KELLEY DRYE
COLLIER SHANNON

XCOM1187
11005671

February 12, 2007

Delivery by Hand

Ms. Margaret Doane
Deputy Director
Office of International Programs
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

RECEIVED OIP
2007 FEB 12 PM 3: 32

Attention: Mr. Stephen Dembek; Ms. Janice Owens; and Ms. Carlotta Coates

Re: Sulzer Pumps (US) Inc. – License No. XCOM1187 and Docket No. 11005671

Dear Deputy Director Doane:

On behalf of Sulzer Pumps (US) Inc. ("Sulzer US"), we filed a license application in the referenced matter recently that was received by your office on February 5, 2007. By this letter today it is requested that certain of the information in that license application be withheld from public disclosure under 10 C.F.R. § 2.390. An affidavit by Ms. Kati Babinec, who is the Secretary of Sulzer US, is attached for that purpose at Enclosure 1. Also attached at Enclosure 2 is a copy of the license application that has been marked in accordance with 10 C.F.R. § 2.390(b)(1)(i) in order to indicate the information that Sulzer US seeks to have withheld from public disclosure and the basis for such withholding.

If you have any questions about this matter or require further information, please let us know. We can be reached at (202) 342-8550. We very much appreciate your assistance in addressing this situation.

Sincerely,

Jeffrey S. Beckington

Eric R. McClafferty
Jeffrey S. Beckington
Counsel to Sulzer Pumps (US) Inc.

Enclosures

KELLEY DRYE & WARREN LLP Washington Harbour, Suite 400 3050 K Street, NW Washington, DC 20007-5108 PHONE (202) 342-8400 FAX (202) 342-8451
New York Washington, DC Tysons Corner Chicago Stamford Parsippany Brussels AFFILIATE OFFICE Mumbai www.kelleydrye.com

KELLEY DRYE
COLLIER SHANNON

X COM1187
1100567/

February 2, 2007

Rec'd 2-5-07 PB

Delivery by Hand

Ms. Margaret Doane
Deputy Director
Office of International Programs
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

Attention: Mr. Stephen Dembek and Ms. Janice Owens

Re: NRC Form 7 License Application for Sulzer Pumps (US) Inc.

Dear Deputy Director Doane:

On behalf of Sulzer Pumps (US) Inc. ("Sulzer US"), we are forwarding for your review at Enclosure 1 a Form 7 license application for authority to export through Canada to China various U.S.-origin spare and replacement parts of primary heat transport pumps and shutdown cooling pumps, including such things as, but not limited to, mechanical seals, carbon bearings, and springs. Most immediately, as also indicated in the license application, Sulzer US seeks approval for the export of (a) six (6) finished tungsten-carbide mechanical seals and (b) twelve (12) finished carbon-steel mechanical seals from the United States to its affiliate in Canada, Sulzer Pumps (Canada) Inc., of Burnaby, Canada ("Sulzer Canada"). These mechanical seals would be sent by Sulzer Canada to China for use as replacement and spare parts for pumps at the China Nuclear Energy Corporation's Qinshan CANDU Project to generate nuclear power. This license application therefore concerns exportation from the United States of pump components during the requested period of five years to Canada and then re-exportation of those spare and replacement parts by Sulzer Canada to China for use in a safeguarded nuclear power generation facility.

By way of background, at Enclosure 2 a copy is also appended of license XCOM1122, which similarly covered exports by Sulzer US and re-exports by Sulzer Canada of spare and replacement parts to the Qinshan CANDU project, but this license expired at the end of 2003. To the extent possible, it is hoped that consideration of today's application can be expedited and that the prior licensing will facilitate this process at least somewhat. Any facilitation of this application will be especially

X20M1187
1100567/

appreciated, because the China Nuclear Energy Corporation has reported degradation of a mechanical seal for one of the pumps and an urgent need for the replacement parts.

Pursuant to 10 C.F.R. § 170.21's schedule, we are also including a check for the application fee of $2,600 that is required under the circumstances and given our understanding that this application concerns the export of facility components under 10 C.F.R. Part 110, Appendix A, Item 9.

If you have any questions about the license application, or require further information in order to make a decision on this application, please let us know. We can be reached at (202) 342-8550. Thank you for your attention to this matter.

Sincerely,

Jeffrey S. Beckington

Eric R. McClafferty
Jeffrey S. Beckington
Counsel to Sulzer Pumps (US) Inc.

Enclosures

Rec'd 2-5-07
PB

BUSINESS PROPRIETARY

KELLEY DRYE
COLLIER SHANNON

February 2, 2007

Delivery by Hand

Ms. Margaret Doane
Deputy Director
Office of International Programs
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

Attention: Mr. Stephen Dembek and Ms. Janice Owens

Re: NRC Form 7 License Application for Sulzer Pumps (US) Inc.

Dear Deputy Director Doane:

On behalf of Sulzer Pumps (US) Inc. ("Sulzer US"), we are forwarding for your review at Enclosure 1 a Form 7 license application for authority to export through Canada to China various U.S.-origin spare and replacement parts of primary heat transport pumps and shutdown cooling pumps, including such things as, but not limited to, mechanical seals, carbon bearings, and springs. Most immediately, as also indicated in the license application, Sulzer US seeks approval for the export of (a) six (6) finished tungsten-carbide mechanical seals and (b) twelve (12) finished carbon-steel mechanical seals from the United States to its affiliate in Canada, Sulzer Pumps (Canada) Inc., of Burnaby, Canada ("Sulzer Canada"). These mechanical seals would be sent by Sulzer Canada to China for use as replacement and spare parts for pumps at the China Nuclear Energy Corporation's Qinshan CANDU Project to generate nuclear power. This license application therefore concerns exportation from the United States of pump components during the requested period of five years to Canada and then re-exportation of those spare and replacement parts by Sulzer Canada to China for use in a safeguarded nuclear power generation facility.

By way of background, at Enclosure 2 a copy is also appended of license XCOM1122, which similarly covered exports by Sulzer US and re-exports by Sulzer Canada of spare and replacement parts to the Qinshan CANDU project, but this license expired at the end of 2003. To the extent possible, it is hoped that consideration of today's application can be expedited and that the prior licensing will facilitate this process at least somewhat. Any facilitation of this application will be especially

appreciated, because the China Nuclear Energy Corporation has reported degradation of a mechanical seal for one of the pumps and an urgent need for the replacement parts.

Pursuant to 10 C.F.R. § 170.21's schedule, we are also including a check for the application fee of $2,600 that is required under the circumstances and given our understanding that this application concerns the export of facility components under 10 C.F.R. Part 110, Appendix A, Item 9.

If you have any questions about the license application, or require further information in order to make a decision on this application, please let us know. We can be reached at (202) 342-8550. Thank you for your attention to this matter.

Sincerely,

Jeffrey S. Beckington

Eric R. McClafferty
Jeffrey S. Beckington
Counsel to Sulzer Pumps (US) Inc.

Enclosures

ENCLOSURE 1

Rec'd 2-5-07
RB

XCOM1187
11005671

AFFIDAVIT

I, Kati Babinec, being duly sworn, hereby aver as follows:

1. My name is Kati Babinec, and I am the Secretary of Sulzer Pumps (US) Inc. ("SPUS").

2. As the Secretary of SPUS, I am submitting this affidavit in accordance with the U.S. Nuclear Regulatory Commission's ("NRC's") regulations at 10 C.F.R. § 2.390 in conjunction with SPUS's license application received by the NRC on February 5, 2007, License No. XCOM1187 and Docket No. 11005671.

3. In accordance with 10 C.F.R. § 2.390, it is requested that the dollar amounts set forth for the subject nuclear items on page 3 of the NRC Form 7 and on page 1 of the now-expired license XCOM1122 that is included in Enclosure 2 of SPUS's license application be withheld from public disclosure. The basis for this request is that this information constitutes commercial or financial information that is privileged or confidential within the meaning of 10 C.F.R. § 2.390(a)(4).

4. In particular, with reference to 10 C.F.R. §§ 2.390(b)(1)(iii) and (b)(4), disclosure to the public of these dollar amounts would likely cause and result in substantial competitive harm to SPUS. This information is being and will be held in confidence by SPUS, is the type of information that SPUS customarily holds in confidence, is being submitted to the NRC in confidence, and is not available in public sources.

