

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 # 031	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 310-1140-053/M94015	Serial Number	Currency USD
Marks and Tagging PUMP, PULPERS DILUTION PUMP 310-1140-053 / M94015 445014 4121001112 CAE2000 075 31		Net Amount 17848.00		
		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		
Pump Size APT52-16	N.Am. Pump Size 16X16-20	Casing Material A890 3A	Consistency 0.01 % BD	Pumped liquid WHITE WATER
Capacity Q 10110 USGPM	Head H 90 ft	NPSH av 26 ft	NPSH req 23 ft	pH 7-9
Capacity in alternative units Efficiency 86 %	Temperature 125 F	Dimensional drawing P20045	Characteristic curve K00875	
Impeller Type Open	Impeller No. 283895	Impeller diameter 475 mm	Pump power P 278 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 300 HP	Rotational Speed 1200 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 =====		===== 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:		
PRICING: ----- FOR NON-MENA MOTORS, FINAL PRICES ARE SUBJECT TO CONFIRMATION AFTER RECEIPT OF CERTIFIED MOTOR PRINTS				

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	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
 =====

SULZER

PRODUCT SPECIFICATION	Description	APT52-16	
	Serial Number		
	Time of delivery/EXW	02/02/2001	
	Date printed	10/13/2000	Page 1
Customer	ALLIANCE FOREST PRODUCTS U.S. CCRP.		
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	310-1140-053/M94015

PROCESS DATA

Mill	13	Capacity Q	10110 USGPM
Process	270	Head H	90 ft
Application	PULPERS DILUTION	Characteristic curve	K00875
Pumped liquid	WHITE WATER	Pump power P	278 HP
Temperature	125 °	Motor power	300 HP
pH	7-9	Efficiency	86 %
Consistency	0.01 % BD	Pump rotational speed	1190 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	13 (STATIC) ft	NPSH req	23 ft
NPSH av	26 ft		

PUMP

Supplier	Easley
Dimensional drawing	P20045
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT52-16
Impeller Type	Open
Impeller No.	283895
Impeller diameter	475 mm
Impeller turning angle	16 °
Impeller max.diameter	533 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	1200 RPM
Manufacturer	TOSHIBA	Power	300 HP

SULZER PROCESS PUMPS (CANADA) INC.

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	031
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT52-16	
	Serial Number		
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	Date printed	10/13/2000	
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Cust. order #	445014		
Cust. PO Line #	ZOR		
Country code	US	Equipment No	310-1140-053/M94015

C O U P L I N G

Coupling Type Rex-Omega ES

C O U P L I N G G U A R D

Coupling Guard material S-Z EN10025

B A S E P L A T E

Base plate type Pump Motor/Steel/Zinc Foundation screw type Grouted

M O T O R A L I G N M E N T B L O C K

O R D E R R E M A R K S

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	031
H4R 2N9	Telephone	514 - 333-7760
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Cust. order #	445014		
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Country code	US	Equipment No	310-1140-053/M94015

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

FINAL IMPELLER TRIMS:

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 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

