

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 # 058	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 310-1140-058/M94444		
		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		
		Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
Marks and Tagging PUMP, NO. 2 SLUDGE & REJECTS 310-1140-058 / M94444 445014 4121001112 CAE2000 075 58		Way of Delivery Truck		Onsite Date 03/30/2001
		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 RELANCE	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:

SALES ACKNOWLEDGEMENT

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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
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	310-1140-058/M94444

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 058
Telephone 514 - 333-7760

Telefax 514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	NPT53-10	
	Serial Number		
	Time of delivery/EXW	03/16/2001	
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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 310-1140-058/M94444		

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 449T

D R I P P A N

MOTOR ALIGNMENT BLOCK

ORDER REMARKS

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FOR NON-MENA MOTORS, FINAL PRICES ARE SUBJECT TO

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 058 514 - 333-7760 514 - 333-6324 (bomcust1)
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CONFIRMATION AFTER RECEIPT OF CERTIFIED MOTOR PRINTS

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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

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PAINTING:

SULZER STANDARD FACTORY APPLIED PAINTING WITH THE RAL 6016 (TURQUOISE BLUE) COLOR & GUARDS IN RAL 1021 (SAFETY YELLOW) AT NO EXTRA CHARGE

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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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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 058 514 - 333-7760 514 - 333-6324	(bomcust1)
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THE SCOPE OF SUPPLY OF EVERY PUMP.

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PAINTING

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

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

Contact Person	TONY GEDEON	
LBU Order #	CAE2000075	
LBU Position	058	
Telephone	514 - 333-7760	
Telefax	514 - 333-6324	(bomcust1)

AHLSTROM

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

[illegible]

SERVICE:	PUMP, NO. 2 SLUDGE & REJECTS
EQUIP. No.:	310-1140-068 / M94444
CUST. P.O. No.:	445014
SULZER JOB No.:	CAE2000 076 68
DATE / REV.:	JAN-03-2001 / R. 0

FLOW (USGPM)	TDH (ft)
5000.00	50.00
EFF. (%)	Power (BHP)
55	114.0
NEMA FR	NEMA FDT
449T	449T

NPT Non-clogging Pumps

Dimensional drawing P20126

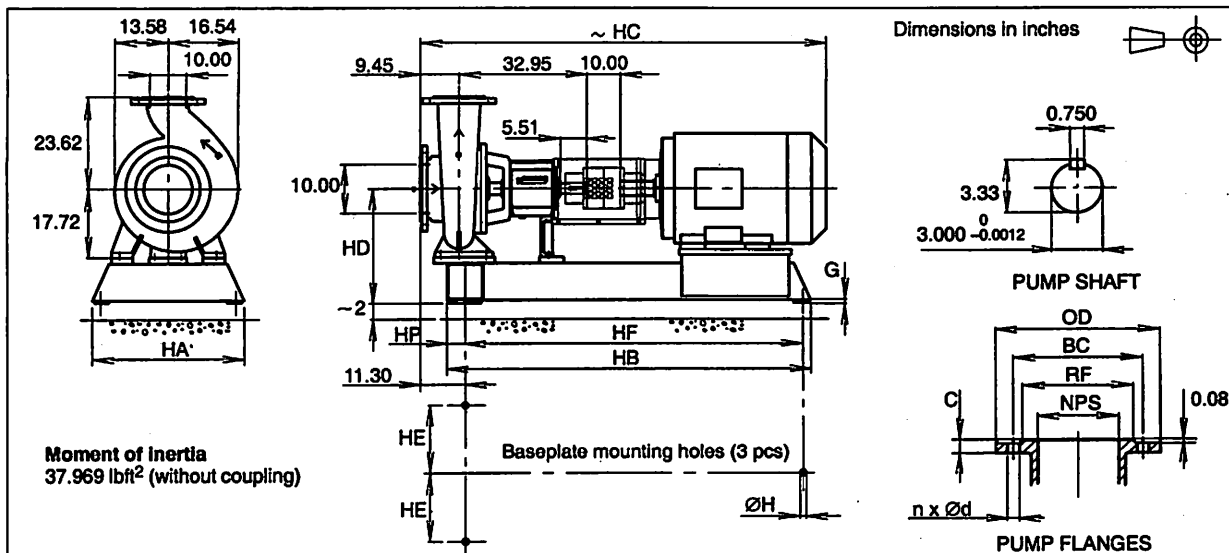


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Version 04 > / 940412 / en / P20126

NPT53-10 (10x10-21)

