

SULZER**SALES ACKNOWLEDGEMENT**

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 # 037	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
		Equipment Number 310-1140-065/M94436		
		Serial Number	Currency USD	Net Amount 2592.00
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		
		Way of Delivery Truck		Onsite Date 02/16/2001
Marks and Tagging PUMP, H.D. CLEANERS W.W.BOOSTER 310-1140-065 / M94436 445014 4121001112 CAE2000 075 37		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT11-2	N.Am. Pump Size 3X2-8	Casing Material A890 3A	Consistency 0.01 % BD	Pumped liquid WHITE WATER
Capacity Q 350 USGPM	Head H 170 ft	NPSH av 86 ft	NPSH req 15.6 ft	pH 7-9
Capacity in alternative unit 63 %	Efficiency 63 %	Temperature 125 F	Dimensional drawing P20015	Characteristic curve K00742
Impeller Type Open	Impeller No. 283869	Impeller diameter 200 mm	Pump power P 25.9 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 286TS	Power 30 HP	Rotational Speed 3600 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 324TS
Frequency 60 Hz	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:

SALES ACKNOWLEDGEMENT

SULZER

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Remarks Continued

 MUST BE PROVIDED SIX (6) WEEKS PRIOR TO DELIVERY
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 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
 =====

For 3, 2 weeks Delivery Pump no. 310-1140-031

PRODUCT SPECIFICATION	Description APT11-2 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 COOSA PINES, AL 35044-0555 UNITED STATES Cust. order # 445014 Cust. PO Line # ZOR Country code US
Customer ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-065/M94436	

PROCESS DATA

Mill	13	Capacity Q	350 USGPM
Process	270	Head H	170 ft
Application	H.D. CLEANERS	Characteristic curve	K00742
Pumped liquid	WHITE WATER	Pump power P	25.9 HP
Temperature	125 F	Motor power	30 HP
pH	7-9	Efficiency	63 %
Consistency	0.01 % BD	Pump rotational speed	3500 RPM
Min head on suction side	60 (PRESSURE) ft	Variable speed	No
Max head on suction side	115 (STATIC) ft	NPSH req	15.6 ft
NPSH av	86 ft		

PUMP

Supplier	Easley
Dimensional drawing	P20015
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT11-2
Impeller Type	Open
Impeller No.	283869
Impeller diameter	200 mm
Impeller turning angle	0 °
Impeller max.diameter	210 mm
Flange Drilling	ASME B16.5 CLASS 150

MODEL 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

Motor Supplied by	Customer	Rotational Speed	3600 RPM
Motor IEC/NEMA code	286TS	Power	30 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	037
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT11-2	
	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	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	310-1140-065/M94436

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 324TS

MOTOR ALIGNMENT BLOCK

ORDER REMARKS

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5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	037
H4R 2N9	Telephone	514 - 333-7760
Canada	Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description APT11-2 Serial Number Time of delivery/EXW 02/02/2001 Date printed 10/13/2000 Page 3
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P A I N T I N G

