

SALES ACKNOWLEDGEMENT

SULZER

Print Date 10/13/2000

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 # 039	Order Date 10/12/2000
		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 310-1140-024/M94192		
		Serial Number	Currency USD	Net Amount 16244.00
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 S2 FLOTATION CELL FEED 310-1140-024/M94192 445014 4121001112 CAE2000 075 39		Way of Delivery Truck		Onsite Date 02/02/2001
		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT52-14	N.Am. Pump Size 16X14-20	Casing Material A890 3A	Consistency 0.5-0.8 % BD	Pumped liquid ONP/ONG RED. STOK
Capacity Q 5653 USGPM	Head H 35 ft	NPSH av 26 ft	NPSH req 13.5 ft	pH 7-9
Capacity in alternative units UPTO 87.84 m³/h	Efficiency 81 %	Temperature 125 F	Dimensional drawing P20044	Characteristic curve K00869
Impeller Type Open	Impeller No. 283894	Impeller diameter 425 mm	Pump power P 65 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 444T	Power 75 HP	Rotational Speed 900 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 445T
Frequency 60 Hz	Voltage 460 V	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

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.	Item #	Order Date
	CAE2000075	039	10/12/2000
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	445014		09/22/2000
	Equipment Number		
	310-1140-024/M94192		
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		USD	16244.00
	Terms of Payment		
	SPECIAL TERMS, SEE NOTE		
Marks and Tagging PUMP, A-LINE S2 FLOTATION CELL FEED 310-1140-024/M94192 445014 4121001112 CAE2000 075 39	Terms of Delivery		Onsite Date
	DDP (INCOTERMS 2000)		
	COOSA PINES, AL, PREPAID		
	Way of Delivery		02/02/2001
	Truck		
	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
 =====

GAS CONTENT:

DESIGN. Flow IS 5280 USGPM @ DESIGN HEAD
 OF 36 FT WITH 87% EFF. R/R 5% VOLUME. Flow AND HEAD
 ARE EXPECTED TO 5653 USGPM @ 36 FT WITH 87%
 EFF. BY TRUNE FOR IMPELLER SELECTION.

PRODUCT SPECIFICATION	Description	APT52-14
	Serial Number	
	Time of delivery/EXW	02/16/2001
	Date printed	10/13/2000 Page 1
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 310-1140-024/M94192	

PROCESS DATA

Mill	13	Capacity Q	5653 USGPM
Process	270	Head H	35 ft
Application	Sec. FLOTATION CELL	Characteristic curve	K00869
Temperature	125 F	Pump power P	65 HP
pH	7-9	Motor power	75 HP
Consistency	0.5-0.8 % BD	Efficiency	81 %
Gas content	8 %	Pump rotational speed	885 RPM
Min head on suction side	2 ft	Variable speed	No
Max head on suction side	7 (STATIC) ft	NPSH req	13.5 ft
NPSH av	26 ft		

PUMP

Supplier	Easley
Dimensional drawing	P20044
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT52-14
Impeller Type	Open
Impeller No.	283894
Impeller diameter	425 mm
Impeller turning angle	19 °
Impeller max.diameter	477 mm
Flange Drilling	ASME B16.5 CLASS 150

<i>IMPELLER MATERIAL A890 3A</i>	
<i>SHAFT MATERIAL SS2324</i>	
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	900 RPM
Motor IEC/NEMA code	444T	Power	75 HP
Manufacturer	TOSHIBA	Motor mounting	IPU production unit

SULZER PROCESS PUMPS (CANADA) INC.

5055, rue Levy
Saint-Laurent, Québec
H4R 2N9
Canada

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	039
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT52-14	
	Serial Number		
	Time of delivery/EXW	02/16/2001	
	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	310-1140-024/M94192

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 445T

MOTOR ALIGNMENT BLOCK

ORDER REMARKS

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5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	039
H4R 2N9	Telephone	514 - 333-7760
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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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EXCEPT FOR APT6, APT54 & APT55 WHICH WILL REQUIRE

