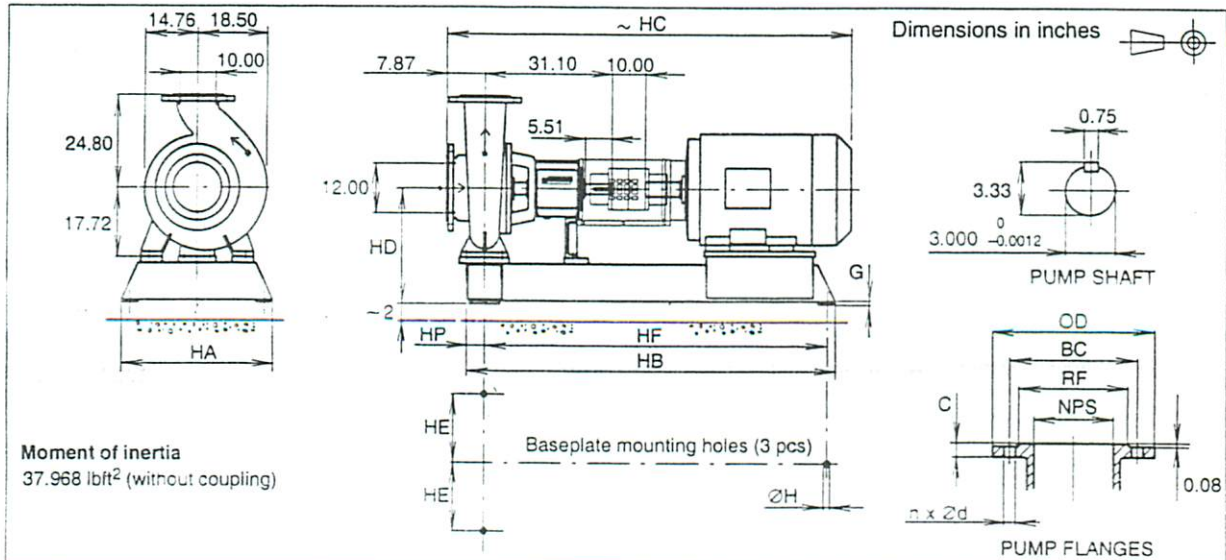


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Version 04 > / 940221 / en / P20049

APT53-10 (12x10-21)

Steel baseplate for pump and motor



DIMENSIONS

Primary motor frame	Max motor frame		Baseplate	HD	HC	HB	HP	HF	HA	HE	H	G	Weight lbs ⁽³⁾
(1)	(2)												
365T	405T	-	6	26.55	83.00	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1700
404T	444T	405T	7	26.55	86.00	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1810
405T	444T	-	7	26.55	87.50	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1810
444T	509LL	449T	9	29.55	91.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2190
445T	509LL	449T	9	29.55	93.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2190
447T	5011LL	449T	10	29.55	97.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2300
447TS	509LS	449TS	8	29.55	95.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	2150
449T	5011LL	-	10	29.55	103.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2300
449TS	509LS	-	8	29.55	100.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	2150

DRILLING OF FLANGES

				ANSI B 16.1 Class 125			ANSI B 16.5 Class 150		
NPS	OD	RF	C	BC	d	n ⁽⁴⁾	BC	d	n ⁽⁴⁾
10.00	16.93	12.60	1.19	14.25	1.00	12	14.25	1.00	12
12.00	18.90	14.57	1.25	17.00	1.00	12	17.00	1.00	12

- Max. NEMA motor frame, which can be installed onto the baseplate.
- Max. NEMA motor frame with the same shaft height as primary motor.
- Weight without coupling and motor.
- Flange bolting straddles centerline.

FOR REFERENCE

SERVICE:	A Line Pulper Dump Pump
EQUIP. No.:	310-1140-001 / M94035
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 01
HP / RPM / FRAME:	139 / 1185 / BY OWNER

CERTIFIED FOR CONSTRUCTION	
DATE / REV.:	OCT-16-2000 / R. 0
SIGNED:	

139/1185/5010 US

APT Process Pumps

Design data



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Version 09 > / 960801 / en / N12351 / Page 5 (7)