KATI BABINEC

County of Multnomah)
): SS:
State of Oregon)

Subscribed and sworn to before me in my jurisdiction aforesaid this 9th day of February 2007.

Notary Public

OFFICIAL SEAL
KATHY STRODE
NOTARY PUBLIC-OREGON
COMMISSION NO. 373776
MY COMMISSION EXPIRES OCTOBER 16, 2007

NRC FORM 7 (6-2006) 10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR NRC EXPORT/IMPORT LICENSE, AMENDMENT, OR RENEWAL

(See Instructions on Page 5)

APPROVED BY OMB: NO. 3150-0027 EXPIRES: 06/30/2009

Estimated burden per response to comply with this mandatory collection request: 2.4 hours. This submittal is reviewed to ensure that the applicable statutory, regulatory, and policy considerations are satisfied. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0027), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

PART A. FOR NRC USE ONLY	☑ PUBLIC OR ☐ NON-PUBLIC	DATE RECEIVED 2-5-07
LICENSE NUMBER XCOM1187	DOCKET NUMBER 11005671	ADAMS ACCESSION NUMBER

PART B. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, OR RENEWALS

(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

1. NAME AND ADDRESS OF APPLICANT/LICENSEE	1a. NAME OF APPLICANT'S CONTACT	1b. APPLICANT'S REFERENCE NUMBER
Sulzer Pumps (US) Inc. 200 S.W. Market Street, 4th Floor Portland, OR 97201, U.S.A.	Kati Babinec	03723289
	1c. PHONE NUMBER (503) 205-3630	1d. FAX NUMBER (503) 205-3746
	1e. E-MAIL ADDRESS kati.babinec@sulzer.com	

2. TYPE OF NRC LICENSE REQUESTED *(Check One)*

☑ EXPORT (Parts B, C, E) ☐ IMPORT (Parts B, D, E) ☐ COMBINED EXPORT/IMPORT (Parts B, C, D, E) ☐ AMENDMENT/RENEWAL Existing License Number: _____

3. CONTRACT NUMBER(S)	4. FIRST SHIPMENT DATE	5. LAST SHIPMENT DATE	6. PROPOSED EXPIRATION DATE
03723289	02/02/2007	12/31/2011	12/31/2011

PART C. TO BE COMPLETED FOR EXPORT ONLY OR COMBINED LICENSES, AMENDMENTS, OR RENEWALS

(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

7. NAME(S) / ADDRESS(ES) OF SUPPLIERS AND/OR OTHER PARTIES TO THE EXPORT	8. NAME(S) / ADDRESS(ES) OF INTERMEDIATE FOREIGN CONSIGNEE(S)	9. NAME(S) / ADDRESS(ES) OF ULTIMATE FOREIGN CONSIGNEE(S)
Kennametal Inc. Kennametal Specialty Products. 200 Chestnut Ridge Road Latrobe, PA 15650 U.S.A. National Mechanical Carbon. 504 N. Ash Street Dunn, NC 28334 Please see page 3 and attached Material List and technical drawings for additional information	N/A	China Nuclear Energy Industry Corp. Third Qinshan Nuclear Power Co., Ltd. Qinshan CANDU Project Haiyen, Zhejiang Province People's Republic of China 314300
7a. LIST FUNCTIONS PERFORMED/SERVICE PROVIDED	8a. INTERMEDIATE USE(S)	9a. ULTIMATE END USE(S)
Provide U.S.-origin finished parts	Re-export parts from Canada to China	Generate nuclear power

10. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES, EQUIPMENT, OR COMPONENTS	10a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq)	10b. MAX ENRICHMENT OR WGT %	10c. MAX ISOTOPE WGT (KG)
U.S.-origin spare and replacement parts as may be required for Primary Heat Transport Pumps (PHT) and Shutdown Cooling Pumps (SDC), including but not limited to finished tungsten-carbide mechanical seals and finished carbon-steel mechanical seals, for use in the Qinshan CANDU Project's generation of nuclear power Please see page 3 and attached Material List and technical drawings for additional information	N/A	N/A	N/A

Rec'd 2-5-07 PB

11. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME)

N/A

NRC FORM 7
(6-2006)
10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR NRC EXPORT/IMPORT LICENSE, AMENDMENT, OR RENEWAL (Continued)

XCOM1187 11005671 public

LICENSE NUMBER	DOCKET NUMBER	ADAMS ACCESSION NUMBER	PUBLIC OR NON PUBLIC

PART D. TO BE COMPLETED FOR IMPORT ONLY, OR COMBINED LICENSES, AMENDMENTS, OR RENEWALS

(If more space is needed to complete any of the items, use Pages 3-4 first, and then attach additional sheets, if necessary.)

12. NAME(S) / ADDRESS(ES) OF FOREIGN SUPPLIERS AND/OR OTHER PARTIES TO IMPORT	13. NAME(S) / ADDRESS(ES) OF INTERMEDIATE CONSIGNEE(S)	14. NAME(S) / ADDRESS(ES) OF ULTIMATE CONSIGNEE(S)

12a. NRC EXPORT LICENSE NUMBER(S) *(if applicable)*	13a. LICENSE NUMBER(S) / EXPIRATION DATE(S)	14a. LICENSE NUMBER(S) / EXPIRATION DATE(S)
	13b. INTERMEDIATE USE(S)	14b. INTERMEDIATE USE(S)

15. DESCRIPTION OF RADIOACTIVE MATERIALS, SEALED SOURCES, NUCLEAR FACILITIES	15a. MAX TOTAL VOLUME / ELEMENT WGT (KG), OR TOTAL ACTIVITY (TBq)	15b. MAX ENRICHMENT OR WGT %	15c. MAX ISOTOPE WGT (KG)

16. FOREIGN OBLIGATIONS (BY COUNTRY AND BY PERCENTAGE OF MAXIMUM TOTAL VOLUME)

PART E. TO BE COMPLETED FOR ALL LICENSES, AMENDMENTS, OR RENEWALS

17. ADDITIONAL INFORMATION PROVIDED ON PAGES 3, 4, AND/OR ON SEPARATE SHEETS?	☑ YES ☐ NO	17a. COPIES OF RECIPIENTS' AUTHORIZATIONS PROVIDED?	☐ YES ☑ NO

18. CERTIFICATION: I, the applicant's authorized official, hereby certify that this application is prepared in conformity with Title10, Code of Federal Regulations, and that all information provided is correct to the best of my knowledge.

18a. PRINT NAME AND TITLE OF AUTHORIZED OFFICIAL	18b. SIGNATURE – AUTHORIZED OFFICIAL	18c. DATE
Kati Babinec Manager, Legal Sulzer Pumps (U.S.) Inc.	KBabinec	01/26/2007

Rec'd 2-5-07 RB

NRC FORM 7
(6-2006)
10 CFR 110

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR NRC EXPORT/IMPORT LICENSE, AMENDMENT, OR RENEWAL (Continued)

LICENSE NUMBER	DOCKET NUMBER	ADAMS ACCESSION NUMBER	
XCOM187	11005677		☒ PUBLIC OR ☐ NON-PUBLIC

ADDITIONAL INFORMATION *(Reference applicable block numbers from page 1 and/or page 2 for each entry)*

Block 10 –

Pump Type	Item No.	Description (Material)	Supplier Name and Address	Unit Cost (U.S. $)	Total Cost
Primary Heat Transport Pumps	450	Seal Face Rotating (Tungsten-carbide)	Kennametal Inc. (please see block 7 for address)	[redacted]	[redacted]
Primary Heat Transport Pumps	417	Seal Face Stationary (Carbon steel)	National Mechanical Carbon (please see block 7 for address	[redacted]	[redacted]

Other spare and replacement parts for PHT and SDC pumps as may be required (approximately) [redacted]

Information about these spare and replacement parts is provided in the "Pump Contract Specific Material List" and technical drawings immediately following this page.

