

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 # 014	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 310-1140-016 / M941156 M94156		
		Serial Number	Currency USD	Net Amount 25127.00
		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 PRIMARY FLOTATION CELL FEED 310-1140-016 / M941156 M94156 445014 4121001112 CAE2000 075 14		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT61-20	N.Am. Pump Size 20X20-28	Casing Material A890 3A	Consistency 1.15 % BD	Pumped liquid ONP/OMG REP. STOCK
Capacity Q 14707 USGPM	Head H 117 ft	NPSH av 26 ft	NPSH req 22.3 ft	pH 7-9
Capacity in alternative unit 370	Efficiency 84 %	Temperature 125 F	Dimensional drawing P20057	Characteristic curve K03136
Impeller Type Special open	Impeller No. 287985	Impeller diameter 665 mm	Pump power P 515 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 400-1120	Power 600 HP	Rotational Speed 900 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 400-1120
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 ===== 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:				

SULZER**SALES ACKNOWLEDGEMENT**

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Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Equipment Number 310-1140-016/M941156 M94156		
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	Way of Delivery Truck		Onsite Date 02/16/2001
		Order Contact TONY LIANE	
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		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
 =====

Pls Contact:

*For the 14400 LITRE @ 1175 RPM
 35% A/C 3/4" volume from the tank
 are indicated to 15.57 LITRE @ 1175 RPM
 1/2" 3/4" volume for 14400 LITRE @ 1175 RPM*

PRODUCT SPECIFICATION	Description APT61-20	
	Serial Number	02/02/2001
	Time of delivery/EXW	10/13/2000
Page 1	Date printed	
Customer ALLIANCE FOREST PRODUCTS U.S. CORP.	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	310-1140-016/M941156 <i>M941156</i>

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	14707 USGPM
Application	FLOTAT. CELL FEED	Head H	117 ft
Pumped liquid	ONP/OMG REP. STOCK	Characteristic curve	K03136
Temperature	125 F	Pump power P	515 HP
pH	7-9	Motor power	600 HP
Consistency	1.15 % BD	Efficiency	84 %
Gas content	3 %	Pump rotational speed	890 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	13 (STATIC) ft	NPSH req	22.3 ft

PUMP

Supplier	Easley
Dimensional drawing	P20057
Conformity	89/392/EEC machinery /US
Version	09
Pump Size	APT61-20
Impeller Type	Special open
Impeller No.	287985
Impeller diameter	665 mm
Impeller turning angle	10 °
Impeller max.diameter	700 mm
Flange Drilling	ASME B16.5 CLASS 150

IMPELLER MATERIAL AB90 3A
SHAFT MATERIAL SS 2324

Casing Material	AB90 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	900 RPM
Manufacturer	TOSHIBA	Power	600 HP

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

Contact Person	TONY GEDEON
LBU Order #	CAE2000075
LBU Position	014
Telephone	514 - 333-7760
Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION		Description: AP 161-20	
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		Serial Number Time of delivery/EXW 02/02/2001 Date printed 10/13/2000 Page 2 ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-016/M941156	

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	Contact Person LBU Order # LBU Position Telephone Telefax	TONY GEDEON CAE2000075 014 514 - 333-7760 514 - 333-6324	(borncust1)
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	Serial Number	
	Time of delivery/EXW	02/02/2001
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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	310-1140-016/M941156

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

TONY GEDEON

LBU Order #

CAE2000075

LBU Position

014

Telephone

514 - 333-7760

Telefax

514 - 333-6324

(bomcust1)

