

SALES ACKNOWLEDGEMENT

SULZER

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 # 021	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 310-1140-026/M94195			
		Serial Number	Currency USD	Net Amount 15722.00	
		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 02/16/2001	
Marks and Tagging PUMP, B-LINE SECONDARY FLOTATION CELL FEED 310-1140-026/M94195 445014 4121001112 CAE2000 075 21		Order Contact TONY LIANE			
		Sales Contact TONY GEDEON			
		Document Requirements 4 Copies in English			
Pump Size APT55-12	N.Am. Pump Size 16X12-25	Casing Material A890 3A	Consistency 0.5-0.8 % BD	Pumped liquid ON/OMG REP. STOCK	
Capacity Q 5597 USGPM	Head H 100 ft	NPSH av 26 ft	NPSH req 12.3 ft	pH 7-9	
Capacity in alternative unit UP TO 87.34 KL	Efficiency 82 %	Temperature 125 F	Dimensional drawing P20056	Characteristic curve K00898	
Impeller Type Open	Impeller No. 283940	Impeller diameter 555 mm	Pump power P 175 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 5010 US	Power 200 HP	Rotational Speed 900 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 5010 US	
Frequency 60 Hz	Voltage 2.3KV	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:					

SULZER**SALES ACKNOWLEDGEMENT**

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Marks and Tagging PUMP, B-LINE SECONDARY FLOTATION CELL FEED 310-1140-026/M94195 445014 4121001112 CAE2000 075 21	Way of Delivery Truck		Onsite Date 02/16/2001
	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:

*THIS IS 52% LIQUID & DESIGN HERE TO
 BE 100% LIQUID. THE 52% LIQUID IS THE
 LIQUID THAT IS IN THE PUMP. THE 48% IS
 THE GAS THAT IS IN THE PUMP. THE 52% LIQUID
 IS THE LIQUID THAT IS IN THE PUMP.*

PRODUCT SPECIFICATION		Description	APT55-12
		Serial Number	
		Time of delivery/EXW	02/02/2001
		Date printed	10/13/2000
		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	310-1140-026/M94195

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	5597 USGPM
Application	FLOTAT. CELL FEED	Head H	100 ft
Pumped liquid	ONL/OMG REP. STOCK	Characteristic curve	K00898
Temperature	125 F	Pump power P	175 HP
pH	7-9	Motor power	200 HP
Consistency	0.5-0.8 % BD	Efficiency	82 %
Gas content	8 %	Pump rotational speed	890 RPM
Min head on suction side	2 ft	Variable speed	No
Max head on suction side	8 (STATIC) ft	NPSH req	12.3 ft

PUMP

Supplier	Easley
Dimensional drawing	P20056
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT55-12
Impeller Type	Open
Impeller No.	283940
Impeller diameter	555 mm
Impeller turning angle	0 °
Impeller max.diameter	625 mm
Flange Drilling	ASME B16.5 CLASS 150

<i>IMPELLER MATERIAL A890 3A</i>	
<i>SHAFT MATERIAL SS 2324</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 For Information Only

Motor Supplied by	Customer	Rotational Speed	900 RPM
Manufacturer	TOSHIBA	Power	200 HP

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	021
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description APT55-12	
	Serial Number	
	Time of delivery/EXW	02/02/2001
	Date printed	10/13/2000
Customer		Page 2
ALLIANCE FOREST PRODUCTS U.S. CORP.		
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COOSA PINES, AL 35044-0555		
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Country code	US	
ALLIANCE FOREST PRODUCTS U.S. CORP.		
17589 PLANT ROAD		
COOSA PINES, AL 35044-0555		
UNITED STATES		
Equipment No		310-1140-026/M94195

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:

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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	310-1140-026/M94195

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

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FINAL IMPELLER TRIMS:

MUST BE PROVIDED SIX (6) WEEKS PRIOR TO DELIVERY

EXCEPT FOR APT6, APT54 & APT55 WHICH WILL REQUIRE

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MOTOR MOUNTING:

SULZER WILL DRILL BASE PLATES AS PER CERTIFIED

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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

021

Telephone

514 - 333-7760

Telefax

514 - 333-6324

(bomcust1)

AHLSTROM

Version 01> / en / 920703 / Replaces 870301 / K00898

The figure consists of two vertically stacked graphs sharing a common x-axis representing Flow Rate (Q) in USGPM, ranging from 0 to 10,000.

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

- Y-axis:** Head (H) in feet (ft), ranging from 0 to 200.
- Curves:** Four pump performance curves are shown, labeled 490, 520, 565, and 625, representing different pump models.
- Efficiency Contours:** Curves representing efficiency (η %) are shown, labeled 70, 75, 80, 82, and 83.
- Operating Range:** A shaded region indicates the operating range for a flow rate of 1000 GPM, showing the head range from approximately 85 ft to 105 ft.

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

- Y-axis:** Power (P) in Horsepower (Hp), ranging from 0 to 400.
- Curves:** Four power curves are shown, labeled 490, 520, 565, and 625, corresponding to the pump models in the top graph.