Anticipated suppliers of these other spare and replacement parts for PHT and SDC pumps include, but are not necessarily limited to the following:

Atlas Casting & Technology	3021 South Wilkeson St.	Tacoma, WA 98409-7857
Curran Coil Spring Inc.	9265 SW 5th St.	Wilsonville, OR 97070
Energy & Process Corporation	2146-B Flintstone Drive	Tucker, GA 30084
Graphite Metalizing	1050 Nepperhan Rd.	Yonkers, NY 10703-1421
Kennametal Inc.	200 Chestnut Ridge Rd.	Latrobe, PA 15650
Loveridge Machine & Tool	4097 SW Temple	Murray, UT 84107
Morgan AM & T, National Div.	504 N. Ashe Ave.	Dunn, NC 28334
Nova Machine Products Corp.	18001 Sheldon Road	Middleburg Heights, OH 44130
Oceaneering Reflange	5720 Central Crest	Houston, TX 77092
Fluidseal Inc.	13680 Bridgeport Rd.	Richmond, British Columbia V6V 1V3 Canada
Parker Hannifin Corp.	2360 Palumbo Dr.	Lexington, KY 40509
Roto Precision Inc.	105A-81 Golden Drive	Coquitlam, British Columbia V3K 6R2 Canada
Truarc Company LLC	125 Bronico Way	Phillipsburg, NJ 08865
Roto Precision	105A-81 Golden Drive	Coquitlam, British Columbia V3K 6R2 Canada
Smalley Steel Ring Co.	555 Oakwood Rd.	Lake Zurich, IL 60047

APPENDIX 'BB'

PUMP CONTRACT SPECIFIC MATERIAL LIST

A-4N201-08, REV. 12

98-33122-9004-1-BM-A, REV. 11

CUSTOM DATA

Purchaser Req. No.	98RN33122-001	**Purchase Order No.**	98PN33122-01N	**Purchaser Spec. No.**	98-33122-TS-001
Stock Code No.	5810274B	**Equipment No.**	3312-P1,P2,P3 & P4	**CODE Effective Date:**	ASME '92 w/Dec '94 Add.
Jurisdiction's Registration No.	NP-1-K0471.1				

CERTIFICATION

This Parts List is certified to be in compliance with Paragraph NCA-3250 of the ASME Boiler and Pressure Vessel Code, Section III, for the applicable Code Component Classification.

Professional Engineer

BC — State

23843 — Registration No.

Date: Feb 5/02

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — B.S. GILL

(SEAL)

CUSTOMER APPROVAL STAMP

AECL EACL

☐ ACCEPTED ☒ ACCEPTED ☐ NOT ACCEPTED

Signature	Representing	Date
[illegible]	ENG	02/02/15

"The use and meaning of "ACCEPTED" is governed solely by the terms and conditions of the P.O. AECL Ref. No. 98RN33122-01N ..... and, in any event, its use does not relieve the manufacturer of any of its obligations to AECL and/or to its Client."

Customer approval number

QINSHAN NPP 98-33122-9004-1-BM-A			UNITS 1 2 REV 11	
SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 1 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
100	1	Volute Case Assembly consisting of:	H09500		
100.1	1	Volute Case	H09492	ASME SA216 Gr WCC Cobalt 0.020% max. Chromium 0.20% min.	
100.1.2	1	Pressure Tap Assembly consisting of:	B42511		1
100.1.2.1.1	1	Adapter, Stainless Steel to Carbon	A57926	ASME SA182 Gr316L	3
100.1.2.1.2	1	Adapter, Buttweld Transition Piece	A57927	ASME SA105	
100.1.2.2	1	Adapter Protection Ring	B31251	ASME SA105	
100.1.2.3	1	Adapter Protection Sleeve	A48553	ASME SA106 Gr B	
100.1.3	1	Suction Elbow	B42932	ASME SA234 Gr WPB from ASME SA106 Gr B	
100.1.4	2	Discharge Elbow	B50550	ASME SA234 Gr WPB from ASME SA106 Gr B	2
104	1	Gasket – Inner	A57363	Inconel X-750 HT/ Flexicarb Filler	1
105	1	Gasket – Outer	A57363	Inconel X-750 HT/ Flexicarb Filler	1
106	16	Stud, 3.250-8 UN-2A X 25.312	B25930	ASME SA193 Gr B7	
107	16	Nut	A48591	ASME SA194 Gr 7	
110	1	Stuffing Box complete consisting of	H09566	ASME SA350 LF2 with 316L SST Overlay Cobalt 0.020% max	
110.3	6	Special Flanges	B50247	ASME SA105	2
110.4	2	Thermowell	B49897	ASME SA479 Type 304L, Cold Finished & Annealed	
110.5	2	Lifting Lug	B40665	ASME SA516 Gr 70	
110.6	1	Gasket Leakage Detection Nozzle	B31094	ASME SA105	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 2 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
110.7	2	Transducer Mounting Pad	A57750	ASME SA516 Gr 70	
110.8	1	Driver Stand Drain Nozzle	B50002	ASME SA105	
112	4	Key	A48213	ASTM A479 Type 410 Annealed	
113	4	Capscrew, Socket Head	---	ASME SA193 B7	
145	0	Blanking Plate	B49896	ASME SA350 LF2	2

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 3 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
201	1	Impeller	E23134	ASME SA487 Gr CA6NM Class "A" Cobalt 0.040% max	
203	1	Impeller Nut	B42535	ASME SA479 Type 410 Class 2 Cobalt 0.020% max	2
204	1	Capscrew – Socket Head	---	ASME SA 193 Gr B6X	
205	1	Retaining Ring	---	AISI 302	1
208	1	Case Ring - Eye Side	D31424	ASTM A182 Gr F6a HT Cobalt 0.040% max., HRC 35 - 40	1
209	1	Case Ring – Hub Side	D31425	ASTM A182 Gr F6a HT Cobalt 0.040% max., HRC 35 - 40	1
210	16	Capscrew – Socket Head	---	ASME SA193 Gr B6X	1
211	16	Retaining Ring	---	AISI 302	1
212	1	Thermal Bushing	D13696	ASTM A182 Gr F6a Class 4	
213	8	Capscrew – Socket Head	---	ASME SA193 Gr B6X	
214	8	Retaining Ring	---	AISI 302	1
216	16	Capscrew – Socket Head	---	ASME SA193 Gr B6X	
218	1	Shaft	H09544	ASME SA479 Type 410 Class 2 Cobalt 0.020% max.	2
222	2	Key, Impeller	A48216	ASTM A479 Type 410 Annealed	
223	2	Capscrew – Socket Head	---	SAME SA193 Gr B6X	
226	1	Sleeve – Restriction Bushing, W/ Chrome Plating	D25153	ASTM A182 Gr F6a HT to 23-28 Rc	
230	1	Recirculation Rotor	E16610	ASTM A182 Gr F6a Class 2	
232	1	Key – Recirculation Rotor	A57850	ASTM A479 Type 410 Annealed	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 4 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
233	1	Capscrew – Socket Head	---	ASME SA193 Gr B6X	
236	1	Nut – Recirculation Rotor	A57751	ASTM A182 Gr F6a Class 2	
237	1	Lockwasher – Recirculation Rotor	A57862	ASTM A240 Type304	
240	1	Stator – Recirculation	D16847	ASTM A182 Gr F6a Class 2	
241	1	Pin	---	AISI 302	

