

SULZER**SALES ACKNOWLEDGEMENT**

Print Date 10/13/2000

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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 # 009	Order Date 10/11/2000
Bill to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Customer P.O. No. 445014		P.O. Date 09/22/2000	
		Equipment Number 310-1140-011/M94143			
		Serial Number	Currency USD	Net Amount 33302.00	
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 P2 FLOTATION, FLOTATION CELL FEED 310-1140-011 / M94143 445014 4121001112 CAE2000 075 09		Way of Delivery Truck		Onsite Date 02/16/2001	
		Order Contact TONY LIANE			
		Sales Contact TONY GEDEON			
		Document Requirements 4 Copies in English			
Pump Size APT61-24	N.Am. Pump Size 24X24-28	Casing Material A890 3A	Consistency 0.8-1.13 % BD	Pumped liquid ONP/OMG REP. STOCK	
Capacity Q 15051 USGPM	Head H 44 ft	NPSH av 26 ft	NPSH req 16.8 ft	pH 7-9	
Capacity in alternative unit 6-87.54 VOL.	Efficiency 81 %	Temperature 125 F	Dimensional drawing P20058	Characteristic curve K02321	
Impeller Type Special open	Impeller No. 286876	Impeller diameter 615 mm	Pump power P 212 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 315L	Power 250 HP	Rotational Speed 720 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 355L	
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:		

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Marks and Tagging PUMP, A-LINE P2 FLOTATION FLOTATION CELL FEED 310-1140-011 / M94143 445014 4121001112 CAE2000 075 09	Way of Delivery Truck		Onsite Date 02/16/2001
	Order Contact TONY LIANE		
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	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
 =====

Gas Content:

Design for 100% useful & design head

Design for 100% useful & design head

Design for 100% useful & design head

Design for 100% useful & design head

Design for 100% useful & design head

PRODUCT SPECIFICATION	Description APT61-24	
	Serial Number	
	Time of delivery/EXW	02/09/2001
	Date printed	10/13/2000
Customer		Page 1
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	
		Equipment No 310-1140-011/M94143

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	15051 USGPM
Application	P2 FLOTATION CELL	Head H	44 ft
Pumped liquid	CNP/CMG REP. STOCK	Characteristic curve	K02321
Temperature	125 F	Pump power P	212 HP
pH	7-9	Motor power	250 HP
Consistency	0.8-1.13 % BD	Efficiency	81 %
Gas content	6 TO 8 %	Pump rotational speed	710 RPM
Min head on suction side	2 ft	Variable speed	No
Max head on suction side	7 (STATIC) ft	NPSH req	16.8 ft

PUMP

Supplier	Easley
Dimensional drawing	P20058
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT61-24
Impeller Type	Special open
Impeller No.	286876
Impeller diameter	615 mm
Impeller turning angle	22 °
Impeller max.diameter	700 mm
Flange Drilling	ASME B16.5 CLASS 150

IMPELLER MATERIAL AB90 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 For information Only

Motor Supplied by	Customer	Rotational Speed	720 RPM
Manufacturer	TOSHIBA	Power	250 HP

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	009
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description APT61-24	
	Serial Number	
	Time of delivery/EXW	02/09/2001
	Date printed	10/13/2000
		Page 2
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	310-1140-011/M94143

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

MOTOR ALIGNMENT BLOCK

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:

SULZER PROCESS PUMPS (CANADA) INC.	Contact Person	TONY GEDEON
5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	009
H4R 2N9	Telephone	514 - 333-7760
Canada	Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description: 155-AHLSTROM-WAY-FACTORY Serial Number Time of delivery/EXW 02/09/2001 Date printed 10/13/2000 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 310-1140-011/M94143

 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) 355-9095
 =====

PAINTING:

