

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 # 034	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 310-1140-056/M94347		
Marks and Tagging PUMP, B-LINE DISC THICKENER SHOWER 310-1140-056 / M94347 445014 4121001112 CAE2000 075 34	Serial Number	Currency USD	Net Amount 9638.00
	Terms of Payment SPECIAL TERMS, SEE NOTE		
	Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
	Way of Delivery Truck		Onsite Date 01/26/2001
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 =====	Order Contact TONY LIANE		
	Sales Contact TONY GEDEON		
	Document Requirements 4 Copies in English		

PRODUCT SPECIFICATION	Description APT53-4		Page 1
	Serial Number		
	Time of delivery/EXW	01/19/2001	
	Date printed	10/16/2000	
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 310-1140-056/M94347		

PROCESS DATA

Mill	13	Capacity Q	1710 USGPM
Process	270	Head H	310 ft
Application	DISC THICKENER	Characteristic curve	K02005
Pumped liquid	WHITE WATER	Pump power P	198 HP
Temperature	125 F	Motor power	250 HP
pH	7-9	Efficiency	68 %
Consistency	0.01 % BD	Pump rotational speed	1780 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	13 (STATIC) ft	NPSH req	24 ft
NPSH av	26 ft		

PUMP

Supplier	Easley
Dimensional drawing	P20046
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT53-4
Impeller Type	Open
Impeller No.	285944
Impeller diameter	465 mm
Impeller turning angle	0 °
Impeller max.diameter	532 mm
Flange Drilling	ASME B16.5 CLASS 150

IMPELLER MATERIAL A890 3A
 SHAFT MATERIAL SS2324
 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	1800 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	034
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description: API55-4 Serial Number Time of delivery/EXW 01/19/2001 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 310-1140-056/M94347

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

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LBU Order #	CAE2000075
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 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:

 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
 =====

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 / 920702 / Replaces 890904 / K02005

[illegible]

SERVICE:	B Line Disc Thickener Showers P.	FLOW (USGPM)	TDH (ft)
EQUIP. No.:	310-1140-056 / M94347	1710.00	310.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 34	68	250.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		BY OWNER	BY OWNER

APT Process Pumps

Dimensional drawing P20046

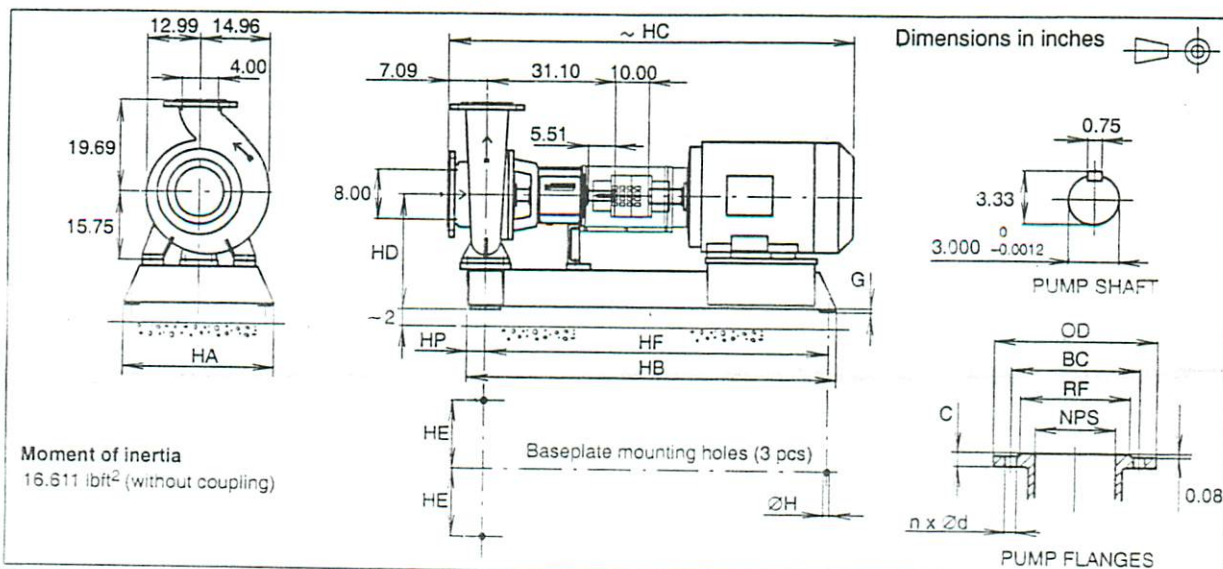


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Version 04 > / 940221 / en / P20046

APT53-4 (8x4-21)

Steel baseplate pump and motor



DIMENSIONS

Primary motor frame	Max motor frame		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	1220
365T	405T	-	6	24.60	81.50	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1220
404T	444T	405T	7	24.60	84.50	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1320
405T	444T	-	7	24.60	86.00	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1320
444T	509LL	449T	9	27.60	91.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	1690
445T	509LL	449T	9	27.60	93.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	1690
447T	5011LL	449T	10	27.60	96.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	1795
447TS	509LS	449TS	8	27.60	94.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1650
449T	5011LL	-	10	27.60	102.00	112.25	5.00	105.00	45.63	20.50	1.50	0.69	1795
449TS	509LS	-	8	27.60	99.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1650

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⁾
4.00	9.02	6.10	0.94	7.50	0.75	8	7.50	0.75	8
8.00	13.78	10.47	1.12	11.75	0.88	8	11.75	0.88	8

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 Disc Thickener Showers P.
EQUIP. No.:	310-1140-056 / M94347
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 34
HP / RPM / FRAME:	198.0 / 1780 / BY OWNER

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

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)	1000 +	1000 +	1000 -	1000 -	1000 +	1000 -	700	1000 -	1000 +
Thrust brg. life (HRS. x 10 ³)	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 ¹²					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. bcx					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

SERVICE:	B-Line Disc Thickener Showers P...
EQUIP. No.:	310-1140-056 / M94347
CUST. P.O. No.:	445014
MODEL / SIZE:	APT53-4 / 8x4-21
API-C JOB No.:	CAE2000 075 34

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, 3-LINE DISC THICKENER SHOWERS P.

SERVICE:	B Line Disc Thickener Showers P.
EQUIP. No.:	310-1140-056 / M94347
CUST. P.O. No.:	445014
MODEL / SPEED:	APT53-4 / 1780
API-C JOB No.:	CAE2000 075 34