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
300	1	Bearing Assembly consisting of:	D31220	---	
301	1	Bearing Housing – Final Machining	D16774	---	
301.1	1	Upper Half - Bearing Housing	E15761	ASTM A182 Gr F6a Class 3	
301.2	1	Lower Half - Bearing Housing	D16984	ASTM A182 Gr F6a Class 3	
301.3	12	Capscrew – Socket Head	---	ASME SA193 Gr B6X	
301.4	1	Pin		AISI 302	
.301.5	12	Retaining Ring	---	AISI 302	1
302	1	Bearing Cartridge assembly consisting of:	D16775	---	
302.1	1	Bearing Shell	D13717	ASTM A182 Gr F6a Class 2 with No. 5 Colmonoy Overlay	
302.2	2	Carbon Insert	A57863	Graphalloy GMK 703 – 'not impregnated w/ antimony'	2
302.3	2	Retaining Ring	---	AISI 302	
302.4	1	Pin	A48831	ASTM A479 Type 410 HT Cond. 3 Harden to HRC 34 (max.)	3
302.5	1	Spirol Pin	---	AISI 302	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 6 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
400	1	Seal Assembly consisting of:	H09498	---	
		Seal Cartridge Assembly consists of items 401 up to and including 451	---	---	
401	1	Seal Holder Assembly consisting of:	H06980	---	
401.1	1	Seal Holder	H06980	ASTM A182 Gr F6a Class 2	
401.2	3	Coil	---	ASTM A213 Gr. TP316L	
401.3	3	Elbow	A44508	ASTM A276 Type 316L	
401.4	4	Clip (Lower Coil)	A72174	ASTM A240 Type 316L	4
401.5	4	Clip (Middle Coil)	A72174	ASTM A240 Type 316L	4
401.6	3	Clip, Tube End	A44511	ASTM A240 Type 316L	
401.7	4	Clip, Outer (Upper Coil)	A72175	ASTM A240 Type 316L	4
402	1	Pin	H06980	ASTM A479 Type 410 Annealed	
403	1	Filter Plate	D25129	ASTM A182 Gr F6a Class 2	
404	3	Set Screw	---	ASME SA193 Gr B8 Class 1	
405	4	O-Ring	---	EPDM E692-75	1

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
		Gland and Stationary Face Group consisting of:			
410	1	Upper Gland	D13428	ASTM A182 Gr F6a Class 2	
411	1	Upper Spacer	D13458	ASTM A182 Gr F6a Class 2	
412	1	Middle Gland	D13429	ASTM A182 Gr F6a Class 2	
413	1	Lower Spacer	D13459	ASTM A182 Gr F6a Class 2	
414	1	Lower Gland	D13430	ASTM A182 Gr F6a Class 2	
415	3	O-Ring	---	EPDM E692-75	1
416	3	O-Ring	---	EPDM E692-75	1
417	3	Seal Face – Stationary	B31099	National Carbon Gr CCP-72 or UCAR Type CNFJ	
418	1	Seal Holder Retaining Ring	B31058	ASTM A182 Gr F6a Class 2	
419	8	Capscrew – Socket Head	---	ASME SA193 Gr B8 Class 1	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 8 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
		Sleeve and Rotating Face Group consisting of:			
430	1	Seal Sleeve, with chrome plate	E14378	ASTM A182 Gr F6a Class 2	
431	3	O-Ring	---	EPDM E692-75	1
432	1	Seal Sleeve Nut	D13467	ASTM A182 Gr F6a Class 2	
433	1	Drive Key	A48275	ASTM A479 Type 410 Annealed	
435	3	O-Ring	---	EPDM E692-75	1
436	3	Split Ring	B31075	ASTM A182 Gr F6a Class 2	
438	3	Key	A48274	ASTM A479 Type 410 Annealed	
440	3	Retainer	D13463	ASTM A705 Type 630 – 1075 Overlay with Metco P136 F-11	
441	12	Capscrew – Socket Head	A72264	ASME SA193 Gr B8 Class 1	6
442	12	Retaining Ring	---	PH 15-7 Mo	11
445	60	Spring – Seal (20 springs/seal)	A52070	ASTM A313 Type 302 Class 1	1
446	3	Compression Ring	D13464	ASTM A182 Gr F6a Class 2	
447	12	Pin – Compression Ring	A57854	ASTM A182 Gr F6a Class 2	
448	12	Spirol Pin – Compression Ring	---	AISI 302	
450	3	Seal Face – Rotating	B31305	Kennametal Tungsten Carbide K801	
451	3	O-Ring	---	EPDM E692-75	1

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 9 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
		Upper Sleeve Assembly consisting of:	---	---	
460	1	Upper Sleeve	E14376	ASTM A705 Type 630 – 1075 Overlay with Metco P136 F-11	
461	4	Washer	---	AISI 302	
462	4	Capscrew – Hex Head	---	ASTM A193 Gr B8 Class 1	
463	1	Nut – Throttle Sleeve	B31133	ASTM A182 Gr F6a Class 2	
464	1	O-Ring	---	EPDM E692-75	1
465	4	Capscrew – Socket Head	---	ASME SA193 Gr B8 Class 1	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 10 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
		Cover and Backup Bushing Assembly Consisting of:	B46394		
470	1	Cover (seal)	E23361	ASME SA182 Gr F6a Class 2	4
471	1	O-Ring	---	EPDM E692-75	1
472	1	Backup Ring	---	EPR E652 – 90	
475	1	Sleeve	B46393	ASME SA182 Gr F6a Class 2	
476	1	O-Ring	---	EPDM E692-75	1
477	12	Spring	A48403	Inconel X750	
478	1	Bushing Disc	A48210	ASTM A479 Type 316L	2
480	1	Carbon Bushing – Upper (axially segmented)	A66169	National Carbon Gr CCP-72 or GMK 703	
481	1	Carbon Bushing – Lower (axially segmented)	A66170	National Carbon Gr CCP-72 or GMK 703	
482	2	Circumferential Spring	A48285	AISI 316	
485	1	Gland – Backup Bushing	D27575	ASME SA182 Gr F6a Class 2	
486	1	O-Ring	---	EPDM E692-75	1
487	2	Pin	---	AISI 316	
488	2	Capscrew – Socket Head	---	ASTM A193 Gr B8 Class 1	
489	6	Capscrew – Hex Head	---	ASME SA193 Gr B7	
492	1	Thrust Ring	B31045	ASME SA182 Gr F6a Class 2	
494	1	Thrust Ring Retainer	D13437	ASME SA182 Gr F6a Class 2	7
495	4	Capscrew – Hex Head	---	ASTM A193 Gr B7	
496	1	Lock Wire	---	AISI 302 Annealed	2

