

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 # 042	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 310-1140-030/M94216		
		Serial Number	Currency USD	Net Amount 23557.00
		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 FLOTATION ACCEPTS 310-1140-030 / M94216 445014 4121001112 CAE2000 075 42		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT54-20	N.Am. Pump Size 20X20-24	Casing Material A890 3A	Consistency 1.27 % BD	Pumped liquid DEINKED STOCK
Capacity Q 11448 USGPM	Head H 25 ft	NPSH av 26 ft	NPSH req 20.5 ft	pH 7-9
Capacity in alternative unit <i>GAS CONTENT 0-29 Ar By Val</i>	Efficiency 76 %	Temperature 125 F	Dimensional drawing P20052	Characteristic curve K01934
Impeller Type Open	Impeller No. 283901	Impeller diameter 540 mm	Pump power P 96 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 449T	Power 150 HP	Rotational Speed 720 RPM	Manufacturer TOSHIBA RELIANCE	Future motor IEC/NEMA code TOSHIBA 5010 US
Frequency 60Hz	Voltage 460V	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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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 # 042	Order Date 10/12/2000
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
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Equipment Number 310-1140-030/M94216		
Marks and Tagging PUMP, B-LINE FLOTATION ACCEPTS 310-1140-030 / M94216 445014 4121001112 CAE2000 075 42	Serial Number	Currency USD	Net Amount 23557.00
	Terms of Payment SPECIAL TERMS, SEE NOTE		
	Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
	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 ===== <i>GAS CONTENT:</i> <i>NO CORRECTION FOR 0.2% AIR BY VOLUME</i>			

PRODUCT SPECIFICATION	Description	APT54-20	
	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 #			
Country code US	Equipment No	310-1140-030/M94216	

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	11448 USGPM
Application	FLOTATION ACCEPTS	Head H	25 ft
Pumped liquid	DEINKED STOCK	Characteristic curve	K01934
Temperature	125 F	Pump power P	96 HP
pH	7-9	Motor power	150 HP
Consistency	1.27 % BD	Efficiency	76 %
Gas content	2 %	Pump rotational speed	710 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	25 (STATIC) ft	NPSH req	20.5 ft

PUMP

Supplier	Easley
Dimensional drawing	P20052
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT54-20
Impeller Type	Open
Impeller No.	283901
Impeller diameter	540 mm
Impeller turning angle	19 °
Impeller max.diameter	600 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 For Information Only

Motor Supplied by	Customer	Rotational Speed	720 RPM
Manufacturer	TOSHIBA RELIANCE	Power	150 HP
<i>MOTOR REC/RENA 449T</i>			

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	042
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description:	APT54-20
	Serial Number	
	Time of delivery/EXW	02/02/2001
	Date printed	10/13/2000
		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 # Country code US	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-030/M94216	

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 TOSHIBA 50/10US (200HP, 960 RPM)

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. 5055, rue Levy Saint-Laurent, Québec H4R 2N9 Canada	Contact Person LBU Order # LBU Position Telephone Telefax	TONY GEDEON CAE2000075 042 514 - 333-7760 514 - 333-6324 (bomcust1)
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AHLSTROM

Version 01> / en / 920824 / Replaces 890401 / K01934

The top graph displays Head (H) in feet on the y-axis (0 to 100) against Flow Rate (Q) in USGPM on the x-axis (0 to 15000). It features performance curves for pump models 600, 560, 520, and 510. Efficiency curves are also shown, labeled with efficiency percentages: 60, 70, 75, 80, 83, 85, 86. A shaded region is present in the lower right quadrant of the graph, indicating a specific operating point.

The bottom graph displays Power (P) in Horsepower (Hp) on the y-axis (0 to 200) against Flow Rate (Q) in USGPM on the x-axis (0 to 15000). It features power curves for pump models 600, 560, 520, and 510. A shaded region is present in the lower right quadrant of the graph, indicating a specific operating point.