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

Contact Person TONY GEDEON
 LBU Order # CAE2000075
 LBU Position 031
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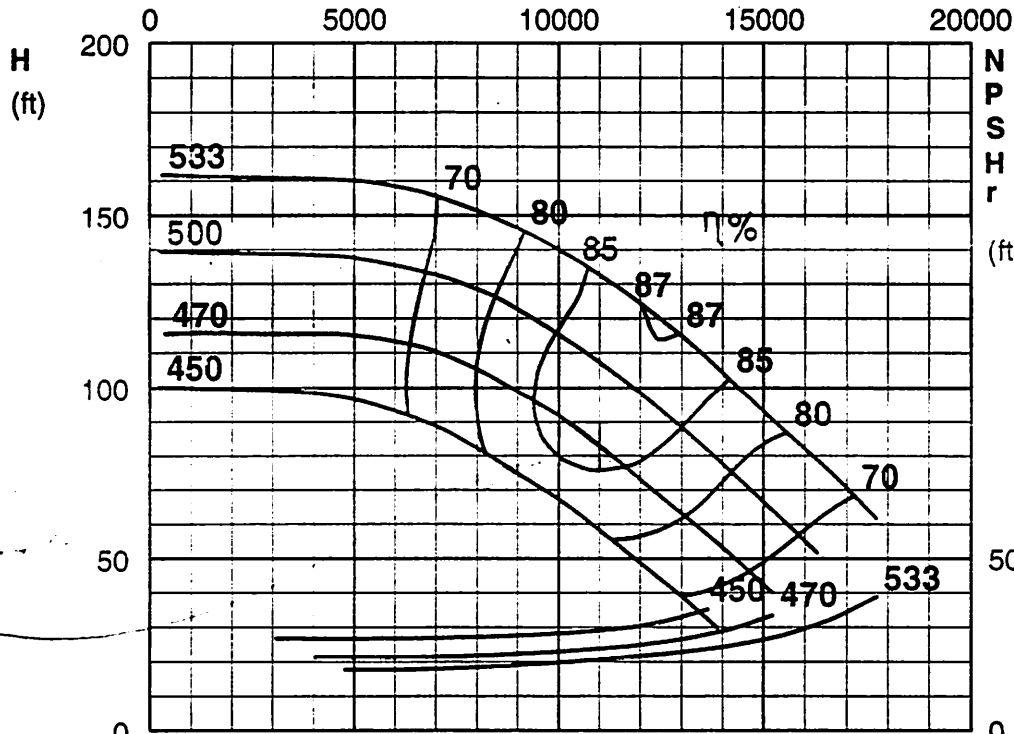
APT Process pumps Characteristic curve K00875



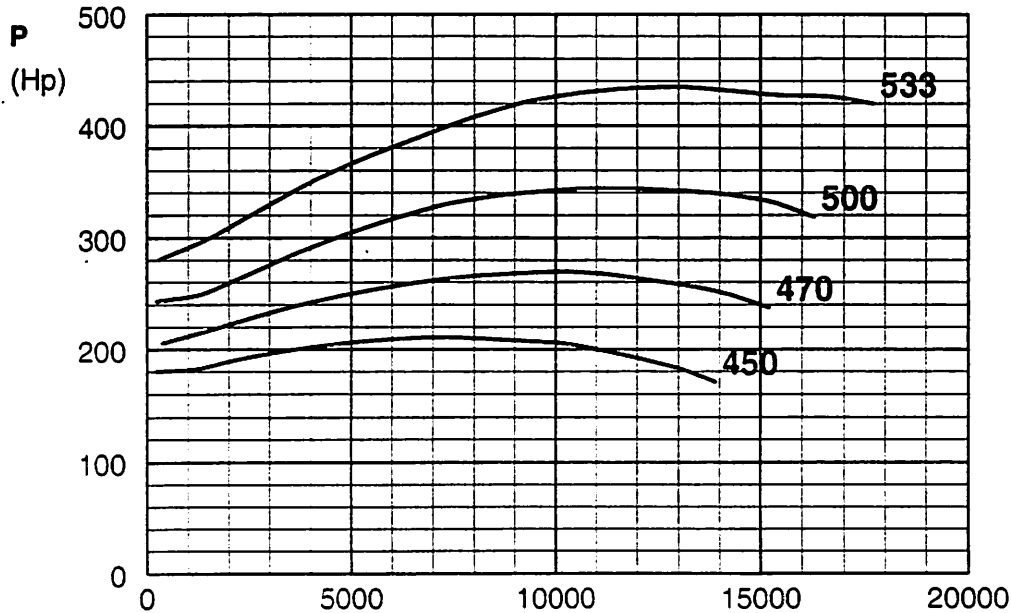
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Version 01> / en / 920922 / Replaces 870301 / K00875

APT52-16 (16x16-20)
Impeller 283895 OPEN B3.74 Z6
1190 rpm



NPSHr (ft)	IMPELLER DIA		
	mm	in	deg
533	20.98	13	
530	20.87	13	
525	20.67	13	
520	20.47	13	
515	20.28	13	
510	20.08	13	
505	19.88	13	
500	19.68	13	
495	19.49	14	
490	19.29	14	
485	19.09	15	
480	18.90	15	
475	18.70	16	
470	18.50	17	
465	18.31	18	
460	18.11	19	
455	17.91	21	
450	17.72	22	



