

SALES ACKNOWLEDGEMENT

SULZER

Print Date 12/22/2000

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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 # 057	Order Date 12/12/2000
		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 310-1140-057/M94443		
		Serial Number	Currency USD	Net Amount 13069.00
		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 03/16/2001
Marks and Tagging PUMP, NO. 1 SLUDGE & REJECTS 310-1140-057 / M94443 445014 4121001112 CAE2000 075 57		Order Contact SALAH ATTIE		
		Sales Contact TONY GEDEON		
		Document Requirements 4 Copies in English		
Pump Size NPT53-10	N.Am. Pump Size 10X10-21	Casing Material A890 3A	Consistency 0-2 % BD	Pumped liquid PROCESS REJECTS
Capacity Q 5000 USGPM	Head H 50 ft	NPSH av 26 ft	NPSH req 25.4 ft	pH 7-9
Temperature 125 F	Efficiency 55 %	Density	Dimensional drawing P20126	Characteristic curve K02773
Impeller Type Vortex	Impeller No. 143757	Impeller diameter 533 mm	Pump power P 114 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 449T	Power 150 HP	Rotational Speed 710 RPM	Manufacturer RELIANCE	Motor Supplied by Customer
Frequency 60 Hz	Voltage 460 V	Enclosure TEFC		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 6016 (TURQUOISE BLUE) COLOR & GUARDS IN RAL 1021 (SAFETY YELLOW) AT NO EXTRA CHARGE ===== FINAL IMPELLER TRIMS:		

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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 # 057	Order Date 12/12/2000
	Customer P.O. No. 445014		P.O Date 09/22/2000
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	Serial Number	Currency USD	Net Amount 13069.00
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Terms of Payment SPECIAL TERMS, SEE NOTE		
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Marks and Tagging PUMP, NO. 1 SLUDGE & REJECTS 310-1140-057 / M94443 445014 4121001112 CAE2000 075 57	Way of Delivery Truck		Onsite Date 03/16/2001
	Order Contact SALAH ATTIE		
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
 =====

JACKING SCREWS:

MOTOR JACKING SCREWS (SET OF 4) ARE INCLUDED IN
 THE SCOPE OF SUPPLY OF EVERY PUMP.
 =====

PRODUCT SPECIFICATION	Description	NPT53-10	
	Serial Number		
	Time of delivery/EXW	03/16/2001	
	Date printed	12/22/2000	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	Equipment No	310-1140-057/M94443

PROCESS DATA

Mill	11	Capacity Q	5000 USGPM
Process	270	Head H	50 ft
Application	SLUDGE & REJECTS	Characteristic curve	K02773
Pumped liquid	PROCESS REJECTS	Pump power P	114 HP
Temperature	125 F	Motor power	150 HP
pH	7-9	Efficiency	55 %
Consistency	0-2 % BD	Pump rotational speed	710 RPM
Min head on suction side	1 ft	Variable speed	No
Max head on suction side	13 (STATIC) ft	NPSH req	25.4 ft
NPSH av	26 ft		

PUMP

Supplier	Easley	Casing Material	A890 3A
Dimensional drawing	P20126	Gasket Material	Klinger SIL-4430
Conformity	89/392/EEC machinery /US	O-ring Material	NBR
Version	09	Bearing Unit Lubrication	Oil lubrication
Pump Size	NPT53-10	Bearing unit model	01 52/33/NoSS/NotSpec
Impeller Type	Vortex	Constant level oiler 638	Yes
Impeller No.	143757	Shaft Seal Fitting	P02
Impeller diameter	533 mm	Customer documents lang./q	EN/04
Impeller max.diameter	533 mm	Component documents lang./	EN/04
Flange Drilling	ASME B16.5 CLASS 150	Special parts	METCO 16 SLEEVE

DRIVE MOTOR

Motor Supplied by	Customer	Frequency	60 Hz
Motor IEC/NEMA code	449T	Voltage	460 V
Manufacturer	RELIANCE	Enclosure	TEFC
Rotational Speed	710 RPM	Motor mounting	IPU production unit
Power	150 HP		

SULZER PROCESS PUMPS (CANADA) INC.