 SULZER STANDARD FACTORY APPLIED PAINTING WITH
 THE RAL 5019 (CAPRI BLUE) COLOR & GUARDS IN
 RAL 1021 (SAFETY YELLOW) AT NO EXTRA CHARGE
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 MOTOR PRINTS BY CUS. SULZER WILL MOUNT CUS.
 SUPPLIED NEMA MOTORS AT EASLEY, SC FACTORY
 CUS. RESPONSABLE FOR MOUNTING NON-NEMA MOTORS
 =====

PAINTING

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

SULZER PROCESS PUMPS (CANADA) INC. 5055, rue Levy Saint-Laurent, Québec H4R 2N9 Canada	Contact Person TONY GEDEON LBU Order # CAE2000075 LBU Position 009 Telephone 514 - 333-7760 Telefax 514 - 333-6324 (bomcust1)
--	---

AHLSTROM

Version 01> / en / 920908 / Replaces 901101 / K02321

Top Graph: Total Head (H) vs. Flow Rate (Q)

The top graph plots Total Head (H) in feet on the y-axis (0 to 100) against Flow Rate (Q) in USGPM on the x-axis (0 to 25,000). It shows performance curves for impeller diameters of 700, 680, 660, 640, 625, and 610 inches. Efficiency curves are also shown for 75%, 80%, 83%, 85%, and 87%. A shaded region indicates the recommended operating range, which is approximately between 10,000 and 15,000 USGPM and 40 to 50 feet of head.

Bottom Graph: Power (P) vs. Flow Rate (Q)

The bottom graph plots Power (P) in horsepower on the y-axis (0 to 400) against Flow Rate (Q) in USGPM on the x-axis (0 to 25,000). It shows power curves for the same impeller diameters as the top graph. The power increases with flow rate, with the 700-inch diameter curve reaching approximately 380 HP at 25,000 USGPM.

[illegible]

SERVICE:	A Line P2 Flotation Cell Feed P. - -
EQUIP. No.:	310-1140-011 / M94143
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 09
DATE / REV.:	OCT-16-2000 / R. 0