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 11 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
501	1	Driver Stand – consisting of:	H09541	---	
501.1	1	Driver Flange	---	ASME SA516 Gr 70	
501.2	1	Pump Flange	---	ASME SA350 Gr LF2 Cobalt 0.020% Max.	
501.3	1	Barrel	---	ASME SA516 Gr 70	
501.4	2	Horizontal Hanger Plate	---	ASME SA516 Gr 70	
501.5	4	Vertical Gusset Plate	---	ASME SA516 Gr 70	
501.6	8	Vertical Support Plate	---	ASME SA516 Gr 70	
501.7	16	Horizontal Stiffener Gusset	---	ASME SA516 Gr 70	
501.8	4	Alignment Lug	---	ASTM A516 Gr 70	
501.10	8	Support Lug	---	ASTM A516 Gr 70	
501.11	2	Name Plate – "Sulzer Bingham"	D24781-01	18-8 STAINLESS STEEL	1
501.12	12	Screw – for Item 501.11	---	18-8 STAINLESS STEEL	2
502	2	Cover – Driver Stand Window consisting of:	H02470	---	
502.1	2	Cover Plate	---	Aluminum 1100-H14 or Aluminum 5052-H32	
502.2	2	Expanded Metal	---	Aluminum 3003-H14	
502.3	4	Handle	---	Aluminum 1100-H14 or Aluminum 5052-H32	
503	28	Capscrew – Hex Head	---	ASTM A193 B7	
504	28	Washer	---	ASTM F436	
505	1	Coupling Assembly consisting of:	E23186	---	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 12 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
505.1	1	Coupling Hub – Pump	E23211	ASTM A668 CL F	2
505.2	2	Key – Pump Hub	A48367	ASTM A479 Type 410 Annealed	
505.3	1	Lockwasher – Pump Hub	B27446	ASTM A240 Type 316	2
505.4	1	Nut – Pump Hub	B27445	ASTM A576 Gr 1040	
505.5	1	Spacer	E23302	ASTM A668 CL F	3
505.6	1	Coupling Hub – Driver	D31356	ASTM A668 CL F	1
505.7	1	Thrust Ring – Split (Supplied by Hitachi)	A48337	ASTM A283	1
505.8	2	Key – Driver Hub (Supplied by Hitachi)	---	ASTM A283	1
505.9	16	Capscrew – Coupling	B50576	ASTM A193 Gr B7	4
505.10	16	Nut – Coupling	A44613	ASTM A194 Gr 7	
505.11	1	Locking Wire	---	AISI 302 Annealed	2
505.12	2	Capscrew – Socket Head	---	ASTM A193 Gr B7	
506	6	Cable Connector	---	ASTM A108 Gr 1213 with ASTM D735 GR SC	
507	4	Capscrew – Hex Head – Motor Alignment	---	ASTM A449 Type 1	1
515	8	Capscrew – Socket Head	---	ASTM A193 Gr B7	
520	1	Driver (Hitachi)	310Q772-110	---	1
523	1	Set of quick disconnect plugs for jacking oil pump motors and heater terminal boxes.	---	---	
525	24	Capscrew- Hex Head for motor hold-down	---	ASTM A193 Gr B7	1
526	1	Locking Wire for item 525	---	AISI 302 Annealed	2
530	1	Heat Exchanger Assembly consisting of:	H09542	---	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 13 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
530.1	1	Coil – Outer	---	ASME SA312 Gr TP304L	
530.2	1	Coil – Inner	---	ASME SA213 Gr TP304L	
530.4	2	Flange	---	ASME SA182 Gr F304L	
530.5	1	Pipe	---	ASME SA312 Gr TP304L	
530.6	2	Elbow - 90° Long Radius	---	ASME SA403 Gr WP304L (from ASME SA312 Gr TP304L or ASME SA182 Gr F304L)	
530.7	2	Tee	---	ASME SA403 Gr WP304L from ASME SA182 Type 304L	
530.8	1	Pipe	---	ASME SA312 Gr TP304L	
530.9	2	Clamp	B31244	ASME SA516 Gr 70	
530.10	2	Tee Block	D13661	ASME SA479 Gr 304L	
530.11	2	Special Flange	---	ASME SA182 Gr F304L	
530.12	2	Flange	---	ASME SA182 Gr F304L	
530.13	6	Clamp	B31120	ASME SA516 Gr 70	
530.14	16	Capscrew – Socket Head	---	ASME SA193 Gr B7	
532	16	Capscrew – Socket Head (Heat Exchanger to Driver Stand)	---	ASME SA193 Gr B7	1
533	16	Nut – Hex Head (Heat Exchanger to Driver Stand)	---	ASME SA194 Gr 7	1
540	1	Pump Instrumentation Terminal Box	A48714	---	
542	4	Capscrew – Hex Head for Item 540	---	ASTM A193 Gr B7	1
543	4	Washer (Special) for Item 540	A48714	ASTM A108 Gr 1045	3
550	1	Pump Instrumentation Cable Assembly consisting of:	---	---	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 14 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
550.1	11	Twisted Pair – individual shield	---	---	
550.2	13	Twisted Pair – overall shield	---	---	
560	1	Proximity Probe Bracket	D31886	---	2
561	4	Capscrew – Hex Head for Item 560	---	ASTM A193 Gr B7	1
580	2	Hanger Support Assembly	B50735	---	7
580.1	1	Spring Coil	A71984	ASTM A304 4161H	4
580.2	1	Spring Casing	B50731	ASME SA106 Gr B	3
580.3	1	Rod	A71991	ASME SA193 Gr B7	3
580.4	1	Base Plate	B50732	ASME SA36	3
580.5	1	Spring Plate	B50733	ASME SA36	3
580.6	1	Top Cover Plate	B50734	ASME SA36	3
580.7	2	Lifting Lugs	A71968	ASTM A36	3
580.8	1	Load Plate	A71970	18-8 Stainless Steel	3
580.9	2	Jam Nut	---	ASME SA194 Gr7	3
580.10	2	Nut	---	ASME SA194 Gr7	3
580.11	2	Safety Stop	A71967	AISI 1018	4
580.12	4	Bolt	---	ASME SA193 Gr B7	4
580.13	4	Nut	---	ASME SA194 Gr 7	3
580.14	4	Screws – for Load Plate	---	18-8 STAINLESS STEEL	3
585	1	Name Plate – Pump	D31321	18-8 STAINLESS STEEL	1
586	1	Name Plate – Data	A62344	18-8 STAINLESS STEEL	1

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 15 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
587	1	Name Plate – Rotation Arrow	A17564	18-8 STAINLESS STEEL	1
589	8	Screws – for Name Plates	---	18-8 STAINLESS STEEL	3

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 16 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
600	1	Piping Assembly	H09543	---	
602	1	Spool E. Seal Staging Out Consisting of:	D16791	---	2
602.1	1	Flange, wld nk 2500# RF 01.000, 00.938 bore-face, SCH 80	---	ASME SA182 Gr F304L	
602.2	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
602.3	1	Special Flange	---	ASME SA182 Gr F304L	
603	1	Spool G. Leakage Out consisting of:	D16792	---	2
603.1	1	Flange, wld nk 2500# RF 01.000, 00.938 bore-face, SCH 80	---	ASME SA182 Gr F304L	
603.2	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
603.3	1	Special Flange	---	ASME SA182 Gr F304L	
604	1	Spool B. Recirc. Out consisting of:	D31614	---	
604.1	2	Special Flange	---	ASME SA182 Gr F304L	
604.2	1	Elbow	---	ASME SA403 Gr WP304L (From ASME SA312 Gr TP304L or ASME SA182 Gr F304L)	
604.3	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
605	1	Spool T1, Bearing Temp. consisting of:	D25134	---	
605.1	1	Thermowell	B49897	ASME SA479 Gr TP304L Cold Finished and Annealed Cobalt 0.050% max	
605.2	1	Adapter	A53598	ASME SA403 type WP304L	3
605.3	2	Special Flange	---	ASME SA182 Gr F304L	
605.4	1	Tee	---	ASME SA403 type WP304L	3