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

Contact Person	TONY GEDEON	
LBU Order #	CAE2000075	
LBU Position	057	
Telephone	514 - 333-7760	
Telefax	514 - 333-6324	(bomcust1)

PRODUCT SPECIFICATION	Description	NPT53-10	
	Serial Number		
	Time of delivery/EXW	03/16/2001	
	Date printed	12/22/2000	Page 2
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	Equipment No	310-1140-057/M94443

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
Future motor IEC/NEMA code 449T

D R I P P A N

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

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

SULZER PROCESS PUMPS (CANADA) INC.	Contact Person	TONY GEDEON	
5055, rue Levy	LBU Order #	CAE2000075	
Saint-Laurent, Québec	LBU Position	057	
H4R 2N9	Telephone	514 - 333-7760	
Canada	Telefax	514 - 333-6324	(bomcust1)

PRODUCT SPECIFICATION	Description	NPT53-10	
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	Date printed	12/22/2000	Page 3
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	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-057/M94443		

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 6016 (TURQUOISE 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:

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

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MOTOR JACKING SCREWS (SET OF 4) ARE INCLUDED IN

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 057 514 - 333-7760 514 - 333-6324	(bomcust1)
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PRODUCT SPECIFICATION	Description	NPT53-10	
	Serial Number		
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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		
	ALLIANCE FOREST PRODUCTS U.S. CORP.		
	17589 PLANT ROAD		
	COOSA PINES, AL 35044-0555		
	UNITED STATES		
	Equipment No	310-1140-057/M94443	

THE SCOPE OF SUPPLY OF EVERY PUMP.

=====

P A I N T I N G

Painting E180/3-Fe Sa2 1/2 SFS4962
 Color Shade RAL-6016

SULZER PROCESS PUMPS (CANADA) INC.	Contact Person	TONY GEDEON	
5055, rue Levy	LBU Order #	CAE2000075	
Saint-Laurent, Québec	LBU Position	057	
H4R 2N9	Telephone	514 - 333-7760	
Canada	Telefax	514 - 333-6324	(bomcust1)

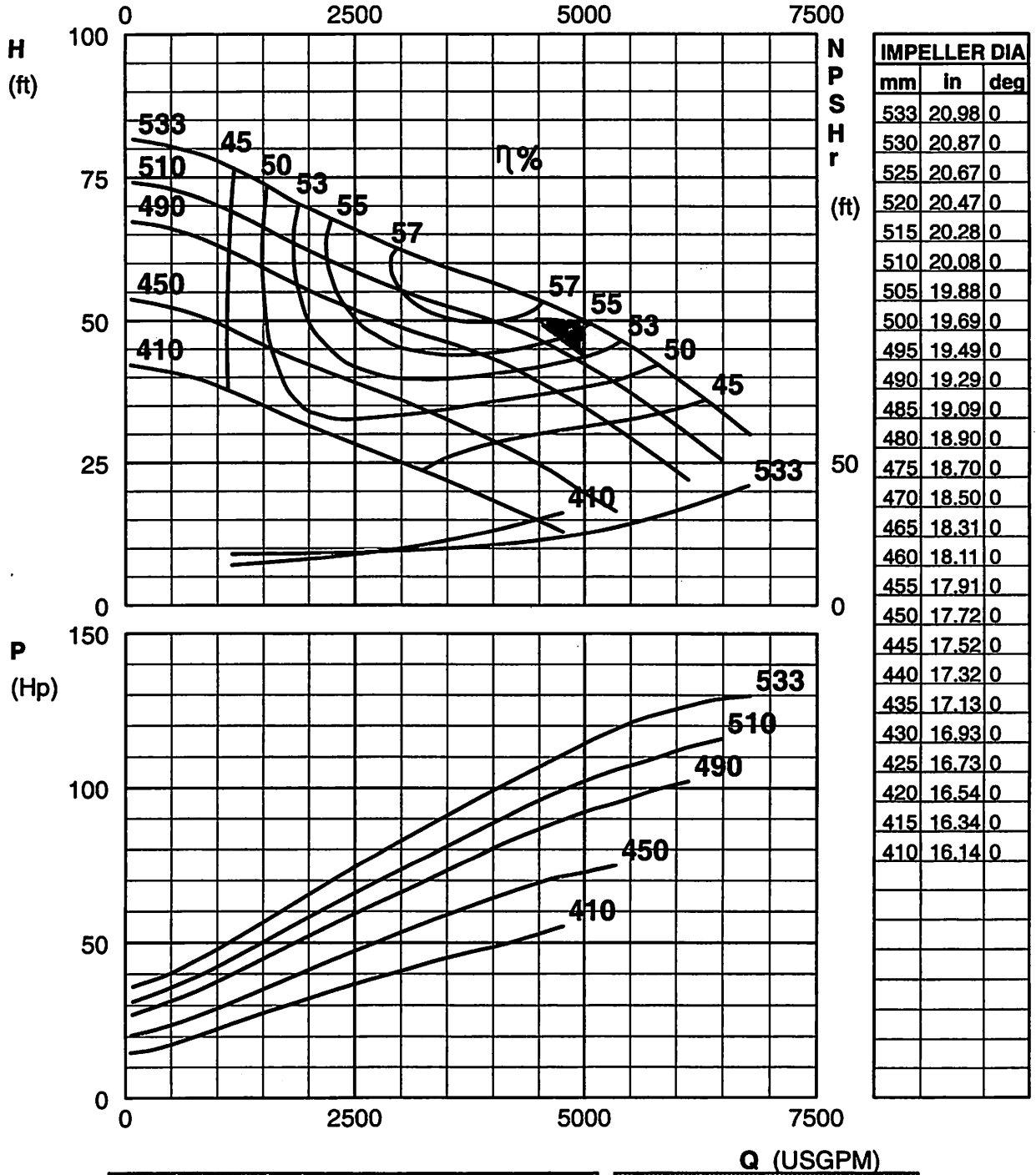
NPT Non-clogging pumps Characteristic curve K02773