[illegible]

PUMP, B-LINE FLOTATION ACCEPTS

SERVICE:	Life Rotation Accepts P.	FLOW (USGPM)	TDH (R)
EQUIP. No.:	310-1140-030 / M94216	1140 1148	25.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 42	76	150.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		BY OWNER	BY OWNER

RELIANCE 449T TOSHIBA 5010US

APT Process Pumps Dimensional drawing P20052

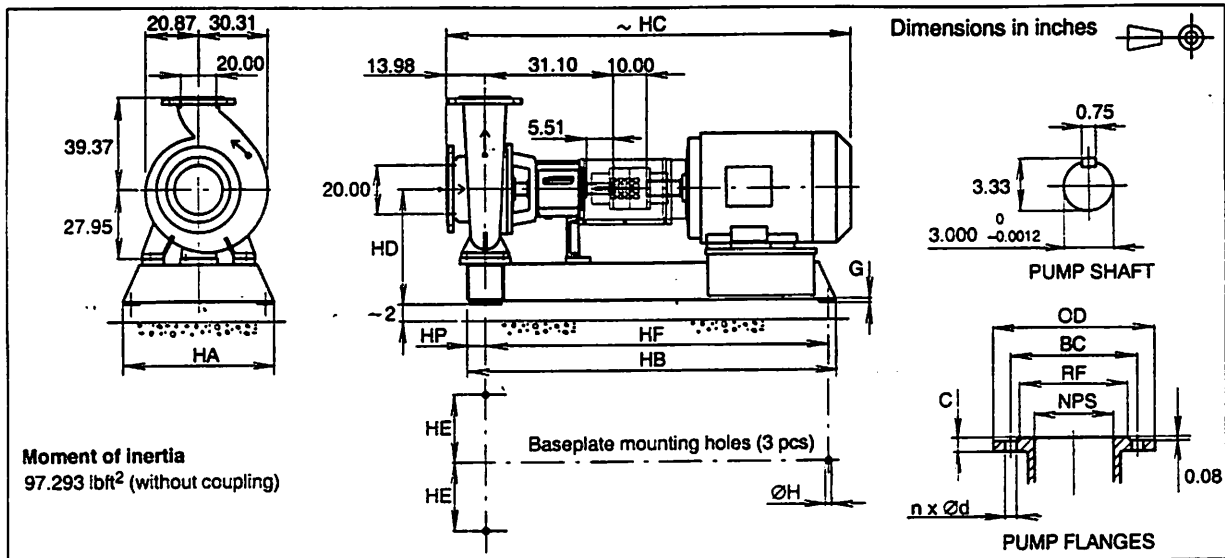


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Version 04 > / 940221 / en / P20052

APT54-20 (20x20-24)

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)												
447T	5011LL	449T	12	39.65	103.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3870
449T	5011LL	—	12	39.65	109.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3870
449TS	509LS	—	12	39.65	106.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3770

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⁾
20.00	28.74	23.03	1.69	25.00	1.25	20	25.00	1.25	20

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.

FOR REFERENCE

PUMP, B-LINE FLOTATION ACCEPTS

SERVICE:	B Line Flotation Accepts P.
EQUIP. No.:	310-1140-030 / M94216
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 42
HP / RPM / FRAME:	96.0 / 710 / 1449T

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

APT Process Pumps

Design data



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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

PUMP B-LINE ROTATION ACCEPTS

SERVICE:	B-Line Rotation Accepts P.
EQUIP. No.:	310-1140-030 / M94216
CUST. P.O. No.:	445014
MODEL / SIZE:	APT54-20 / 20x20-24
API-C JOB No.:	CAE2000 075 42

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 × 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, B-LINE FLOTATION ACCEPTS

SERVICE:	B-Line Flotation Accepts P.
EQUIP. No.:	310-1140-030 / M94216
CUST. P.O. No.:	445014
MODEL / SPEED:	APT54-20 / 710
API-C JOB No.:	CAE2000 075 42