Painting E180/3-Fe Sa2 1/2 SFS4962
 Color Shade RAL-5019

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 Saint-Laurent, Québec
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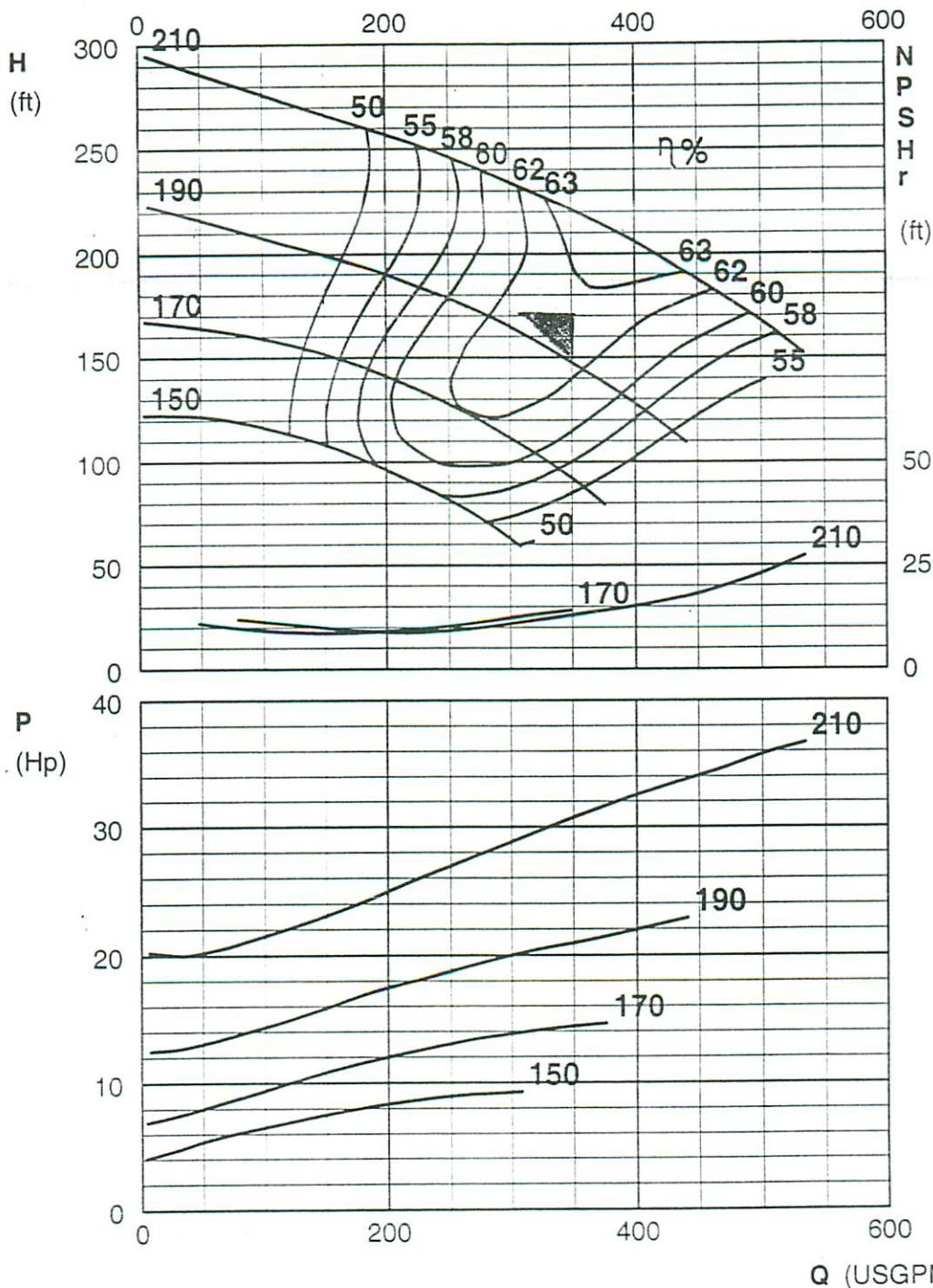
APT Process pumps Characteristic curve K00742



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Version 01> / en / 920625 / Replaces 910311 / K00742

APT11-2 (3x2-8)
Impeller 283869 OPEN B0.53 Z3
3500 rpm



IMPELLER DIA		
mm	in	deg
210	8.3	0
205	8.1	0
200	7.9	0
195	7.7	0
190	7.5	0
185	7.3	0
180	7.1	0
175	6.9	0
170	6.7	0
165	6.5	0
160	6.3	0
155	6.1	0
150	5.9	0

SERVICE:	HD Cleaners WW Booster P.	FLOW (USGPM)	TDH (ft)
EQUIP. No.:	310-1140-065 / M94436	350.00	170.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 37	63	30.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		286TS	324TS

APT Process Pumps Dimensional drawing P20015

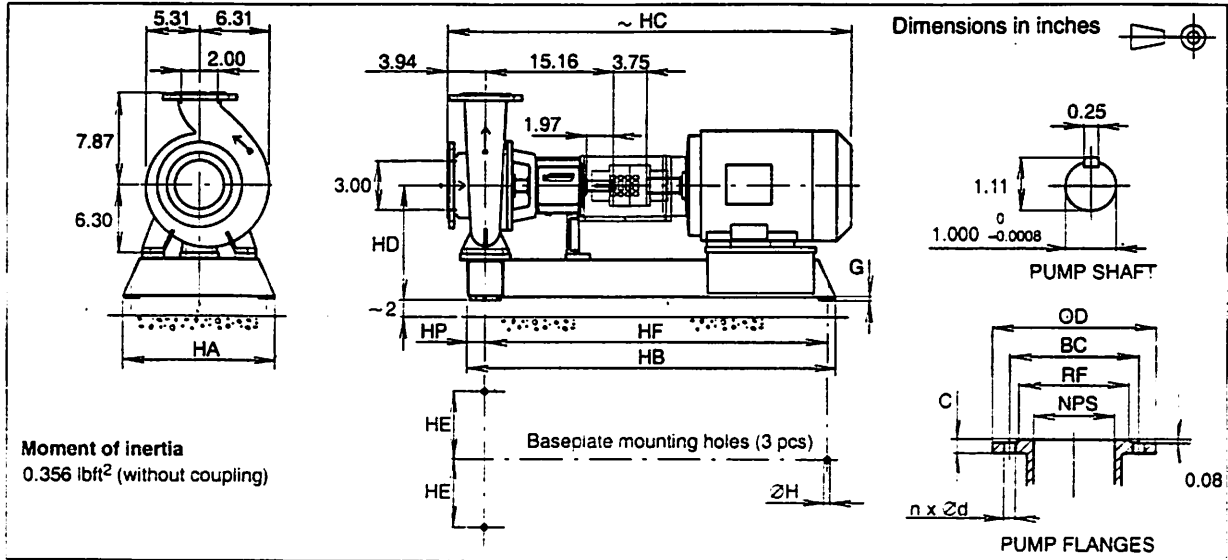


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Version 04 > / 940221 / en / P20015

