

SALES ACKNOWLEDGEMENT

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.	Item #	Order Date
		CAE2000075	013	10/11/2000
Bill to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Customer P.O. No		P.O. Date
		445014		09/22/2000
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555		Equipment Number		
		310-1140-015/M94151		
Marks and Tagging PUMP, A-LINE P6 FLOTATION CELL FEED 310-1140-015 / M94151 445014 4121001112 CAE2000 075 13		Serial Number	Currency	Net Amount
			USD	33302.00
		Terms of Payment		
		SPECIAL TERMS, SEE NOTE		
		Terms of Delivery		
		DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID		
		Way of Delivery		Onsite Date
		Truck		02/16/2001
		Order Contact		
		TONY LIANE		
		Sales Contact		
		TONY GEDEON		
		Document Requirements		
		4 Copies in English		
Pump Size	N.Am. Pump Size	Casing Material	Consistency	Pumped liquid
APT61-24	24X24-28	A890 3A	0.8-1.13 % BD	ONP/OMG REP. STOCK
Capacity Q	Head H	NPSH av	NPSH req	pH
15051 USGPM	44 ft	26 ft	16.8 ft	7-9
Capacity in alternative unit	Efficiency	Temperature	Dimensional drawing	Characteristic curve
6 to 8% by vol	81 %	125 F	P20058	K02321
Impeller Type	Impeller No.	Impeller diameter	Pump power P	Base plate type
Special open	286876	615 mm	212 HP	Pump Motor/Steel/Zinc
Coupling Type	Mechanical seal type	Coupling Guard material	Dynamic seal power	Shaft Seal Fitting
Rex-Omega ES		S + Z EN10025		P02
Motor IEC/NEMA code	Power	Rotational Speed	Manufacturer	Future motor IEC/NEMA code
315L	250 HP	720 RPM	TOSHIBA	355L
Frequency	Voltage	Enclosure	Motor Supplied by	Bearing Unit Lubrication
60 Hz	2.3KV	TEFC	Customer	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

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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

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**

Print Date 10/13/2000

Page 2

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 # 013	Order Date 10/11/2000						
Bill to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Customer P.O. No 445014		P.O Date 09/22/2000						
Ship to ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555	Equipment Number 310-1140-015/M94151		<table border="1"> <tr> <td>Serial Number</td> <td>Currency</td> <td>Net Amount</td> </tr> <tr> <td></td> <td>USD</td> <td>33302.00</td> </tr> </table>	Serial Number	Currency	Net Amount		USD	33302.00
Serial Number	Currency	Net Amount							
	USD	33302.00							
Marks and Tagging PUMP, A-LINE P6 FLOTATION CELL FEED 310-1140-015 / M94151 445014 4121001112 CAE2000 075 13	Terms of Payment SPECIAL TERMS, SEE NOTE								
	Terms of Delivery DDP (INCOTERMS 2000) COOSA PINES, AL, PREPAID								
	Way of Delivery Truck		Onsite Date 02/16/2001						
	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
 =====

GAS CONTENT:

*Design Flow is 14070 USGPM @ Design Head of
 37.5' H₂O 670 37.5' H₂O. Flow And Head Are
 Limited To 5051 USGPM @ 44.7' WTH 37.5'
 For motor selection.*

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		
Cust. PO Line #	ZOR		
Country code	US	Equipment No	310-1140-015/M94151

PROCESS DATA

Mill	13	NPSH av	26 ft
Process	270	Capacity Q	15051 USGPM
Application	P2 FLOTATION CELL	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	2 ft	Variable speed	No
Max head on suction side	7 (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 A 89C 3A
 SHAFT MATERIAL SS 2324
 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.
 5055, rue Levy
 Saint-Laurent, Québec
 H4R 2N9
 Canada

Contact Person TONY GEDEON
 LBU Order # CAE2000075
 LBU Position 013
 Telephone 514 - 333-7760
 Telefax 514 - 333-6324 (bomcust1)

PRODUCT SPECIFICATION	Description	APT61-24
	Serial Number	
	Time of delivery/EXW	02/09/2001
	Date printed	10/13/2000 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	ALLIANCE FOREST PRODUCTS U.S. CORP. 17589 PLANT ROAD COOSA PINES, AL 35044-0555 UNITED STATES Equipment No 310-1140-015/M94151	

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
<i>FLUXE MOTOR</i>	<i>150/MENA 355L</i>		

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
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PRICING:

FOR NON-MENA MOTORS, FINAL PRICES ARE SUBJECT TO
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 PRINTS

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INSPECTION LOCATION:

SULZER PROCESS PUMPS (CANADA) INC. 5055, rue Levy Saint-Laurent, Québec H4R 2N9 Canada	Contact Person TONY GEDEON LBU Order # CAE2000075 LBU Position 013 Telephone 514 - 333-7760 Telefax 514 - 333-6324 (bomcust1)
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AS-2728

100-100000

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 2007年12月26日 星期三

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion. The number of people aged 65 and over is expected to increase from 200 million to 400 million. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) tend to zero as $t \rightarrow \infty$ if and only if the matrix A is stable.

[illegible]

1. *Phragmites australis* (Cav.) Trin. ex Steud.

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PRODUCT SPECIFICATION		Description	APT61-24
		Serial Number	
		Time of delivery/EXW	02/09/2001
		Date printed	10/13/2000
		Page 3	
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	310-1140-015/M94151

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:

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

=====

PAINTING

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

013

Telephone

514 - 333-7760

Telefax

514 - 333-6324

(bomcust1)

AHLSTROM

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

The figure consists of two vertically stacked graphs for the 1000 Series centrifugal pump.