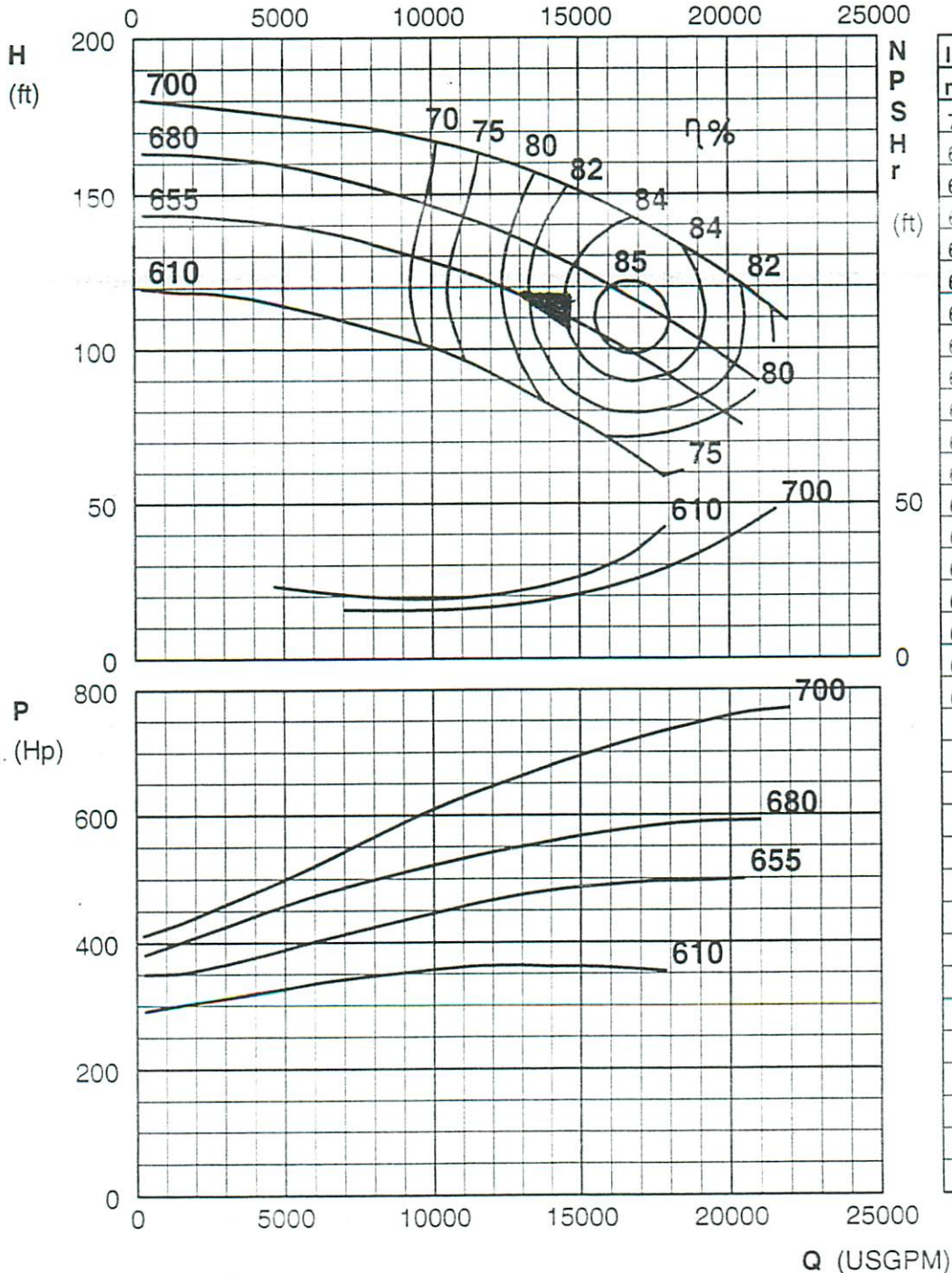
APT Process pumps Characteristic curve K03136



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Version 01> / en / 920908 / Replaces 920424 / K03136

APT61-20 (20x20-28)
Impeller 287985 OPEN B4.25 Z4
890 rpm



IMPELLER DIA		
mm	in	deg
700	27.6	7
695	27.4	7
690	27.2	8
685	27.0	8
680	26.8	9
675	26.6	9
670	26.4	10
665	26.2	10
660	26.0	11
655	25.8	11
650	25.6	12
645	25.4	12
640	25.2	13
635	25.0	13
630	24.8	14
625	24.6	14
620	24.4	15
615	24.2	16
610	24.0	17

PUMP 3-LINE PRIMARY FLOTATION CELL FEED

SERVICE:	B Line Pri. Flotation Cell Feed P.	FLOW (USGPM)	TDH (ft)
EQUIP. No.:	310-1140-016 / M941156 <i>M94156</i>	<i>14,707</i>	117.00
CUST. P.O. No.:	445014	EFF. (%)	Power (HP)
API-C JOB No.:	CAE2000 075 14	84	600.0
DATE / REV.:	OCT-16-2000 / R. 0	NEMA PR.	NEMA FUT.
		BY OWNER	BY OWNER