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 17 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
605.5	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
606	1	Spool T2, Recirc. In temp. consisting of:	D25135	---	
606.1	2	Special Flange	---	ASME SA182 Gr F304L	
606.2	1	Elbow	---	ASME SA403 Gr WP304L (from ASME SA312 Gr TP304L or ASME SA182 Gr F304L)	
606.3	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
606.4	1	Tee	---	ASME SA182 Gr F304L	
606.5	1	Adapter	A53598	ASME SA182 Gr F304L	
606.6	1	Thermowell	B49897	ASME SA479 Gr TP304L Cold Finished and Annealed Cobalt 0.050% max	
607	1	Spool A, Recirc. In consisting of:	D25136	---	
607.1	2	Special Flange	---	ASME SA182 Gr F304L	
607.2	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
607.3	1	Elbow	---	ASME SA403 Gr WP304L (from ASME SA312 Gr TP304L or ASME SA182 Gr F304L)	
608	2	Pressure Spool (P2, P3) Consisting of:	D16797	---	2
608.1	1	Flange, wld nk 2500# RF 01.000, 00.938 bore-face, SCH 80	---	ASME SA182 Gr F304L	
608.2	1	Pipe, 01.000 SCH 80	---	ASME SA312 Gr TP304L	
608.3	1	Special Flange	---	ASME SA182 Gr F304L	
680	6	Pipe Clamp Assembly consisting of:	B40798	---	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 18 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESC. TION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
680.1	2	Clamp	---	ASME SA36	
680.2	2	Hex Nut	---	ASTM A563 Gr A	
680.3	1	Capscrew	---	ASTM A307 Gr A	
680.4	1	Capscrew	---	ASTM A307 Gr A	
681	6	Bracket (for item 680)	B40578	ASME SA516 Gr 70	
690	10	Special Clamp Assembly consisting of:	---	---	
690.1	1	Clamp	---	ASME SA182 F304L	8
690.2	1	Seal Ring	---	ASME SA564 Gr 630 Cond. H1150	8
690.3	4	Stud	---	ASME SA193 Gr B8	4
690.4	8	Nut	A71662	ASME SA194 Gr 8	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 19 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
820	1	Stud Tensioning Equipment Consisting of:	E23252	---	
820.1	1 SET	Stud Tensioning Equipment	E14422	---	3
820.2	1 SET	Stud Tensioner Lifting Tool	---	---	
830	1	Seal Assembly Tooling Consisting of:	---	---	
830.1	1	Seal Setting Bench	E16511	---	
830.5	1	Seal Compression Tool Base	E14426	---	
830.6	3	Stud, 0.750-10 UNC-2A X 32.000	---	ASTM A193 Gr B7	
830.7	1	Spacer	D13602	ASTM A36	
830.8	1	Compression Tool Top	E14427	Aluminum 6061-T6	
830.9	9	Nut	---	SAE Gr 2	
830.12	4	Centering Tool	B31138	AISI 410	6
830.13	24	Capscrew, Socket Head	---	AISI 304	4
830.14	1	Gap Measuring Tool	---	---	
830.15	1	Planer & Shaper Gauge	A72434	---	7
830.16	1	Tongue	A48713	ASTM A36	
830.20	32	Capscrew, Socket Head (for axially locking sleeve)	---	AISI 304	4
830.22	1	Bottom Jacking Plate	A48369	ASTM A36	
830.23	3	Jack Screw – Socket Head	A48371	ASTM A193 Gr B7	
830.24	1	Stud, 0.500-13 UNC-2A X 24.000	---	ASTM A193 Gr B7	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 20 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
830.25	1	Hoisting Eye	A48370	ASTM A36	
830.26	1	Top Plate – Hoisting	A48690	ASTM A36	
830.30	1	Carbon Face Removal Tool	B31139	---	
830.31	1	Stationary Face Installation Tool	A49022	---	
830.32	3	End Cap	A53014	Brass	
835	1	Seal Hydrotest Chamber Consisting of:	H09499	---	7
835.1	1	Barrel With Head	H08618	ASME SA266 Class 2	
835.3	1	Plug	---	ASTM A105	
835.4	1	Dummy Shaft	D16831	AISI 4140/45 HT SR 255-321 HB (25-34Rc)	
835.5	1	O-Ring	---	Buna N	
835.6	1	Dowel Pin	---	AISI 303	
835.7	1	Capscrew, Socket Head	---	ASTM A574	
835.8	1	Washer – Split Spring	---	Steel	
835.9	1	Capscrew, Socket Head	---	ASTM A574	
835.10	1	Plate	A57632	ASTM A36	
835.11	7	Nip	---	ASTM A106 Gr B	
835.12	4	Tee	---	ASTM A182 Gr F316	
835.13	4	Nip	---	ASTM A106 Gr B	
835.14	5	Gate Valve	---	Steel	
835.15	1	Nip	---	ASTM A106 GR B	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 21 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
835.16	1	Union	---	ASTM A105	
835.17	1	Nameplate – Seal Hydro Test Chamber	D31674	18-8 Stainless Steel	3
835.18	4	Screws – for Nameplate	---	18-8 Stainless Steel	3
840	1	Lifting Device Assembly Consisting of:	H09597	---	4
840.1	1	Left Hand Rail Assembly Consisting of:	D32529	---	4
840.1.1	2	Angle	---	Aluminum 6061-T6	4
840.1.2	2	Mounting Block	---	Aluminum 6061-T6	4
840.1.3	1	Plate	---	Aluminum 6061-T6	4
840.1.4	1	Pipe, 01.250 SCH 80	---	Aluminum 6061-T6	4
840.1.5	2	Pin	---	Stainless Steel	4
840.1.6	2	Chain	---	Stainless Steel	4
840.1.7	1	Bar, Round	---	Aluminum 6061-T6	4
840.1.8	1	Plate	---	Aluminum 6061-T6	4
840.1.9	1	Bar, Round	---	Aluminum 6061-T6	4
840.1.10	1	Plate	---	Aluminum 6061-T6	4
840.1.11	1	Nut, Hex Jam	---	SAE Gr 2	5
840.1.12	1	Nut, Hex Jam	---	SAE Gr 2	5
840.2	1	Right Hand Rail Assembly Consisting of:	D32530	---	4
840.2.1	2	Angle	---	Aluminum 6061-T6	4
840.2.2	2	Mounting Block	---	Aluminum 6061-T6	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 22 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
840.2.3	1	Plate	---	Aluminum 6061-T6	4
840.2.4	1	Pipe, 01.250 SCH 80	---	Aluminum 6061-T6	4
840.2.5	2	Pin	---	Stainless Steel	4
840.2.6	2	Chain	---	Stainless Steel	4
840.2.7	1	Bar, Round	---	Aluminum 6061-T6	4
840.2.8	1	Plate	---	Aluminum 6061-T6	4
840.2.9	1	Bar, Round	---	Aluminum 6061-T6	4
840.2.10	1	Plate	---	Aluminum 6061-T6	4
840.2.11	1	Nut, Hex Jam	---	SAE Gr 2	5
840.2.12	1	Nut, Hex Jam	---	SAE Gr 2	5
840.3	8	Capscrew, Socket Head	---	ASTM A193 Gr B8 Class 1	7
840.4	2	Pin	---	Stainless Steel	4
840.5	1	Trolley Assembly Consisting of:	D32531	---	7
840.5.1	1	Trolley Frame	D32533	Aluminum 6061-T6	4
840.5.2	6	Cam Follower	---	Steel	8
840.5.3	12	Washer	---	AISI 316	4
840.5.4	6	Nut, Hex	---	ASTM F594	4
840.5.5	2	Sheave	---	Steel	8
840.5.6	2	Sheave Bracket	B50879	Aluminum 6061-T6	4
840.5.7	2	Capscrew, Hex Head (for bracket)	---	ASTM A193 Gr B8 Class 1	4
840.5.8	2	Nut, Hex	---	ASTM F594	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 23 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
840.5.9	2	Washer	A72157	Aluminum 6061-T6	4
840.5.10	2	Washer	A72158	Aluminum 6061-T6	4
840.5.11	4	Capscrew, Hex Head	---	ASTM A193 Gr B8 Class 1	4
840.5.12	4	Nut, Hex	---	ASTM F594	4
840.5.13	2	Wire Rope	A72657	AISI 316	8
840.5.14	2	Bearing, Cylindrical Roller	---	Steel	8
840.5.15	2	Ring, Retaining	---	PH 15-7 Mo	4
840.5.16	1	Shaft	B50880	AISI 4140/45 HT SR 255-321 HB (25-34 Rc)	8
840.5.17	1	Drum Assembly (Left)	B50881	---	4
840.5.18	1	Drum Assembly (Right)	B50882	---	4
840.5.19	10	Capscrew, Socket Head	---	ASTM A193 Gr B8 Class 1	4
840.5.20	10	Nut, Hex	---	ASTM F594	4
840.5.21	2	Locking Unit	---	Steel	8
840.5.22	4	Capscrew, Socket Head	---	AISI 316	4
840.5.23	2	Plate	A72206	AISI 316L	4
840.5.24	2	Plugs	A72429	Aluminum 6061-T6	7
840.5.25	1	Key	---	AISI 316	8
840.6	1	Worm Gear Assembly consisting of:	B50883	---	4
840.6.1	1	Hand Wheel	---	Aluminum	8
840.6.2	3	Setscrew	---	AISI 316	4
840.6.3	1	Bearing Cover	A72156	Aluminum 6061-T6	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 24 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
840.6.4	4	Capscrew, Hex Head	---	ASTM A193 Gr B8 Class 1	4
840.6.5	1	Plate	---	Aluminum 6061-T6	4
840.6.6	1	Worm Gear Components	---	---	4
840.6.7	4	Setscrew	---	ASTM A320 Gr B8	4
840.6.8	4	Capscrew, Hex Head	---	ASTM A193 Gr B8 Class 1	4
840.6.9	1	Bearing Bracket – Right	A72654	Aluminum 6061-T6	8
840.6.10	1	Bearing Bracket – Left	A72658	Aluminum 6061-T6	8
840.6.11	10	Capscrew, Hex Head	---	AISI 316	8
840.6.12	2	Ring, Retaining	---	Stainless Steel	8
840.6.13	2	Bearing, Needle Roller	---	Steel	8
840.7	1	Lifting Plate – Coupling	D32534	ASTM A516 Gr 70	8
840.8	1	Lifting Plate – Common	D32535	ASTM A516 Gr 70	8
840.9.1	4	Capscrew, Socket Head (1.50" lg) – (use with item 840.8)	---	AISI 316	9
840.9.2	4	Capscrew, Socket Head (1.00" lg) – (use with item 840.8)	---	AISI 316	9
840.12	1	Cross-member	B51201	Aluminum 6061-T6	7
840.13	2	Pin	---	Stainless Steel	8
840.14	4	Chain	---	Stainless Steel	7
845	1	Blanking Plate Assembly Consisting of:	---	---	
845.1	1	Blanking Plate	B49896	ASTM A350 Gr LF2	
845.2	16	Spacer	A72125	ASTM A106 Gr B	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 25 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
845.3	2	Eyebolt	---	ASTM A489	
845.4	2	Spacer Block	A72126	ASTM A105	6
846	4	Sealing Device Assembly Consisting of:	B42550	---	10
846.1	1	Sealing Gland	D25177	ASTM A36	10
846.2	1	O-Ring	---	EPDM E692-75	10
846.3	1	O-Ring	---	EPDM E692-75	10
846.4	1	Support Ring	A48528	AISI 410	10
850	1	Puller Installation (Impeller & Coupling) Consisting of:	A57662	---	
850.2	1	Puller Plate (for Seal, Bearing, Coupling & Impeller)	B31188	ASTM A36	
850.3	8	Nut, Hex	---	SAE Gr 2	
850.4	1	Hydraulic Cylinder – Enerpac	---	---	
850.5	8	Capscrew, Hex Head (Puller to Coupling)	---	SAE Gr 5	
850.6	8	Capscrew, Hex Head (Puller to Impeller)	---	SAE Gr 5	
850.7	2	Clevis Pin (for lifting Bearing & Stator)	A48461	Steel	
850.14	1	Tightener – Coupling to Pump Shaft Locknut	B27471	---	
850.16	1	Rotor Nut Wrench	E14451	---	
850.17	1	Shaft Protector Disc	A57623	Steel	
850.19	1	Capscrew Removal Tool	A49020	---	
850.20	1	Motor Alignment Tool	B31876	---	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 26 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
850.21	4	Stud, 0.375-16 UNC-2A X 36.000	---	ASTM A193 Gr B7	
850.22	4	Stud, 0.500-13 UNC-2A X 36.000	---	ASTM A193 Gr B7	
850.23	4	Nut, Hex	---	SAE Gr 2	
850.24	4	Eye Nut	A49035	SAE Gr 5	
850.25	4	Eye Nut	A49036	SAE Gr 5	
850.26	4	Nut, Hex	---	SAE Gr 2	
850.27	1	Wrench – Nut (for item 107)	B31878	---	
860	1	Hold-Down Tool Assembly Consisting of:	H09526	---	
860.1	8	Capscrew, Socket Head	---	ASME SA193 Gr B7	
860.2	8	Spring	A48638	ASTM A313 TYPE 302	12
860.3	1	Pair of Top Plate Halves	H06993	---	
860.4	4	Capscrew, Hex Head	---	ASME SA193 Gr B7	
860.5	4	Nut, Hex	---	ASME SA194	
860.6	2	Pin	---	Steel	5
860.7	4	Nut, Hex (use with item 860.6)	---	SAE Gr 2	
860.8	2	Screw, Shoulder Socket Head	---	ASTM A193 Gr B7	
860.9	4	Capscrew, Hex Head	---	ASME SA193 Gr B7	
860.10	4	Nut	---	ASME SA194 Gr 7	
860.11	8	Set screw, Skt Hd	---	ASME SA193 Gr B7	
860.12	1	Shim Set	A48504	Steel	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 27 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
860.13	2	Safety Stop	A48505	Steel	
860.14	1	Ring – Split Halves	E14466	ASME SA350 Gr LF2	
860.15	1	Ring – Torque Halves	E14467	ASME SA350 Gr LF2	
860.16	8	Capscrew, Socket Head	---	ASME SA193 Gr B7	
860.17	4	Special Nut	D13643	ASTM A194 Gr 2H	5
860.18	2	Key	A48509	ASTM A479 Type 410 annealed	
860.19	2	Capscrew, Socket Head	---	ASTM A574	
860.20	10	Hydraulic Cylinder – Enerpac	---	---	
860.21	20	Capscrew, Socket Head	---	ASTM A574	
860.22	1	Load Cell Piping Assembly	H06991	---	
860.24	8	Load Pin	A48637	ASME SA564 Gr 630 Cond H1150M	12
860.25	8	Roll Pin	---	AISI 304	3
860.26	2	Lifting Attachment (Use With Item 840)	A72656	ASTM A193 Gr B7	8
861	1	Support Fixture For Hold Down Tool Bottom Split Plate Consisting of:	E22149	---	
861.1	1	Plate	---	Aluminum 6061-T6	
861.2	1	Bushing	---	Aluminum 6061-T6	
861.3	8	Plate	---	Aluminum 6061-T6	
861.4	6	Capscrew, Hex Head	---	SAE Gr 8	
861.5	6	Nut	---	SAE Gr 8	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 28 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
870	1	Impeller & Stuffing Box Assembly Tooling Consisting of:	H06992	---	
870.1	1	Support Frame	H07006	---	
870.2	1	Holding Fixture – Impeller	D13676	---	5
870.3	1	Lifting Table	---	---	
870.4	1	Holding Fixture – Upper Plate	D13677	ASTM A36	
870.5	1	Holding Fixture – Lower Plate	E14488	ASTM A36	
870.6	8	Locking Screw	A48582	SAE Gr 2	
870.7	8	Capscrew, Socket Head	---	ASTM A574	
870.8	8	Capscrew, Hex Head	---	---	
870.9	8	Shim	---	AISI 410	
870.10	1	Impeller Installation Plate	A49047	ASTM A36	
870.11	4	Capscrew, Hex Head	---	SAE Gr 2	
870.12	1	Lifting Ring - Pump Shaft with Coupling Pump Hub	B42972	---	
870.13	8	Capscrew, Hex Head	---	SAE Gr 2	
870.14	8	Capscrew, Hex Head	---	SAE Gr 2	
870.15	1	Eyebolt	---	Steel	
870.16	2	Key	A48509	AISI 1015 to 1020	3
870.17	2	Capscrew, Socket Head	---	ASTM A574	
870.18	8	Washer	---	Steel	
870.19	8	Nut, Hex	---	SAE Gr 2	

