

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 # 015	Order Date 10/11/2000
		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 310-1140-018/M94163		
		Serial Number	Currency USD	Net Amount 33302.00
		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 P2 FLOTATION CELL FEED 310-1140-018 / M94163 445014 4121001112 CAE2000 075 015		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT61-24	N.Am. Pump Size 24X24-28	Casing Material A890 3A	Consistency 0.8-1.13 % BD	Pumped liquid ONP/OMG REP. STOCK
Capacity Q 14887 USGPM	Head H 44 ft	NPSH av 40 ft	NPSH req 16.8 ft	pH 7-9
<i>GAS CONCENT</i> Capacity in alternative unit 67089 B/M2	Efficiency 81 %	Temperature 125 F	Dimensional drawing P20058	Characteristic curve K02321
Impeller Type Special open	Impeller No. 286876	Impeller diameter 615 mm	Pump power P 212 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 315L	Power 250 HP	Rotational Speed 720 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 355L
Frequency 60 Hz	Voltage 2.3KV	Enclosure TFC	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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	Way of Delivery Truck		Onsite Date 02/16/2001
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	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: Design from 14090 USGPM @ DESIGN HEAD TO 14090 USGPM @ 100' Head. The 3" pipe from the motor to 14090 USGPM @ 100' with 3/4" dia pipe above for motor connection.		

PRODUCT SPECIFICATION	Description		APT61-24
	Serial Number	Time of delivery/EXW	02/09/2001
	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	Equipment No	310-1140-018/M94163
Cust. PO Line #	ZOR		
Country code	US		

PROCESS DATA

Mill	13	NPSH av	40 ft
Process	270	Capacity Q	14887 USGPM
Application	FLOTAT. CELL FEED	Head H	44 ft
Pumped liquid	ONP/OMG REP. STOCK	Characteristic curve	K02321
Temperature	125 F	Pump power P	212 HP
pH	7-9	Motor power	250 HP
Consistency	0.8-1.13 % BD	Efficiency	81 %
Gas content	6 TO 8 %	Pump rotational speed	710 RPM
Min head on suction side	13.5 ft	Variable speed	No
Max head on suction side	17 (STATIC) ft	NPSH req	16.8 ft

PUMP

Supplier	Easley
Dimensional drawing	P20058
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT61-24
Impeller Type	Special open
Impeller No.	286876
Impeller diameter	615 mm
Impeller turning angle	22 °
Impeller max.diameter	700 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	720 RPM
Manufacturer	TOSHIBA	Power	250 HP

SULZER PROCESS PUMPS (CANADA) INC.	Contact Person	TONY GEDEON
5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	015
H4R 2N9	Telephone	514 - 333-7760
Canada	Telefax	514 - 333-6324 (bomcust1)

SULZER

PRODUCT SPECIFICATION	Description: APT6L24	
	Serial Number	
Customer	Time of delivery/EXW	02/09/2001
ALLIANCE FOREST PRODUCTS U.S. CORP.	Date printed	10/13/2000
17589 PLANT ROAD		Page 2
COOSA PINES, AL 35044-0555	ALLIANCE FOREST PRODUCTS U.S. CORP.	
UNITED STATES	17589 PLANT ROAD	
Cust. order # 445014	COOSA PINES, AL 35044-0555	
Cust. PO Line # ZOR	UNITED STATES	
Country code US	Equipment No	310-1140-018/M94163

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

FOUR MOTOR BELWA 355L

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.	Contact Person	TONY GEDEON
5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	015
H4R 2N9	Telephone	514 - 333-7760
Canada	Telefax	514 - 333-6324 (bomcust1)

SULZER

PRODUCT SPECIFICATION	Description APT61-24
	Serial Number Time of delivery/EXW 02/09/2001 Date printed 10/13/2000 Page 3
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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

