

SULZER**SALES ACKNOWLEDGEMENT**

Print Date 10/16/2000

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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 # 005	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 310-1140-005/M94100		
		Serial Number	Currency USD	Net Amount 9762.00
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Terms of Payment SPECIAL TERMS, SEE NOTE		
		Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
Marks and Tagging PUMP, A-LINE SEC. COARSE SCREEN FEED 310-1140-005 / M94100 445014 4121001112 CAE2000 075 05		Way of Delivery Truck		Onsite Date 01/19/2001
		Order Contact TONY LIANE Sales Contact TONY GEDEON Document Requirements 4 Copies in English		
Pump Size APT53-8	N.Am. Pump Size 10X8-21	Casing Material A890 3A	Consistency 2.95 % BD	Pumped liquid ONP/OMG REP. STOCK
Capacity Q 1560 USGPM	Head H 105 ft	NPSH av 26 ft	NPSH req 5.6 ft	pH 7-9
Capacity in alternative unit	Efficiency 68 %	Temperature 125 F	Dimensional drawing P20048	Characteristic curve K01965
Impeller Type Special open	Impeller No. 286099	Impeller diameter 415 mm	Pump power P 56 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 405T	Power 75 HP	Rotational Speed 1200 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 444T
Frequency 60 Hz	Voltage 460V	Enclosure TFC	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:

SULZER**SALES ACKNOWLEDGEMENT**

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	Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
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	Order Contact TONY LIANE		
	Sales Contact TONY GEDEON		
	Document Requirements 4 Copies in English		

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
 =====

PRODUCT SPECIFICATION	Description APT53-8 Serial Number Time of delivery/EXW 01/12/2001 Date printed 10/16/2000 Page 1
Customer ALLIANCE FOREST PRODUCTS U.S. CCRP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Cust. order # 445014 Cust. PO Line # ZOR Country code US	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-005/M94100

PROCESS DATA

Mill	13	Capacity Q	1560 USGPM
Process	270	Head H	105 ft
Application	SEC. COARSE SCREEN	Characteristic curve	K01965
Pumped liquid	CNP/CMG REP. STOCK	Pump power P	56 HP
Temperature	125 F	Motor power	75 HP
pH	7-9	Efficiency	68 %
Consistency	2.95 % BD	Pump rotational speed	1185 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	20 (STATIC) ft	NPSH req	5.6 ft
NPSH av	26 ft		

PUMP

Supplier	Easley
Dimensional drawing	P20048
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT53-8
Impeller Type	Special open
Impeller No.	286099
Impeller diameter	415 mm
Impeller turning angle	0 °
Impeller max.diameter	530 mm
Flange Drilling	ASME B16.5 CLASS 150

IMPELLER MATERIAL **A890 3A**
SHAFT MATERIAL **SS 2324**

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

Motor Supplied by	Customer	Rotational Speed	1200 RPM
Motor IEC/NEMA code	405T	Power	75 HP
Manufacturer	TOSHIBA	Motor mounting	IPU production unit
Motor Type	NEMA		

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	005
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description APT53-8 Serial Number Time of delivery/EXW 01/12/2001 Date printed 10/16/2000 Page 2
Customer ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Cust. order # 445014 Cust. PO Line # ZOR Country code US	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-005/M94100

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 444T

MOTOR ALIGNMENT BLOCK

ORDER REMARKS

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PRODUCT SPECIFICATION	Description AP153-8 Serial Number Time of delivery/EXW 01/12/2001 Date printed 10/16/2000 Page 3
Customer ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Cust. order # 445014 Cust. PO Line # ZOR Country code US	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-005/M94100

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:

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 RAL 1021 (SAFETY YELLOW) AT NO EXTRA CHARGE

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MOTOR MOUNTING:

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 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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AHLSTROM

Version 01> / en / 920907 / Replaces 890401 / K01965

The figure consists of two vertically stacked graphs sharing a common horizontal axis representing flow rate Q in USGPM, ranging from 0 to 5000.

The top graph plots head H in feet (ft) on the vertical axis, ranging from 0 to 250. It shows several performance curves for different pump models, labeled with numbers: 530, 490, 450, 410, 390, 70, 75, 77, 79, and 7%. A shaded region is present between the 390 and 410 curves at low flow rates.

The bottom graph plots pressure P in horsepower (Hp) on the vertical axis, ranging from 0 to 250. It shows performance curves for the same pump models, labeled with numbers: 530, 490, 450, 410, and 390.