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Version 01> / en / 920911 / Replaces 900921 / K02773

NPT53-10 (10x10-21)
Impeller 143757 VORTEX B2.60 Z9
710 rpm



SERVICE:	PUMP, NO. 1 SLUDGE & REJECTS
EQUIP. No.:	310-1140-067 / M94443
CUST. P.O. No.:	445014
SULZER JOB No.:	CAE2000 076 67
DATE/REV.:	JAN-03-2001 / R. 0

FLOW (USGPM)	TDR (ft)
6000.00	60.00
EFF. (%)	Power (BHP)
66	114.0
NEMA FL	NEMA FT
449T	449T

NPT Non-clogging Pumps

Dimensional drawing P20126

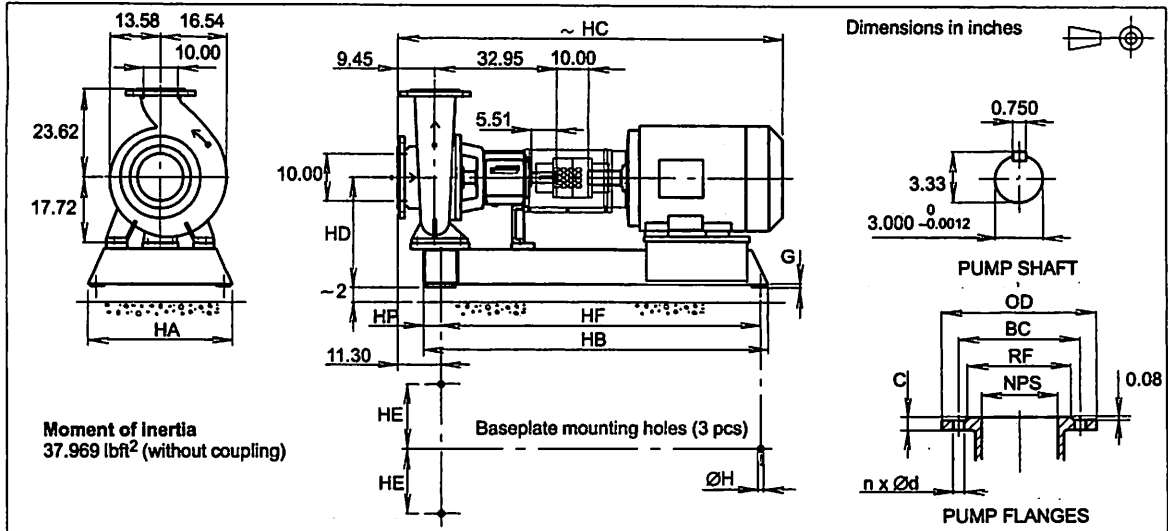


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Version 04 > / 940412 / en / P20126

NPT53-10 (10x10-21)