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 29 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
871	1	Coupling Hub Assembly Consisting of:	B40612	---	
871.2	1	Plate – Coupling Installation	A49030	ASTM A36	
871.3	4	Capscrew, Hex Head	---	SAE Gr 2	
871.4	1	Shim	B40612	AISI 410	
874	1	Socket Extension	---	AISI 1015 to 1020	
880	1	Volute Case/Elbow Calibration Consisting of:	---	---	
880.1	1	Wall Thickness Block	A71440	For Material Requirements see item 100.1	
880.2	1	Wall Thickness Block	A71441	For Material Requirements see item 100.1.1	
880.3	1	Wall Thickness Block	A71441	For Material Requirements see item 100.1.3	
880.4	1	Volute Case Ligaments	D31721	For Material Requirements see item 100.1	
880.5	1	Elbow Calibration Blocks (20" SCH 120 pipe)	D31717	For Material Requirements see item 100.1.3	
880.6	1	Elbow Calibration Blocks (16" SCH 120 pipe)	D31718	For Material Requirements see item 100.1.4	
880.7	1	Calibration Blocks (20" SCH 120 pipe)	D31719	For Material Requirements see item 100.1.3	
880.8	1	Calibration Blocks (16" SCH 120 pipe)	D31720	For Material Requirements see item 100.1.4	
882	1	Stud Calibration Assembly Consisting of:	---	---	
882.1	1	Calibration Stud – Full	B50123	For Material Requirements see item 106	
882.2	1	Calibration Stud – 6" Long	A71442	For Material Requirements see item 106	
883	1	Capscrew Calibration Assembly Consisting of:	---	---	

