

SALES ACKNOWLEDGEMENT

SULZER

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 # 043	Order Date 10/12/2000
		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 310-1140-033/M94236		
		Serial Number	Currency USD	Net Amount 9454.00
		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 01/26/2001
Marks and Tagging PUMP, A-LINE SECONDARY CLEANERS FEED 310-1140-033 / M94236 445014 4121001112 CAE2000 075 43		Order Contact TONY LIANE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size APT41-12	N.Am. Pump Size 12X12-13	Casing Material A890 3A	Consistency 0.83 % BD	Pumped liquid
Capacity Q 4891 USGPM	Head H 105 ft	NPSH av 26 ft	NPSH req 14.1 ft	pH 7-9
Capacity in alternative unit	Efficiency 81 %	Temperature 125 F	Dimensional drawing P20035	Characteristic curve K00825
Impeller Type Open	Impeller No. 283885	Impeller diameter 340 mm	Pump power P 158 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 5010US	Power 200 HP	Rotational Speed 1800 RPM	Manufacturer TOSHIBA	Future motor IEC/NEMA code 5010US
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:				

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Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Equipment Number 310-1140-033/M94236		
Marks and Tagging PUMP, A-LINE SECONDARY CLEANERS FEED 310-1140-033 / M94236 445014 4121001112 CAE2000 075 43	Serial Number	Currency USD	Net Amount 9454.00
	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
	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
 =====

PRODUCT SPECIFICATION	Description	APT41-12
	Serial Number	
	Time of delivery/EXW	01/19/2001
	Date printed	10/16/2000
Customer		Page 1
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	
Equipment No		310-1140-033/M94236

PROCESS DATA

Mill	13	Capacity Q	4891 USGPM
Process	270	Head H	105 ft
Application	CLEANERS FEED	Characteristic curve	K00825
Temperature	125 F	Pump power P	158 HP
pH	7-9	Motor power	200 HP
Consistency	0.83 % BD	Efficiency	81 %
Gas content	1 %	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	14.1 ft
NPSH av	26 ft		

PUMP

Supplier	Easley	Casing Material	A890 3A
Dimensional drawing	P20035	Gasket Material	Klinger SIL-4430
Conformity	89/392/EEC machinery /US	O-ring Material	NBR
Version	09	Bearing Unit Lubrication	Oil lubrication
Pump Size	APT41-12	Bearing unit model	01 SS2324/NotSpec
Impeller Type	Open	Constant level oiler 638	Yes
Impeller No.	283885	Shaft Seal Fitting	P02
Impeller diameter	340 mm	Customer documents lang./q	EN/04
Impeller turning angle	19 °	Component documents lang./	EN/04
Impeller max.diameter	348 mm	Special parts	METCO 16 SLEEVE
Flange Drilling	ASME B16.5 CLASS 150		

DRIVE MOTOR For information Only

Motor Supplied by	Customer	Rotational Speed	1800 RPM
Manufacturer	TOSHIBA	Power	200 HP

SULZER PROCESS PUMPS (CANADA) INC.	Contact Person	TONY GEDEON
5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	043
H4R 2N9	Telephone	514 - 333-7760
Canada	Telefax	514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT41-12	
	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	17589 PLANT ROAD		
COOSA PINES, AL 35044-0555	COOSA PINES, AL 35044-0555		
UNITED STATES	UNITED STATES		
Cust. order #	445014		
Cust. PO Line #	ZCR		
Country code	US	Equipment No	310-1140-033/M94236

COUPLING

Coupling Type Rex-Cmega ES

COUPLING GUARD

Coupling Guard material S-2 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	TONY GEDEON
LBU Order #	CAE2000075
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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. CCRP.		
17589 PLANT ROAD		
COOSA PINES, AL 35044-0555		
UNITED STATES		
Equipment No		310-1140-033/M94236

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

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MOTOR MOUNTING:

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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.	Contact Person	TONY GEDEON
5055, rue Levy	LBU Order #	CAE2000075
Saint-Laurent, Québec	LBU Position	043
H4R 2N9	Telephone	514 - 333-7760
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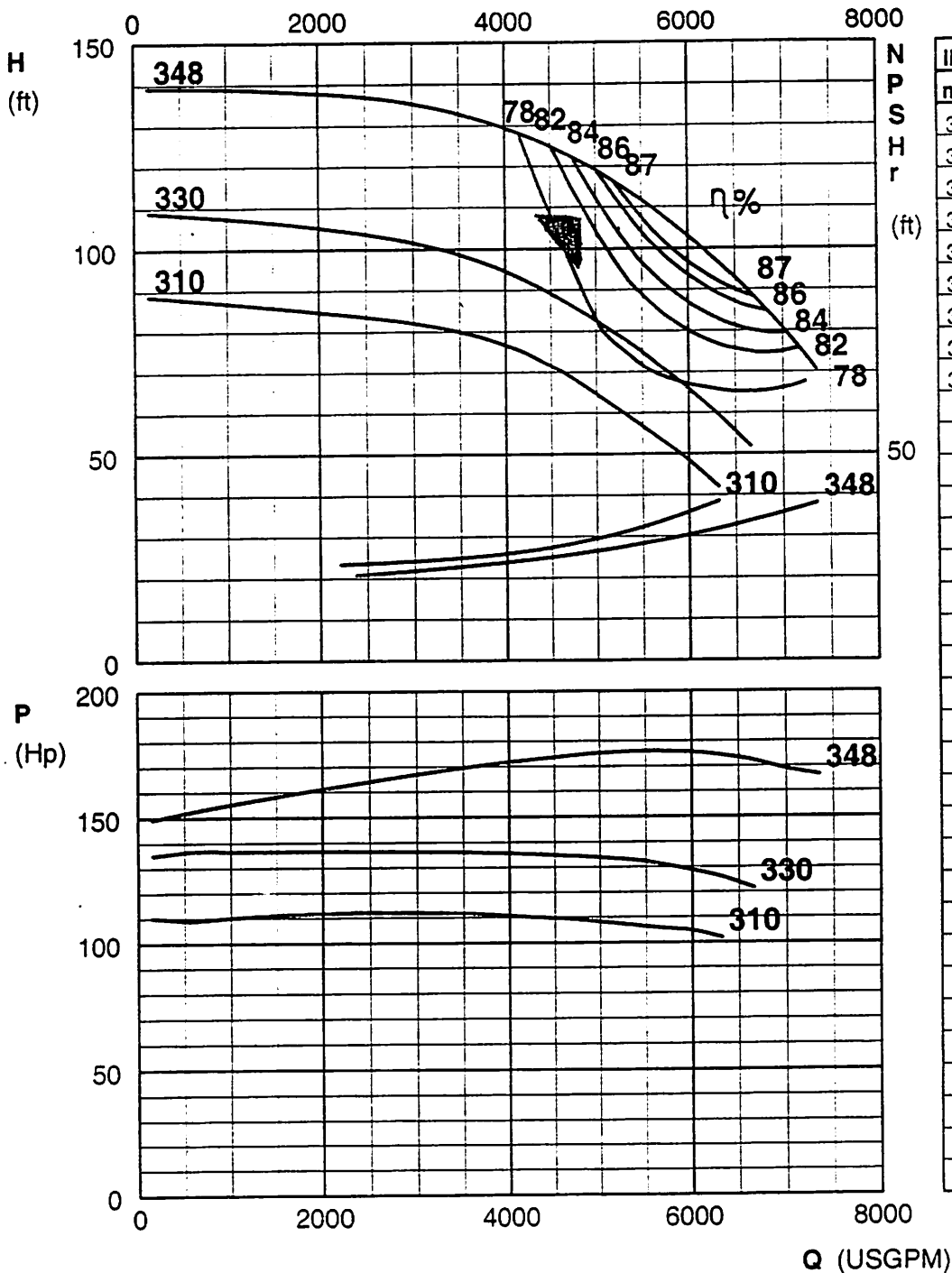
APT Process pumps Characteristic curve K00825