THEM NINE (9) WEEKS PRIOR TO DELIVERY

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=====

P A I N T I N G

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 LBU Order # LBU Position Telephone Telefax	TÓNY GEDEON CAE2000075 039 514 - 333-7760 514 - 333-6324	(bomcust1)
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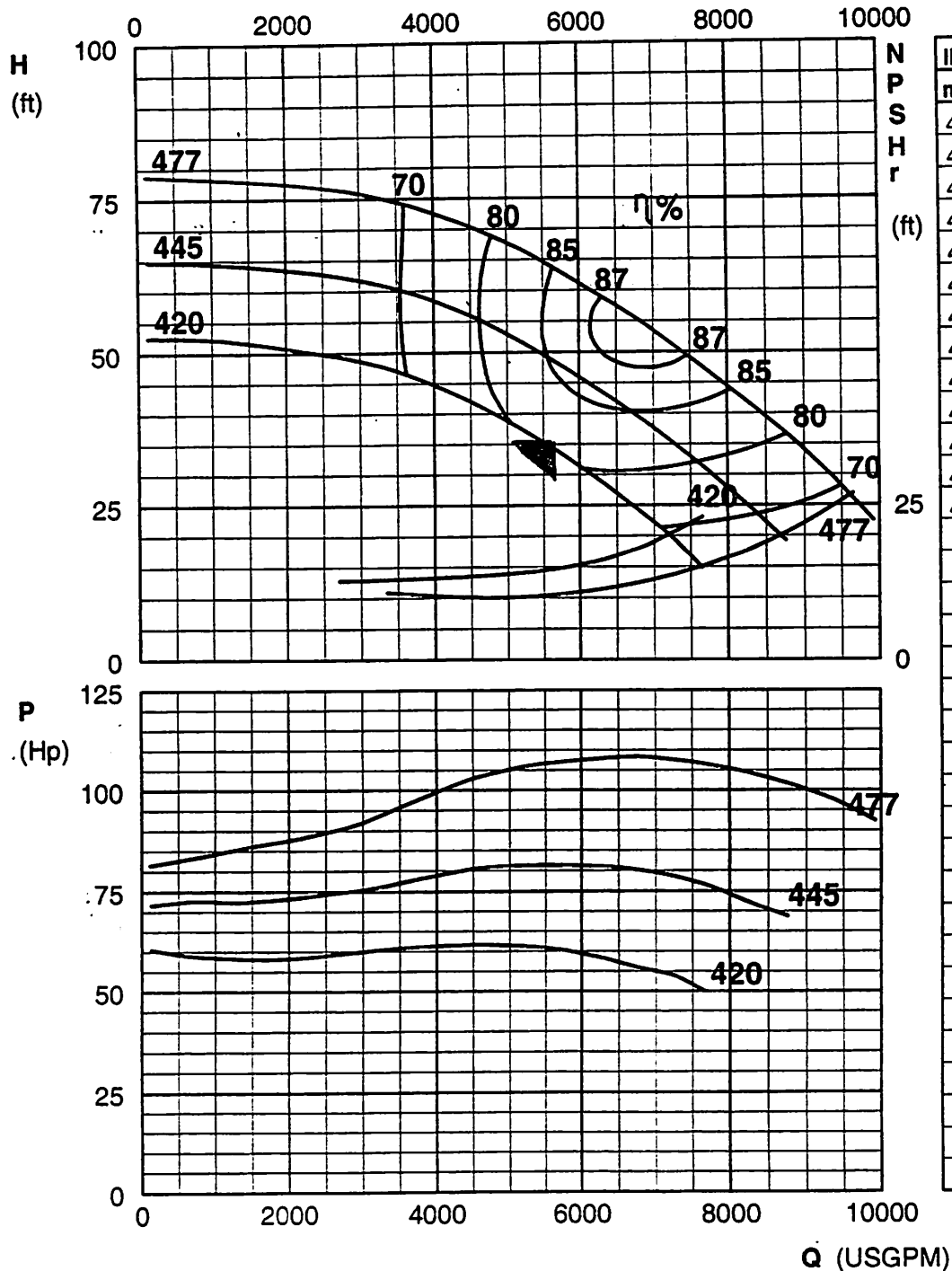
APT Process pumps Characteristic curve K00869



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Version 01> / en / 920702 / Replaces 870301 / K00869

APT52-14 (16x14-20)
Impeller 283894 OPEN B3.35 Z6
885 rpm



IMPELLER DIA		
mm	in	deg
477	18.78	13
475	18.70	13
470	18.50	13
465	18.31	13
460	18.11	13
455	17.91	14
450	17.72	14
445	17.52	15
440	17.32	16
435	17.13	17
430	16.93	18
425	16.73	19
420	16.54	20

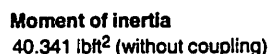
PUMP, A-LINE S2 FLOTATION CELL FEED

SERVICE:	A-Line S2 Flotation Cell Feed P.	FLOW (USGPM)	TDH (ft)
EQUIP. No.:	310-1140-024 / M94192	5653.00	35.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 39	81	75.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		444T	445T

AHLSTROM

Version 04 > / 940221 / en / P20044

Steel baseplate for pump and motor



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

2nd. A-Line S2 FLOTATION CELL FEED.

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

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

PUMP A-LINE S2 FLOTATION CELL FEED

SERVICE:	A-Line S2 Flotation Cell Feed-P.
EQUIP. No.:	310-1140-024 / M94192
CUST. P.O. No.:	445014
MODEL / SIZE:	APT52-14 / 16x14-20
APLC JOB No.:	CAE2000 075 39

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.
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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

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

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

Atmospheric pressure used as reference pressure = 0 psi.

PUMP, A-LINE S2 FLOTATION CELL FEED

SERVICE:	A-Line S2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-024 / M94192
CUST. P.O. No.:	445014
MODEL / SPEED:	APT52-14 / 885
APT-C JOB No.:	CAE2000 075 39