Table 5 Bearing unit size 5

Pump type	51-10	51-12	52-14	52-16	53-4	53-6	53-8	53-10	53-12
Shaft diameters									
At impeller					2.559				
Under sleeve					3.150				
Between bearings					4.09				
At coupling					3.000				
Bearings									
Radial bearing type					NUP 317				
Thrust bearing type					2 x 7318 BECB				
Radial brg. life (HRS. x 10 ³) (1)	1000 +	1000 +	1000 +	1000 +	1000 +	1000 +	700	1000 +	1000 +
Thrust brg. life (HRS. x 10 ³) (1)	100	250	340	100	700	520	70	75	80
Bearing span					11.10				
Shaft overhang					11.75				
Stuffing box									
Bore					4.750				
Depth					3.937				
Shaft sleeve dia.									
Packing					3.500				
Mechanical seal, general					3.375				
Mech. seal, ready-fitted (2)					3.150				
Packing size					0.625				
No. of packing rings					4				
Lantern ring width					0.79				
Neck bush clearance					0.042				
Distance to nearest obstruction					3.94				
Wear ring clearance	0.029	0.031	0.032	0.034	0.024	0.027	0.027	0.029	0.031
Impeller									
Front clearance (open impeller)					0.020				
Back clearance					0.040				
Eye area (in ²)									
Closed	102.3	132.5	164.8	206.5	44.9	64.9	73.6	102.3	140.7
Open	102.3	132.5	164.8	206.5	44.9	64.9	73.6	102.3	140.7
Special open	117.0	132.5	164.8	206.5	-	-	73.6	102.3	140.7
Max. diameter solids (in)									
Closed	2.05	1.89	2.56	2.87	0.67	1.14	1.38	1.93	2.44
Open	2.13	2.72	2.48	3.74	1.06	1.54	1.38	1.93	2.52
Special open	2.12	2.72	3.31	3.74	-	-	1.38	1.93	2.52
Max. shaft deflection at st. box					0.002				
Casing									
Type (single or dual)	DV	DV	DV	DV	SV	SV	SV	DV	DV
Casing thickness (iron)	0.71	0.71	0.75	0.79	0.63	0.71	0.71	0.71	0.71
Casing thickness (steel)	0.55	0.55	0.59	0.63	0.51	0.55	0.55	0.55	0.59
Bearing unit weight (LBS)					333				
HP/100 rpm (shaft SS2324)					74				

1) Min. L10h-life, full impeller dia., max. speed, direct coupled and 50 - 100 % BEP

2) Installed on the pump shaft

PUMP, A-LINE PULPER DUMP

SERVICE:	A-Line Pulper Dump Pump
EQUIP. No.:	310-1140-001 / M94035
CUST. P.O. No.:	445014
MODEL / SIZE:	APT53-10 / 12x10-21
APL-C JOB No.:	CAE2000 075 01

APT Process Pumps

Shaft sealing



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Version 09 > / 960601 / en / N12559

Gland packings

Fitting P02

2 braids + lantern ring + 2 braids. Standard casing cover. Installed onto the shaft wearing sleeve.

Characteristics of fitting

E	External flushing that prevents pumped liquid from precipitating in the sealing housing. Flushing liquid is mixed with the pumped liquid.
Pumped liquid	Impure liquids, stock, lye
Temperature (°F)	max 250
Stuffing box pressure p_T (psi)	Positive or negative
Sealing waters	
Connection No.	020
Size (NPT)	3/8 - 18
Quality	External clean water, maximum particle size 0.002 in, maximum solid material content (PPM-value) 0.00027 lb/in ³ .
Flow rate (USGPM)	0.5 - 0.8
Pressure (psi)	$p_T + 7$ psi min. 7 psi

Seal size (Ø in)

Bearing unit					
1	2	3	4	5	6
1 5/8 x 2 3/8 x 3/8	2 x 2 3/4 x 3/8	2 3/8 x 3 3/8 x 1/2	2 3/4 x 3 3/4 x 1/2	3 1/2 x 4 3/4 x 5/8	3.937 x 5.198 x 5/8

Pressure behind the impeller can approximately be calculated from the formula

$$p_T = p_0 - 0.725 \text{ psi}$$

Where p_T = pressure behind the impeller (psi)
 p_0 = inlet pressure (psi)

Atmospheric pressure used as reference pressure = 0 psi.

PUMP A-LINE PULPER DUMP

SERVICE:	A Line Pulper Dump Pump
EQUIP. No.:	310-1140-001 / M94035
CUST. P.O. No.:	445014
MODEL / SPEED:	APT53-10 / 1185
API-C JOB No.:	CAE2000 075 01