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Version 01> / en / 960701 / Replaces 941004 / K00825

12x12-13
APT41-12 (300-300-250)
Impeier 283885 OPEN B2.80 Z5
1780 rpm



IMPELLER DIA		
mm	in	deg
348	13.70	17
345	13.58	18
340	13.39	19
335	13.19	20
330	12.99	21
325	12.80	22
320	12.60	23
315	12.40	24
310	12.20	25

SERVICE:	DAF Clarifiers Feed P.
EQUIP. No.:	310-1140-033 / M94236
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 43
DATE / REV.:	OCT-16-2000 / R. 0

FLOW (USGPM)	TDH (R)
4891.00	105.00
EFF. (%)	Power (HP)
81	200.0
NEMA PR.	NEMA FUT.
BY OWNER	BY OWNER

5010 US 5010 US

APT Process Pumps Dimensional drawing P20035

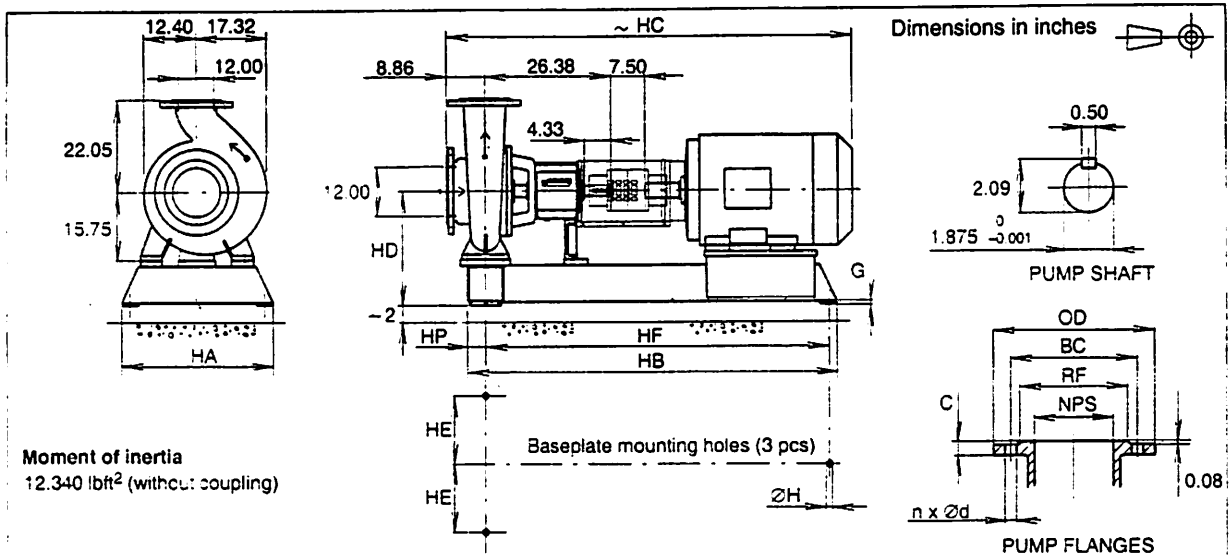


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Version 04 > / 940221 / en / P20035

APT41-12 (12x12-13)