IMPELLER DIA		
mm	in	deg
625	24.61	0
620	24.41	0
615	24.21	0
610	24.02	0
605	23.82	0
600	23.62	0
595	23.43	0
590	23.23	0
585	23.03	0
580	22.83	0
575	22.64	0
570	22.44	0
565	22.24	0
560	22.05	0
555	21.85	0
550	21.65	0
545	21.46	0
540	21.26	0
535	21.06	0
530	20.87	0
525	20.67	1
520	20.47	2
515	20.28	3
510	20.08	4
505	19.88	4.5
500	19.69	5
495	19.49	5.5
490	19.29	6

SERVICE:	B Line S2 Flotation Cell Feed P.	FLOW (USGPM)	TDH (R)
EQUIP. No.:	310-1140-026 / M94195	5597.00	100.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 21	82	200.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		BY OWNER	BY OWNER

APT Process Pumps

Dimensional drawing P20056

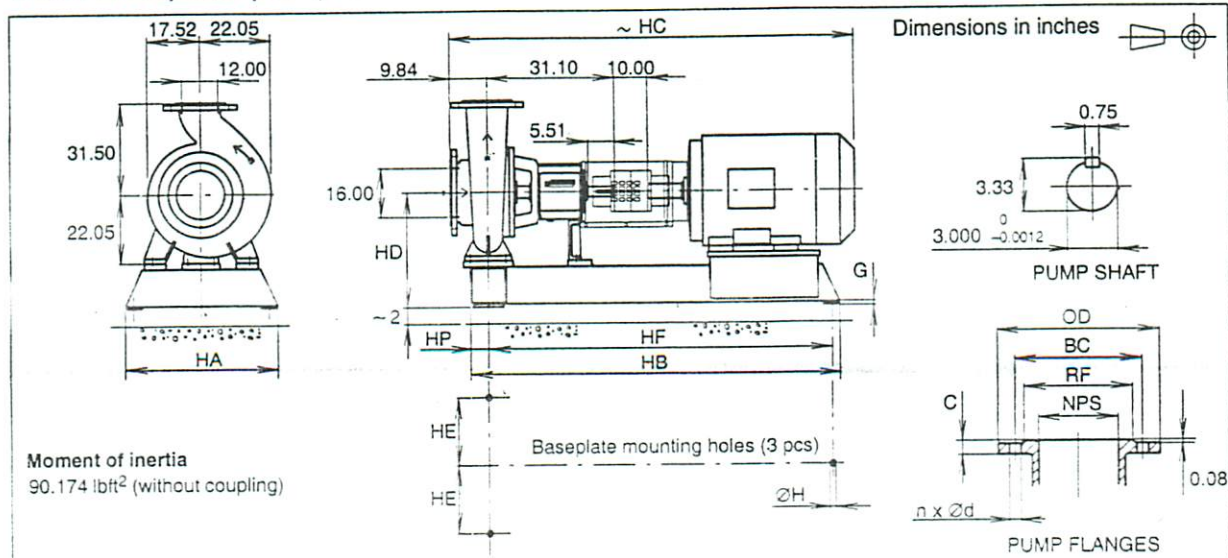


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Version 04 > / 940221 / en / P20056

APT55-12 (16x12-25)

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⁾
405T	444T	-	9	34.25	89.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2950
444T	509LL	449T	9	34.25	93.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	3150
445T	509LL	449T	9	34.25	95.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	3150
447T	5011LL	449T	10	34.25	98.50	112.25	5.00	105.00	45.63	20.50	1.50	0.69	3270
447TS	509LS	449TS	9	34.25	96.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	3150
449T	5011LL	-	10	34.25	104.50	112.25	5.00	105.00	45.63	20.50	1.50	0.69	3270
449TS	509LS	-	9	34.25	101.50	101.75	5.00	94.50	45.63	20.50	1.50	0.69	3150

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⁾
12.00	18.90	14.57	1.25	17.00	1.00	12	17.00	1.00	12
16.00	23.82	18.98	1.44	21.25	1.12	16	21.25	1.12	16

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.

FOR REFERENCE

SERVICE:	B Line S2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-026 / M94195
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 21
HP / RPM / FRAME:	175.0 / 890 / BY OWNER

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

501015

APT Process Pumps

Design data



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Version 09 > / 960801 / en / N12851 / Page 6 (7)

Table 6 Bearing unit size 5, continued

Pump type	54-16	54-20	55-4	55-8	55-10	55-12
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 +
Thrust brg. life (HRS: x 10 ³) ⁽¹⁾	50	100	23	120	100	50
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	0.034	0.036	0.027	0.029	0.029	0.032
Impeller						
Front clearance (open impeller)				0.020		
Back clearance				0.040		
Eye area (in ²)						
Closed	220.9	263.00	50.6	90.0	113.2	162.1
Open	220.9	263.00	50.6	90.0	113.2	162.1
Special open	220.9	263.00	-	-	113.2	162.1
Max. diameter solids (in)						
Closed	2.95	4.45	1.18	1.34	1.69	2.64
Open	2.91	4.45	1.18	1.81	1.69	2.68
Special open	3.62	4.45	-	-	1.69	2.68
Max. shaft deflection at st. box				0.002		
Casing						
Type (single or dual)	DV	DV	SV	SV	DV	DV
Casing thickness (iron)	0.75	0.79	0.79	0.75	0.75	0.79
Casing thickness (steel)	0.63	0.63	0.79	0.63	0.63	0.67
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

Handwritten: Pump 3-1140-026 / M94195

SERVICE:	B-Line 92 Flotation Cell Feed P.
EQUIP. No.:	310-1140-026 / M94195
CUST. P.O. No.:	445014
MODEL / SPEED:	APT55-12 / 890
APT-C JOB No.:	CAE2000 075 21

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, B-LINE SECONDARY TREATMENT CELL FEED

SERVICE:	B-Line 92 Potation Cell Feed P.
EQUIP. No.:	310-1140-026 / M94195
CUST. P.O. No.:	445014
MODEL / SPEED:	APT55-12 / 890
APT-C JOB No.:	CAE2000 075 21