FLOW (USGPM)	TDH (ft)
105.00 15051	44.00
EFF. (%)	Power (HP)
81	250.0
NEMA PR.	NEMA FUT.
BY OWNER	BY OWNER

APT Process Pumps

Dimensional drawing P20058

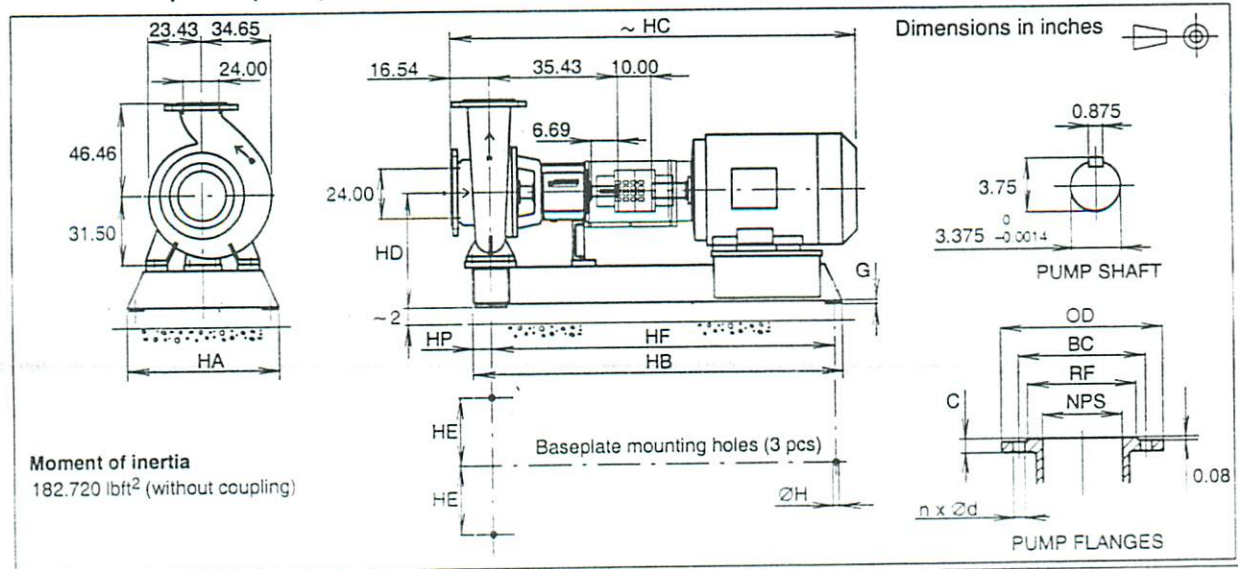


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Version 04 > / 940221 / en / P20058

APT61-24 (24x24-28)

Steel baseplate pump and motor



DIMENSIONS

Primary motor frame	Max motor frame (1)	(2)	Baseplate	HD	HC	HB	HP	HF	HA	HE	H	G	Weight lbs (3)
447T	5011LL	449T	13	43.20	110.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5710
449T	5011LL	-	13	43.20	116.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5710
449TS	509LS	-	12	43.20	113.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	5580

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)
24.00	33.27	26.97	1.88	29.50	1.42	20	29.50	1.42	20

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.

INCLUDE

REFERENCE

SERVICE:	A Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-011 / M94143
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 09
HP / RPM / FRAME:	212.0 / 710 / BY OWNER

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

13/SL

APT Process Pumps

Design data



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Version 09 > / 960801 / en / N12851 / Page 7 (7)

Table 7 **Bearing unit size 6**

Pump type	61-20	61-24	62-16
Shaft diameters			
At impeller		2.953	
Under sleeve		3.543	
Between bearings		4.80	
At coupling		3.375	
Bearings			
Radial bearing type		NUP 320	
Thrust bearing type		2 x 7322 BECB	
Radial brg. life (HRS. x 10 ³) ⁽¹⁾	1000	500	500
Thrust brg. life (HRS. x 10 ³) ⁽¹⁾	150	100	100
Bearing span		13.20	
Shaft overhang		11.80	
Stuffing box			
Bore		5.197	
Depth		3.937	
Shaft sleeve dia.			
Packing		3.947	
Mechanical seal, general		3.750	
Mech. seal, ready-fitted ⁽²⁾		3.543	
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		-	
Impeller			
Front clearance (open impeller)		0.020	
Back clearance		0.040	
Eye area (in ²)			
Closed		-	
Open	302.0	308.0	308.0
Special open	302.0	308.0	308.0
Max. diameter solids (in)			
Closed		-	
Open	3.39	5.19	5.19
Special open	4.21	5.19	5.19
Max. shaft deflection at st. box		0.002	
Casing			
Type (single or dual)	DV	DV	DV
Casing thickness (iron)	0.95	0.95	0.95
Casing thickness (steel)	0.93	0.71	0.71
Bearing unit weight (LBS)		333	
HP/100 rpm (shaft SS2324)		120	

- 1) Min. L10h-life, full impeller dia., max. speed, direct coupled and 50 - 100 % BEP
- 2) Installed on the pump shaft

Pump A-Line P2 200000 2000

SERVICE:	A-Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-011 / M94143
CUST. P.O. No.:	445014
MODEL / SIZE:	APT61-24 / 24x24-28
API-C JOB No.:	CAE2000 075 09

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 × 2 3/8 × 3/8	2 × 2 3/4 × 3/8	2 3/8 × 3 3/8 × 1/2	2 3/4 × 3 3/4 × 1/2	3 1/2 × 4 3/4 × 5/8	3.937 × 5.198 × 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 P02 Flotation Cell

SERVICE:	A Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-011 / M94143
CUST. P.O. No.:	445014
MODEL / SPEED:	APT61-24 / 710
API-C JOB No.:	CAE2000 075 09