Top Graph: Head (H) vs. Flow Rate (Q) and Net Positive Suction Head (NPSH)

- Y-axis (Left):** Head (H) in feet (ft), ranging from 0 to 100.
- X-axis (Top):** Flow Rate (Q) in USGPM, ranging from 0 to 25,000.
- X-axis (Right):** Net Positive Suction Head (NPSH) in feet (ft), ranging from 0 to 25,000.
- Curves:**
 - Performance Curves (H vs. Q):** Labeled with flow rates: 700, 680, 660, 640, 625, 610 USGPM.
 - Efficiency Curves (η %):** Labeled with efficiency values: 75, 80, 83, 85, 87.
- Operating Range:** A shaded region indicates the recommended operating range, bounded by a vertical line at approximately 13,000 USGPM and a curve that starts at about 80 ft head and 13,000 USGPM, curving down and to the right.

Bottom Graph: Power (P) vs. Flow Rate (Q)

- Y-axis (Left):** Power (P) in Horsepower (Hp), ranging from 0 to 400.
- X-axis (Bottom):** Flow Rate (Q) in USGPM, ranging from 0 to 25,000.
- Curves:** Labeled with flow rates: 700, 680, 660, 640, 625, 610 USGPM.

[illegible]

Temp. A-Line PG Formon Ceu Fee

SERVICE:	A-Line PG Rotation Cell Feed P-
EQUIP. No.:	310-1140-015 / M94151
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 13
DATE / REV.:	OCT-16-2000 / R. 0

FLOW (USGPM)	TDH (ft)
2506.00 13,051	44.00
EFF. (%)	Power (HP)
81	250.0
NEMA PR.	NEMA FUT.
BY OWNER	BY OWNER

APT Process Pumps **Dimensional drawing P20058**

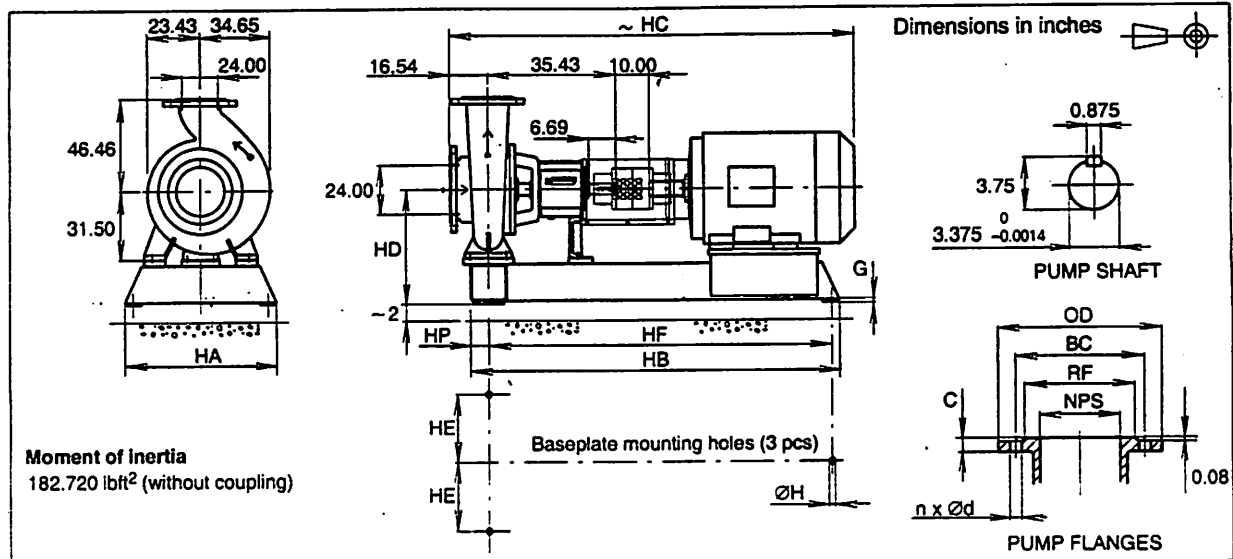


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Version 04 > / 940221 / en / P20058

APT61-24 (24x24-28)

Steel baseplate pump and motor



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									
				ANSI B 16.1 Class 125			ANSI B 16.5 Class 150		
NPS	OD	RF	C	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.	3. Weight without coupling and motor.
2. Max. NEMA motor frame with the same shaft height as primary motor.	4. Flange bolting straddles centerline.

FOR REFERENCE

PUMP, A-LINE P6 ROTATION CELL FEED

SERVICE:	A-Line P6 Rotation Cell Feed P.
EQUIP. No.:	310-1140-015 / M94151
CUST. P.O. No.:	445014
API-C JOB No.:	CAE2000 075 13
HP / RPM / FRAME:	212.0 / 710 / BY OWNER

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

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, A-LINE PG FLOTATION CELL FEED

SERVICE:	A-Line PG Flotation Cell Feed P.
EQUIP. No.:	310-1140-015 / M94151
CUST. P.O. No.:	445014
MODEL / SIZE:	APT61-24 / 24x24-28
API-C JOB No.:	CAE2000 075 13

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, A-LINE P6 FLOTATION CELL FEED

SERVICE:	A-Line P6 Flotation Cell Feed P.
EQUIP. No.:	310-1140-015 / M94151
CUST. P.O. No.:	445014
MODEL / SPEED:	APT61-24 / 710
API-C JOB No.:	CAE2000 075 13