Q (USGPM)

SERVICE:	Pulper Dilution P.
EQUIP. No.:	310-1140-053 / M94015
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 31
DATE / REV.:	OCT-16-2000 / R. 0

FLOW (USGPM)	TDH (ft)
20120 - 12110	90.00
EFF. (%)	Power (HP)
86	300.0
NEMA PR.	NEMA FUT.
BY OWNER	BY OWNER

APT Process Pumps

Dimensional drawing P20045

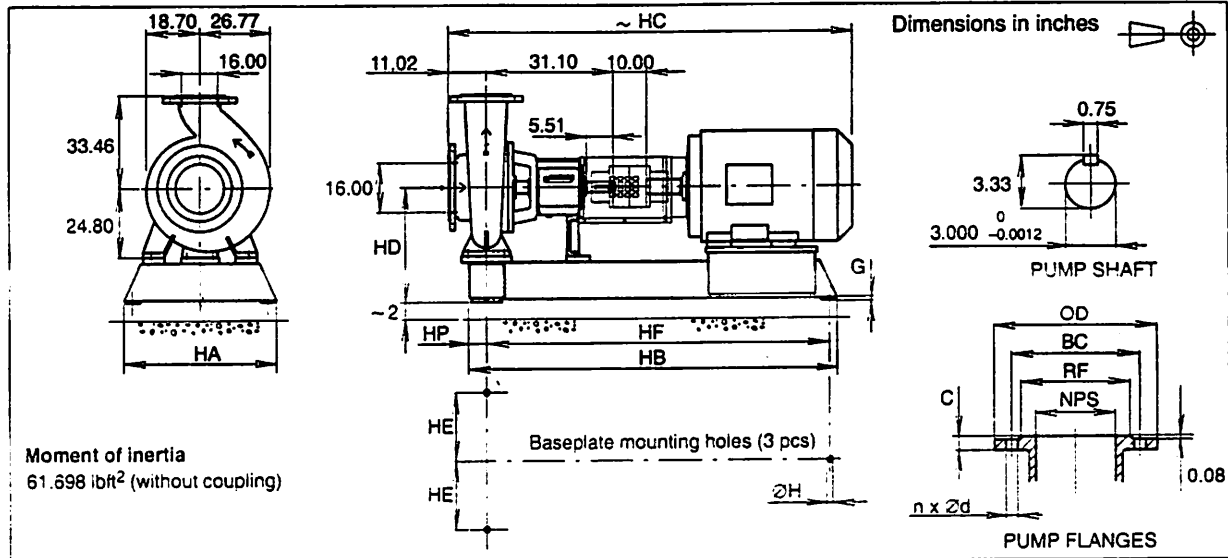


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Version 04 > / 940221 / en / P20045

APT52-16 (16x16-20)

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⁾
	(1)	(2)											
445T	509LL	449T	12	36.50	97.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3020
447T	5011LL	449T	12	36.50	100.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3110
447TS	509LS	449TS	12	36.50	98.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3020
449T	5011LL	-	12	36.50	106.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3110
449TS	509LS	-	12	36.50	103.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	3020

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⁾
16.00	23.82	18.98	1.44	21.25	1.12	16	21.25	1.12	16

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

FOR REFERENCE

SERVICE:	Pulper Division P.
EQUIP. No.:	310-1140-053 / M94015
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 31
HP / RPM / FRAME:	278.0 / 1190 / BY OWNER

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

5010 LS

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 HEADERS DIVISION

SERVICE:	Pumper Dittusion P.
EQUIP. No.:	310-1140-053 / M94015
CUST. P.O. No.:	445014
MODEL / SIZE:	APT52-16 / 16x16-20
API-C JOB No.:	CAE2000 075 31

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, PULPERS DILUTION

SERVICE:	Pulper Dilution P.
EQUIP. No.:	310-1140-053 / M94015
CUST. P.O. No.:	445014
MODEL / SPEED:	APT52-16 / 1190
APT-C JOB No.:	CAE2000 075 31