Steel baseplate for 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)											
365T	405T	-	6	26.55	86.43	77.00	3.50	72.00	28.75	13.00	1.25	0.56	1845
404T	444T	405T	7	26.55	89.43	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1955
405T	444T	-	7	26.55	90.93	85.00	3.50	80.00	32.63	15.00	1.25	0.56	1955
444T	509LL	449T	9	29.55	94.93	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2335
445T	509LL	449T	9	29.55	96.93	101.75	5.00	94.50	45.63	20.50	1.50	0.69	2335
447T	5011LL	449T	10	29.55	100.43	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2445
447TS	509LS	449TS	8	29.55	98.43	97.00	5.00	89.75	34.63	15.00	1.50	0.69	2295
449T	5011LL	-	10	29.55	106.43	112.25	5.00	105.00	45.63	20.50	1.50	0.69	2445
449TS	509LS	-	8	29.55	103.43	97.00	5.00	89.75	34.63	15.00	1.50	0.69	2295

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⁾	
10.00	16.93	12.60	1.19	14.25	1.00	12	14.25	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.

SERVICE:	PUMP, NO. 1 SLUDGE & REJECTS
EQUIP. No.:	310-1140-067 / M94443
CUST. P.O. No.:	445014
SLITZER JOB No.:	CAE2000 076 57
HP / RPM / FRAME:	150.0 / 710 / 449T

CERTIFIED FOR CONSTRUCTION	
DATE / REV.:	JAN-03-2001 / R. 0
SIGNED:	<i>S. White</i>



2 Bearing types and lubrication connections

Table 1 Bearing units and bearing types

Bearing type		Bearing unit size	Pump size	Pump types
Inboard	Outboard			
NUP 307	2 × 7308 BECB	1	11-	APP/APT, ARP/ART, ASP/AST
NUP 309	2 × 7310 BECB	2	21-	APP/APT, ARP/ART, NPP/NPT, ASP/AST, WPP/WPT
			22-	APP/APT, ARP/ART, NPP/NPT, ASP/AST, WPP/WPT
			23-	APP/APT, ARP/ART, ASP/AST
NUP 311	2 × 7312 BECB	3	31-	APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT
			32-	APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT, ASP/AST, WPP/WPT
			33-	APP/APT, ARP/ART, ASP/AST, NPP/NPT, WPP/WPT
NUP 313	2 × 7314 BECB	4	41-	APP/APT, ARP/ART, ASP/AST, EPP/EPT
			42-	APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT
			43-	APP/APT, ARP/ART, ASP/AST, EPP/EPT
			44-	APP/APT, ARP/ART, ASP/AST, NPP/NPT, WPP/WPT
NUP 317	2 × 7318 BECB	5	51-	APP/APT, ARP/ART, ASP/AST
			52-	APP/APT, ARP/ART, ASP/AST, EPP/EPT
			53-	APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT, WPP/WPT
			54-	APP/APT, ARP/ART, ASP/AST, EPP/EPT
			55-	APP/APT, ARP/ART, ASP/AST, EPP/EPT, WPP/WPT
			62-	APP/APT, ARP/ART
NUP 320	2 × 7322 BECB	6		APP/APT, ARP/ART

SERVICE:	PUMP, NO. 1 SLUDGE & REJECTS
EQUIP. No.:	310-1140-057 / M94443
CUST. P.O. No.:	445014
MODEL / SIZE:	NP163-10 / 10x10x21
SUPPLIER JOB No.:	CAE2000 076 57

NPT Non-clogging Pumps

Shaft sealing



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Version 09 > / 960601 / en / N12623

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, slurries
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			
2	3	4	5
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

Pressure behind the impeller can approximately be calculated from the formula

$$p_T = p_0 + 0.7 \times 10^{-6} \rho g H - 1.1103 \times 10^{-9} \rho n^2 \left[(d_2/2)^2 - (d_b/2)^2 \right] - 4.4413 \times 10^{-9} \rho n^2 \left[(d_b/2)^2 - (d_5/2)^2 \right] \text{ MPa}$$

Where

- p_T = pressure behind the impeller (MPa)
- p₀ = inlet pressure (MPa)
- ρ = density of the liquid being pumped (kg/m³)
- H = pump head at the operating point in question (m)
- n = rotating speed of the pump (r/min)
- d₂ = impeller back plate diameter (m)
- d_b = impeller back vane diameter (m)
- d₅ = impeller hub diameter is in bearing unit no. 2 0.05 m, in bearing unit no. 3 0.06 m, and in bearing unit no. 4 0.07 m.

Atmospheric pressure used as reference pressure = 0 MPa.

SERVICE:	PUMP, NO. 1 SLUDGE & REJECTS
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MODEL / SPEED:	NPT63-10 / 710
SULZER JOB No.:	CAE2000 076 67