APT Process Pumps

Dimensional drawing P20057

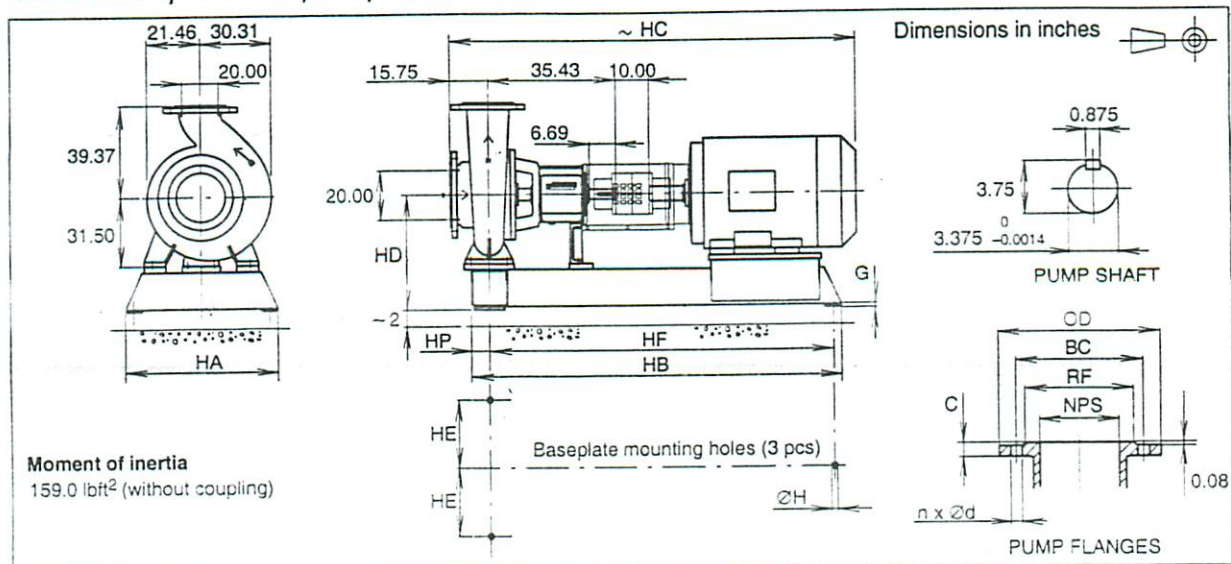


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Version 04 > / 940221 / en / P20057

APT61-20 (20x20-28)

Steel baseplate for pump and motor



DIMENSIONS

Primary motor frame	Max motor frame (1)	Max motor frame (2)	Baseplate	HD	HC	HB	HP	HF	HA	HE	H	G	Weight lbs ⁽³⁾
447T	5011LL	449T	13	43.20	109.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5160
449T	5011LL	-	13	43.20	115.00	117.25	5.00	110.00	52.75	24.00	1.50	0.69	5160
449TS	509LS	-	12	43.20	112.00	106.25	5.00	99.00	52.75	24.00	1.50	0.69	5030

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.
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 Pri. Flotation Cell Feed P.
EQUIP. No.:	310-1140-016 / M941156 - M94156
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 14
HP / RPM / FRAME:	515.0 / 890 / B1 OWNER

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

1400-1120

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		2 x 7322 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 PRIMARY

SERVICE:	B-Line Pri. Flotation Cell Feed P.
EQUIP. No.:	310-1140-016 445014 94156
CUST. P.O. No.:	445014
MODEL / SIZE:	APT61-20 / 20x20-28
API-C JOB No.:	CAE2000 075 14

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. B-LINE PRIMARY FLOTATION CELL FEED

SERVICE:	B-Line Pr. Flotation Cell Feed P.
EQUIP. No.:	310-1140-016 / M044156- M94156
CUST. P.O. No.:	445014
MODEL / SPEED:	APT61-20 / 890
API-C JOB No.:	CAE2000 075 14