IMPELLER DIA		
mm	in	deg
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
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

SERVICE:	A Line Sec. Coarse Screen Feed P.	FLOW (USGPM)	TDH (R)
EQUIP. No.:	310-1140-005 / M94100	1560.00	105.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 05	68	75.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		405T	444T

APT Process Pumps

Dimensional drawing P20048

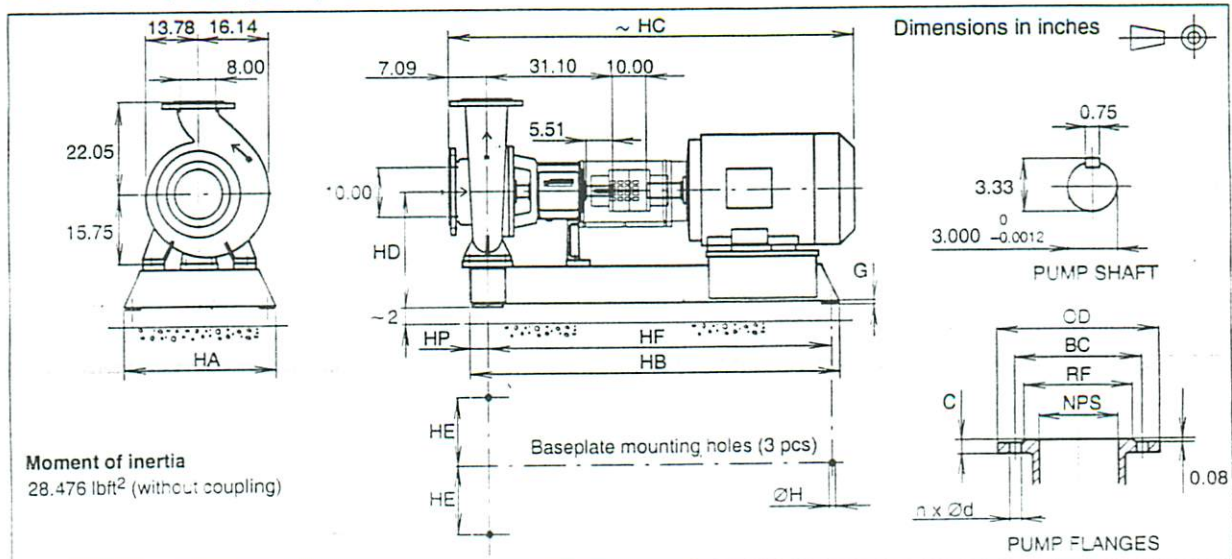


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Version 04 > / 940221 / en / P20048

APT53-8 (10x8-21)

Steel baseplate pump and motor



DIMENSIONS

Primary motor frame	Max motor frame (1)	Max motor frame (2)	Baseplate	HD	HC	HB	HP	HF	HA	HE	H	G	Weight lbs (3)
364T	405T	365T	6	24.60	80.50	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1540
365T	405T	-	6	24.60	81.50	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1540
404T	444T	405T	7	24.60	84.50	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1640
405T	444T	-	7	24.60	86.00	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1640
444T	509LL	449T	9	27.60	91.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2010
445T	509LL	449T	9	27.60	93.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2010
447T	5011LL	449T	10	27.60	96.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2115
447TS	509LS	449TS	8	27.60	94.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1970
449T	5011LL	-	10	27.60	102.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2115
449TS	509LS	-	8	27.60	99.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1970

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)
8.00	13.78	10.47	1.12	11.75	0.88	8		11.75	0.88	8
10.00	16.93	12.60	1.19	14.25	1.00	12		14.25	1.00	12

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

SERVICE:	A Line Sec. Coarse Screen Feed P.
EQUIP. No.:	310-1140-005 / M94100
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 05
HP / RPM / FRAME:	56.0 / 1185 / 405T

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

APT Process Pumps

Design data



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Version 09 > / 960801 / en / N12851 / 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					2x7318 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

Temp. A Line Sec. Coarse Screen Feed

SERVICE:	A Line Sec. Coarse Screen Feed P.
EQUIP. No.:	310-1140-005 / M94100
CUST. P.O. No.:	445014
MODEL / SIZE:	APT53-8 / 10x8-21
API-C JOB No.:	CAE2000 075 05

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 SEC. COARSE SCREEN FEED R.

SERVICE:	A-Line Sec. Coarse Screen Feed R.
EQUIP. No.:	310-1140-005 / M94100
CUST. P.O. No.:	445014
MODEL / SPEED:	APT53-8 / 1185
API-C JOB No.:	CAE2000 075 05