Steel baseplate for pump and motor



DIMENSIONS												
Primary motor frame	Max motor frame (1)	Baseplate (2)	HD	HC	HB	HP	HF	HA	HE	H	G	Weight lbs (3)
365T	405T	—	6	26.55	86.43	77.00	3.50	72.00	28.75	13.00	1.25	0.56
404T	444T	405T	7	26.55	89.43	85.00	3.50	80.00	32.63	15.00	1.25	0.56
405T	444T	—	7	26.55	90.93	85.00	3.50	80.00	32.63	15.00	1.25	0.56
444T	509LL	449T	9	29.55	94.93	101.75	5.00	94.50	45.63	20.50	1.50	0.69
445T	509LL	449T	9	29.55	96.93	101.75	5.00	94.50	45.63	20.50	1.50	0.69
447T	5011LL	449T	10	29.55	100.43	112.25	5.00	105.00	45.63	20.50	1.50	0.69
447TS	509LS	449TS	8	29.55	98.43	97.00	5.00	89.75	34.63	15.00	1.50	0.69
449T	5011LL	—	10	29.55	106.43	112.25	5.00	105.00	45.63	20.50	1.50	0.69
449TS	509LS	—	8	29.55	103.43	97.00	5.00	89.75	34.63	15.00	1.50	0.69

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

- 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:	PUMP, NO. 2 SLUDGE & REJECTS
EQUIP. No.:	310-1140-058 / M94444
CUST. P.O. No.:	445014
SULZER JOB No.:	CAE2000 076 68
HP / RPM / FRAME	150.0 / 710 / 449T

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

2 Bearing types and lubrication connections

Table 1 Bearing units and bearing types

Pump types	Pump size	Bearing unit size	B e a r i n g t y p e	
			Inboard	Outboard
APP/APT, ARP/ART, ASP/AST	11-	1	NUP 307	2×7308 BECB
APP/APT, ARP/ART, NPP/NPT, ASP/AST, WPP/WPT	21-	2	NUP 309	2×7310 BECB
APP/APT, ARP/ART, NPP/NPT, ASP/AST, WPP/WPT	22-			
APP/APT, ARP/ART, ASP/AST	23-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT	31-	3	NUP 311	2×7312 BECB
APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT, ASP/AST, WPP/WPT	32-			
APP/APT, ARP/ART, ASP/AST, NPP/NPT, WPP/WPT	33-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT	41-	4	NUP 313	2×7314 BECB
APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT	42-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT	43-			
APP/APT, ARP/ART, ASP/AST, NPP/NPT, WPP/WPT	44-			
APP/APT, ARP/ART, ASP/AST	51-	5	NUP 317	2×7318 BECB
APP/APT, ARP/ART, ASP/AST, EPP/EPT	52-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT, NPP/NPT, WPP/WPT	53-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT	54-			
APP/APT, ARP/ART, ASP/AST, EPP/EPT, WPP/WPT	55-	6	NUP 320	2×7322 BECB
APP/APT, ARP/ART, EPP/EPT, WPP/WPT	61-			
APP/APT, ARP/ART	62-			

SERVICE:	PUMP, NO. 2 SLUDGE & REJECTS
EQUIP. No.:	310-1140-058 / M94444
CUST. P.O. No.:	446014
MODEL / SIZE:	NPT63-10 / 10x10x21
SUEZER JOB No.:	CAE2000 076 68

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 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

Pressure behind the Impeller can approximately be calculated from the formula

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

Where

- p_T = pressure behind the impeller (MPa)
- p_0 = 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)
- d_2 = impeller back plate diameter (m)
- d_b = impeller back vane diameter (m)
- d_5 = 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. 2 SLUDGE & REJECTS
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CUST. P.O. No.:	445014
MODEL / SPEED:	NPT63-10 / 710
SULZER JOB No.:	CAE2000 075 58

INSPECTION AND TEST PLAN**SULZER****Melt, Cut-off, Heat Treat, Cleaning**

Log of all melt heats

WI-828,830,832,834

Chemical analysis performed on each melt

WI-208

Heat Treatment performed to documented procedure

WI-853-856

Brinell hardness tested on all cast iron casings

WI-204

Wall thickness checked and documented on all casings using ultrasonic equipment

WI-204

Welding procedure documented

WI-876-879

Welders qualified through Ahlstrom certification process

Qualification Test
Employee training records

Visual inspection of all castings

QP-4.12

Machining and Assembly

Receiving inspection

QP-4.10, WI-720

Machinists responsible for their own work. Inspection features are defined.

WI-102,135,161,230,330,334,360
QP-4.12

Inspection instruments subject to calibration program

QP-4.11
WI-650-672

Impeller balancing

ISO 1940, G6.3

Hydrostatic test for pressure containing parts

ISO 5199

Pump performance test

ISO 2548, WI-050

Paint Thickness

WI-100

Final Inspection

QP-4.10

Ahlstrom Pumps Quality Plan**Easley**
09/10/97
1 (1)**SULZER****Jimmy Bates**

Action/Event	Procedure/Work Instruction
Order Released	QP 4.9B
Molding	QP 4.9C, WI-200, WI-201
Melt/Pour	QP 4.9D, WI-202,205,206,800,826-835,851,852
Cutoff/Heat Treat	QP 4.9E, WI-203,205,800,851-856
Cleaning/Welding	QP 4.9F, WI-203-205,800,876-882
Machining	QP 4.9G, WI-102,135,161,230,344,360
Assembly, Test, Paint	QP 4.9H, WI-013,050,100,101
Inspection and Testing	QP 4.10, WI-720
Calibration	QP 4.11, WI-650-672