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 015 514 - 333-7760 514 - 333-6324	(bomcust1)
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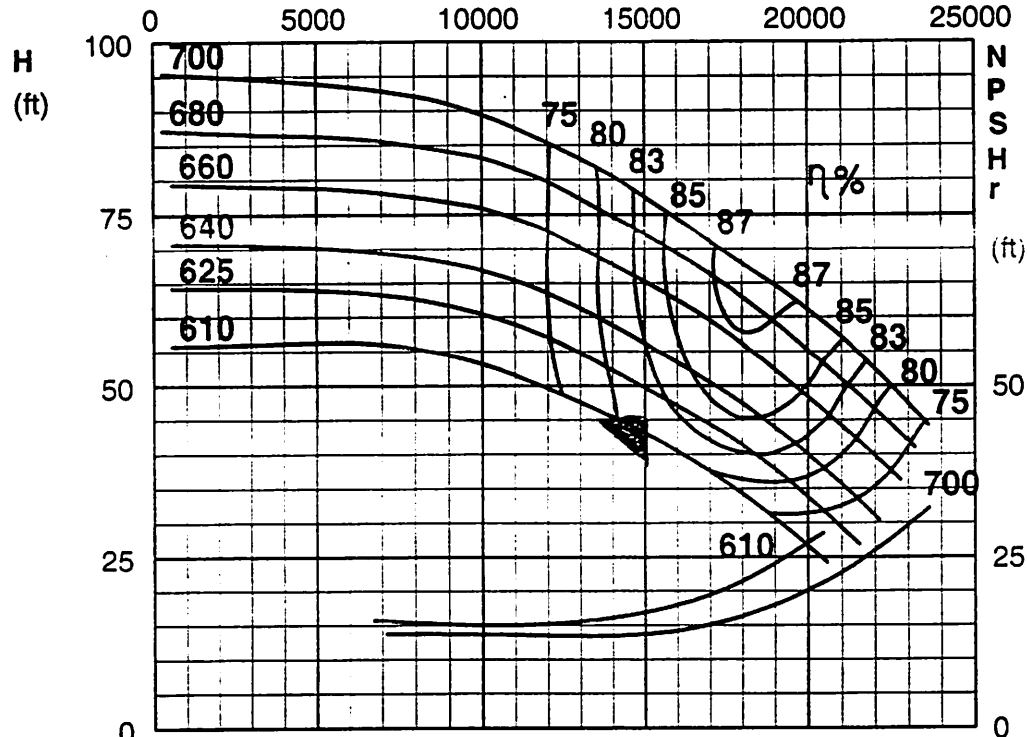
APT Process pumps Characteristic curve K02321



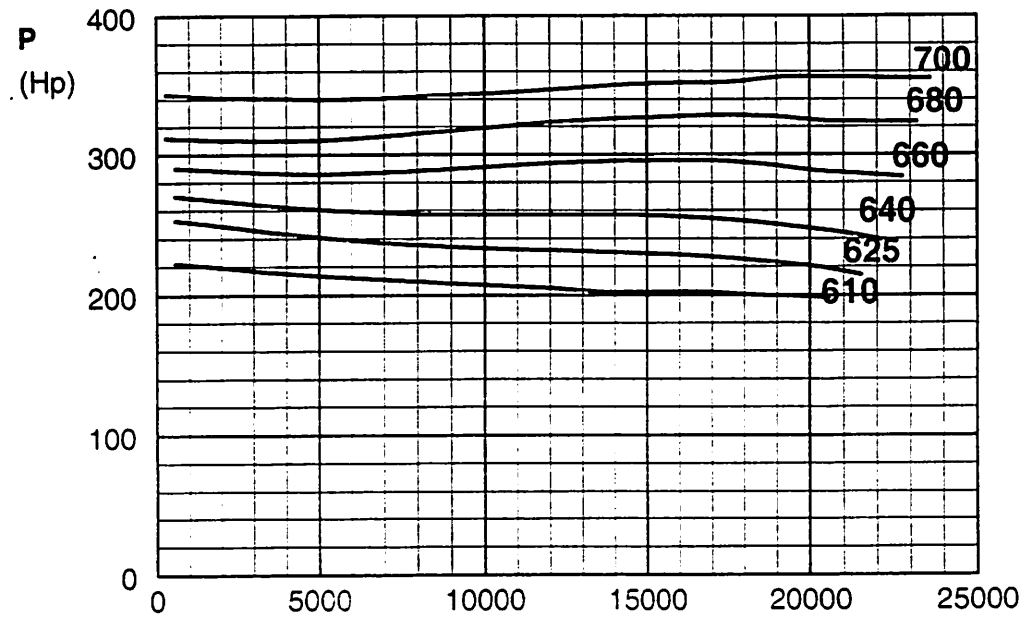
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Version 01 > / en / 920908 / Replaces 901101 / K02321

APT61-24 (24x24-28)
Impeller 286876 OPEN B5.24 Z4
710 rpm



IMPELLER DIA		
mm	in	deg
700	27.6	15
695	27.4	15
690	27.2	15
685	27.0	15
680	26.8	15
675	26.6	16
670	26.4	16
665	26.2	16
660	26.0	17
655	25.8	17
650	25.6	18
645	25.4	18
640	25.2	19
635	25.0	19
630	24.8	20
625	24.6	20
620	24.4	21
615	24.2	22
610	24.0	23



Q (USGPM)

Handwritten note: 357 USGPM

SERVICE:	B Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-018 / M94163
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 15
DATE / REV.:	OCT-16-2000 / R. 0