APT11-2 (3x2-8)

Steel baseplate for 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)
143T	182T	145T	1	10.80	35.50	36.00	1.50	33.50	15.25	6.50	0.75	0.43	220
145T	182T	-	1	10.80	36.50	36.00	1.50	33.50	15.25	6.50	0.75	0.43	220
182T	213T	184T	1	10.80	37.50	36.00	1.50	33.50	15.25	6.50	0.75	0.43	225
184T	213T	-	1	10.80	38.50	36.00	1.50	33.50	15.25	6.50	0.75	0.43	225
213T	254T	215T	2	11.80	41.00	44.75	2.00	41.25	19.75	8.50	0.75	0.44	250
215T	254T	-	2	11.80	42.50	44.75	2.00	41.25	19.75	8.50	0.75	0.44	250
254T	284T	256T	2	11.80	45.50	44.75	2.00	41.25	19.75	8.50	0.75	0.44	270
256T	284T	-	2	11.80	47.00	44.75	2.00	41.25	19.75	8.50	0.75	0.44	270
284TS	324TS	286TS	2	12.70	47.50	44.75	2.00	41.25	19.75	8.50	0.75	0.44	275
286TS	324TS	-	2	12.70	49.00	44.75	2.00	41.25	19.75	8.50	0.75	0.44	275
324TS	364TS	326TS	3	15.05	50.00	52.50	2.00	49.25	24.75	11.00	0.75	0.44	310
326TS	364TS	-	3	15.05	51.50	52.50	2.00	49.25	24.75	11.00	0.75	0.44	310
364TS	405TS	365TS	3	15.05	54.00	52.50	2.00	49.25	24.75	11.00	0.75	0.44	325

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⁾
2.00	6.50	3.94	0.75	4.75	0.75	4	4.75	0.75	4
3.00	7.87	5.12	0.94	6.00	0.75	4	6.00	0.75	4

- 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.

SERVICE:	HD Cleaners WW Booster P.
EQUIP. No.:	310-1140-065 / M94436
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 37
HP / RPM / FRAME:	26.0 / 3500 / 286TS

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

APT Process Pumps

Design data



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Version 09 > / 960801 / en / N1283 / Page 1 (7)

Table 1 Bearing unit size 1

Pump type	11-1A	11-1B	11-2
Shaft diameters			
At impeller		0.906	
Under sleeve		1.181	
Between bearings		1.97	
At coupling		1.000	
Bearings			
Radial bearing type	NUP 307		
Thrust bearing type	2x7308 BECB		
Radial brg. life (HRS. x 10 ³) ⁽¹⁾	1000 +	1000 +	1000
Thrust brg. life (HRS. x 10 ³) ⁽¹⁾	400	600	450
Bearing span		4.21	
Shaft overhang		7.25	
Stuffing box			
Bore		2.375	
Depth		2.520	
Shaft sleeve dia.			
Packing		1.825	
Mechanical seal, general		1.375	
Mech. seal, ready-fitted ⁽²⁾		1.181	
Packing size		0.375	
No. of packing rings		4	
Lantern ring width		0.59	
Neck bush clearance		0.02	
Distance to nearest obstruction		2.56	
Wear ring clearance	0.017	0.021	0.021
Impeller			
Front clearance (open impeller)		0.020	
Back clearance		0.040	
Eye area (in ²)			
Closed	3.53	6.31	9.01
Open	3.53	6.31	9.01
Special open	-	-	-
Max. diameter solids (in)			
Closed	0.16	0.28	0.41
Open	0.31	0.47	0.63
Special open	-	-	-
Max. shaft deflection at st. box		0.002	
Casing			
Type (single or dual)	SV	SV	SV
Casing thickness (iron)	0.36	0.36	0.36
Casing thickness (steel)	0.32	0.32	0.32
Bearing unit weight (LBS)		44	
HP/100 rpm (shaft SS2324)		3	

1) Min. L10h-life, full impeller dia., max. speed, direct coupled and 50 - 100 % BEP

2) Installed on the pump shaft

PUMP, H-D. CLEANERS W.W. BOOSTER

SERVICE:	HD-Cleaners WW-Booster P.
EQUIP. No.:	310-1140-065 / M94436
CUST. P.O. No.:	445014
MODEL / SIZE:	APT11-2 / 3x2-8
APLC JOB No.:	CAE2000 075 37

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 (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 H-D. CLEANERS W.W. BOOSTER

SERVICE:	H-D. Cleaners W.W. Booster B.
EQUIP. No.:	310-1140-065 / M94436
CUST. P.O. No.:	445014
MODEL / SPEED:	APT11-2 / 3500
APT-C JOB No.:	CAE2000 076 37