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)
324T	364T	326T	5	23.50	71.50	68.25	3.00	63.75	28.38	12.75	1.00	0.44	1185
326T	364T	-	5	23.50	73.00	68.25	3.00	63.75	28.38	12.75	1.00	0.44	1185
364T	405T	365T	6	24.60	76.00	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1300
365T	405T	-	6	24.60	77.00	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1300
404T	444T	405T	6	24.60	80.00	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1380
405T	444T	-	6	24.60	81.50	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1380
444T	509LL	449T	8	27.60	85.50	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730
444TS	509LS	449TS	8	27.60	81.50	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730
445T	509LL	449T	8	27.60	87.50	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730
445TS	509LS	449TS	8	27.60	84.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730
447T	5011LL	449T	9	27.60	91.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	1845
447TS	509LS	449TS	8	27.60	89.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730
449T	5011LL	-	9	27.60	97.00	101.75	5.00	94.50	45.63	20.50	1.50	0.69	1845
449TS	509LS	-	8	27.60	94.00	97.00	5.00	89.75	34.63	15.00	1.50	0.69	1730

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)
12.00	18.90	14.57	1.25	17.00	1.00	12	17.00	1.00	12

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:	DAF Clarifiers Feed P.
EQUIP. No.:	310-1140-033 / M94236
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 43
HP / RPM / FRAME:	158.0 / 1780 / 84 OWNER

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

15010 US

APT Process Pumps

Design data



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Table 4 Bearing unit size 4

Pump type	41-8	41-12	42-6	42-8	43-10	43-12	44-6	44-8
Shaft diameters								
At impeller	1.772							
Under sleeve	2.362							
Between bearings	3.15							
At coupling	1.875							
Bearings								
Radial bearing type	NUP 313							
Thrust bearing type	2x7314 BECB							
Radial brg. life (HRS. x 10 ³) ⁽¹⁾	1000 +	480	200	300	180	1000 +	1000 +	150
Thrust brg. life (HRS. x 10 ³) ⁽¹⁾	500	120	430	100	70	180	220	50
Bearing span	8.74							
Shaft overhang	10.83							
Stuffing box								
Bore	3.750							
Depth	3.071							
Shaft sleeve dia.								
Packing	2.750							
Mechanical seal, general	2.625							
Mech. seal, ready-fitted ⁽²⁾	2.362							
Packing size	10.500							
No. of packing rings	4							
Lantern ring width	0.67							
Neck bush clearance	0.023							
Distance to nearest obstruction	4.21							
Wear ring clearance	0.027	0.029	0.025	0.027	0.029	0.029	0.025	0.027
Impeller								
Front clearance (open impeller)	0.020							
Back clearance	0.040							
Eye area (in ²)								
Closed	70.1	99.5	50.6	71.3	99.5	118.5	43.9	73.6
Open	70.1	99.5	50.6	71.3	99.5	118.5	43.9	73.6
Special open	70.1	99.5	53.7	77.3	108.8	118.5	55.5	77.9
Max. diameter solids (in)								
Closed	1.69	1.81	1.34	1.38	2.13	2.09	1.06	1.61
Open	1.85	2.20	1.50	1.89	2.44	2.13	1.06	1.81
Special open	2.12	2.75	1.50	1.93	2.48	2.79	1.06	1.81
Max. shaft deflection at st. box	0.002							
Casing								
Type (single or dual)	SV	SV	SV	SV	SV	DV	SV	SV
Casing thickness (iron)	0.63	0.75	0.51	0.63	0.71	0.71	0.67	0.63
Casing thickness (steel)	0.51	0.59	0.43	0.51	0.55	0.55	0.47	0.51
Bearing unit weight (LBS)	180							
HP/100 rpm (shaft SS2324)	28							

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

2) Installed on the pump shaft

PUMP A-LINE SECONDARY CLOVERS FEED

SERVICE:	DAF Otterfjord Feed P.
EQUIP. No.:	310-1140-033 / M94236
CUST. P.O. No.:	445014
MODEL / SIZE:	APT41-12 / 12x12-13
API-C JOB No.:	CAE2000 075 43

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 un					
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, A-LINE SECONDARY CLEANERS FEED

SERVICE:	BAF-Claniffs Feed P
EQUIP. No.:	310-1140-033 / M94236
CUST. P.O. No.:	445014
MODEL / SPEED:	APT41-12 / 1780
API-C JOB No.:	CAE2000 075 43