FLOW (USGPM)	TDH (ft)
357	44.00
EFF. (%)	Power (HP)
81	250.0
NEMA PR.	NEMA FUT.
BY OWNER	BY OWNER

APT Process Pumps Dimensional drawing P20058

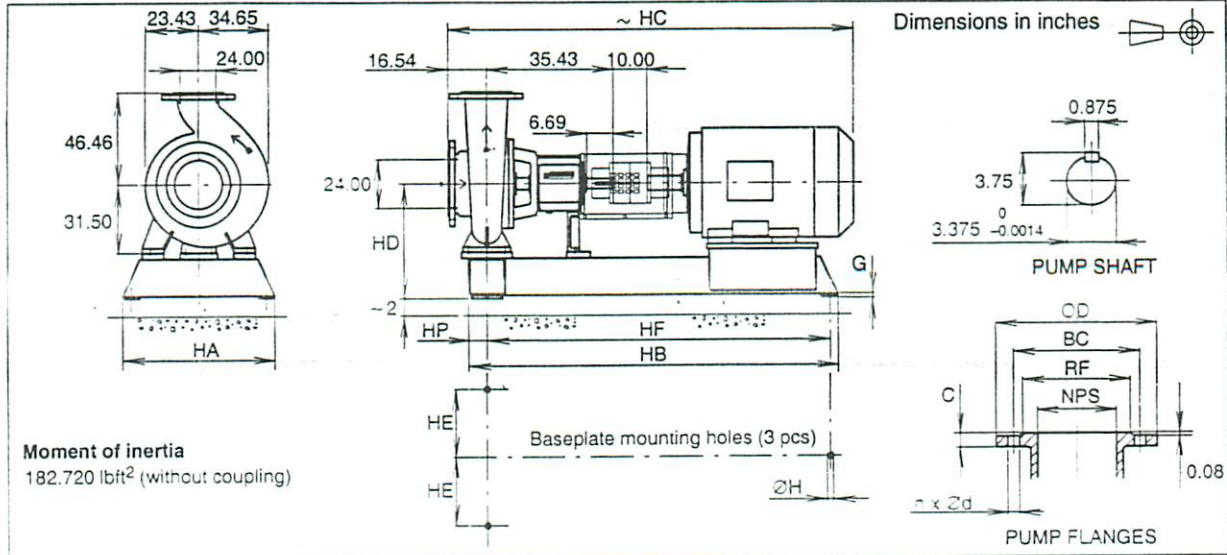


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Version 04 > / 940221 / en / P20058

APT61-24 (24x24-28)

Steel baseplate pump and motor



Moment of inertia
182.720 lbf·ft² (without coupling)

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	13	43.20	110.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5710
449T	5011LL	-	13	43.20	116.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5710
449TS	509LS	-	12	43.20	113.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	5580

DRILLING OF FLANGES

NPS	OD	RF	C	ANSI B 16.1 Class 125			ANSI B 16.5 Class 150		
				BC	d	n ⁽⁴⁾	BC	d	n ⁽⁴⁾
24.00	33.27	26.97	1.88	29.50	1.42	20	29.50	1.42	20

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

Handwritten note: 215L P2 Station Cell Feed

SERVICE:	B Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-018 / M94163
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 15
HP / RPM / FRAME:	212.0 / 710 / B OWNER

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

215L

APT Process Pumps

Design data



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Table 7 Bearing unit size 6

Pump type	61-20	61-24	62-16
Shaft diameters			
At impeller		2.953	
Under sleeve		3.543	
Between bearings		4.80	
At coupling		3.375	
Bearings			
Radial bearing type	NUP 320		
Thrust bearing type	2x7322 BECB		
Radial brg. life (HRS. x 10 ³) ⁽¹⁾	1000	500	500
Thrust brg. life (HRS. x 10 ³) ⁽¹⁾	150	100	100
Bearing span		13.20	
Shaft overhang		11.80	
Stuffing box			
Bore		5.197	
Depth		3.937	
Shaft sleeve dia.			
Packing		3.947	
Mechanical seal, general		3.750	
Mech. seal, ready-fitted ⁽²⁾		3.543	
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		-	
Impeller			
Front clearance (open impeller)		0.020	
Back clearance		0.040	
Eye area (in ²)			
Closed		-	
Open	302.0	308.0	308.0
Special open	302.0	308.0	308.0
Max. diameter solids (in)			
Closed		-	
Open	3.39	5.19	5.19
Special open	4.21	5.19	5.19
Max. shaft deflection at st. box		0.002	
Casing			
Type (single or dual)	DV	DV	DV
Casing thickness (iron)	0.95	0.95	0.95
Casing thickness (steel)	0.93	0.71	0.71
Bearing unit weight (LBS)		333	
HP/100 rpm (shaft SS2324)		120	

- 1) Min. L10h-life, full impeller dia., max. speed, direct coupled and 50 - 100 % BEP
- 2) Installed on the pump shaft

Pump, B-Line P2 Flotation Cell Feed

SERVICE:	B-Line P2 Flotation Cell Feed-P.
EQUIP. No.:	310-1140-018 / M94163
CUST. P.O. No.:	445014
MODEL / SPEED:	APT61-24 / 710
API-C JOB No.:	CAE2000 075 15

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 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 P2 FLOTATION CELL FEED

SERVICE:	B-Line P2 Flotation Cell Feed P.
EQUIP. No.:	310-1140-018 / M94163
CUST. P.O. No.:	445014
MODEL / SPEED:	APT61-24 / 710
APT-C JOB No.:	CAE2000.075 15