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
883.1	1	Calibration Capscrew	A71443	For Material Requirements see item 489	
883.2	1	Calibration Capscrew	A71444	For Material Requirements see item 489	
885	1	Bearing/Holder Motion Test Consisting of:	D16851	---	
885.1	1	Bearing Tester	D16850	---	
894	1	Heating Tank For Impeller Consisting of:	E16660	---	
894.1	1	Plate	---	ASTM A36	
894.2	2	Angle	---	ASTM A36	
894.3	1	Plate	---	ASTM A36	
894.4	1	Plate	---	ASTM A36	
894.5	1	Coupling, Half	---	ASTM A105	
894.6	1	Coupling, Half	---	ASTM A105	
894.7	1	Coupling, Half	---	ASTM A105	
894.8	2	Coupling, Half	---	ASTM A105	
894.9	1	Plate	---	ASTM A36	
894.10	2	Immersion Heater – Caloritech (380V, 3 PH, 50 Hz)	---	---	8
894.11	1	Temperature Indicator – Marsh	---	---	
894.12	1	Thermostat/Thermal Cutout – Caloritech	---	---	8
894.13	1	Gate Valve	---	---	
894.14	1	Control Transformer	---	---	9

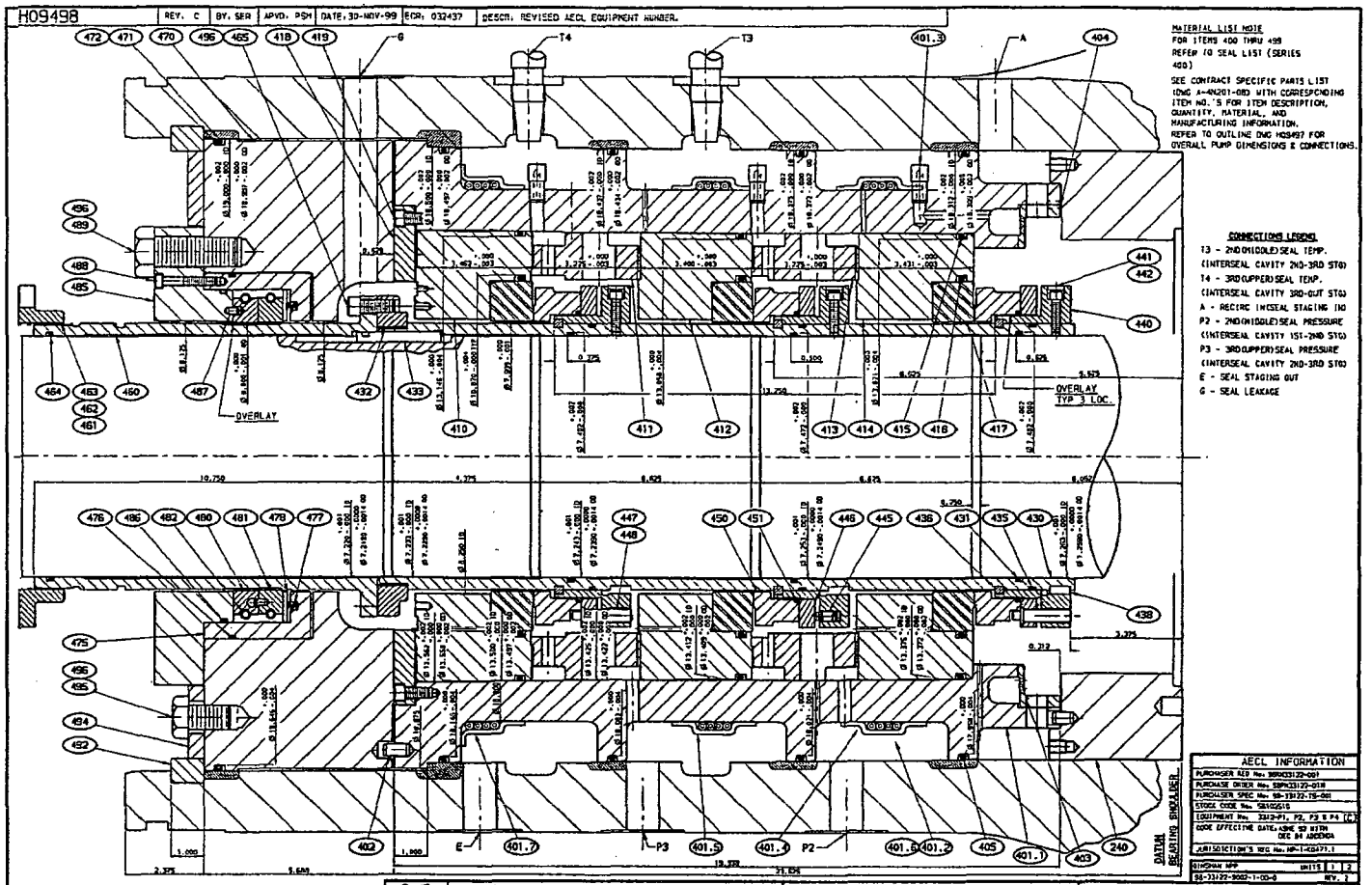
SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 31 of 32	Drawing No. A-4N201-08 Rev. No. 12

DWG No.	REV. No.	BY:	APVD:	DATE:	DESCRIPTION
A-4N201-08	12	CTB	PSM	30-JAN-02	REV. ITEM 860.24 MAT'L (was Cond H1150), ITEM 860.2 MAT'L (was Inconel X750)

ITEM No.	QTY	DESCRIPTION	DRAWING No.	MATERIAL	REV
894.15	1	Terminal Box	---	Stainless Steel	9
894.16	1	Wiring Assembly	B51427	---	9
895	2	Hanger Supports Tooling	---	---	4
895.1	1	Eyebolt	---	ASTM A489	3
895.2	8	Threaded Saddle	B50758	ASTM A36	4
895.3	2	Enerpac Hydraulic Cylinder	---	---	5
895.5	1	Enerpac Hydraulic Pump	---	---	4
895.6	1	Enerpac Gage Adaptor	---	---	4
895.7	1	Enerpac Gage	---	---	4
895.8	1	Enerpac Hydraulic Hose Assembly	---	---	4
895.9	1	Enerpac Tee	---	---	4
895.10	2	Enerpac Hydraulic Hose	---	---	4
895.11	8	Set Screw	---	---	4

SULZER PUMPS	BY: WEL APVD: PSM DATE: 16-DEC-97	SIZE-TYPE: PRIMARY HEAT TRANSPORT (16 x 16) x 20 x 36 RV DESCRIPTION: PARTS LIST	Sales Order No. 4N201/208 Page 32 of 32	Drawing No. A-4N201-08 Rev. No. 12

H09498	REV. C	BY. SER	APVD. PSM	DATE. 30-NOV-99	ECR. 032437	DESCR. REVISED AECL EQUIPMENT NUMBER.



AECL INFORMATION
PURCHASER AED No. 3BMX3122-001
PURCHASE ORDER No. 5BMX3122-018
PURCHASER SPEC No. 5B-3312-TS-001
STOCK CODE No. 5X1GG15
EQUIPMENT No. 3313-P1, P2, P3 & P4 (C)
CODE EFFECTIVE DATE: ASME 93 WITH DEC 94 ADDENDA
JURISDICTION'S REG No: NB-1-20471.1
BINGHAM MFG. UNITS 1 2
98-33122-9002-1-00-0 REV. 1

DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982

UNLESS OTHERWISE SPECIFIED

TOLERANCES	ANGLES	
.X ± .1	X. ± 1°	DIMENSIONS ARE IN INCHES
.XX ± .06	.X ± .5°	FINISH MACHINED SURFACES 125
.XXX ± .020	.XX ± .25°	RADIUS FILLETS R.010-.035
		CHAMFER CORNERS/SHARP EDGES .040-.065

TYPE-SIZE. (16 X 16) X 20 X 36 RV

REF. H08581	FIRST. 4N201/208	DO NOT SCALE
BY. VEL	APVD. PSM	DATE. 29-OCT-97	ECN.

MECHANICAL SEAL

SECTIONAL DRAWING

CAD

SULZER BINGHAM PUMPS INC

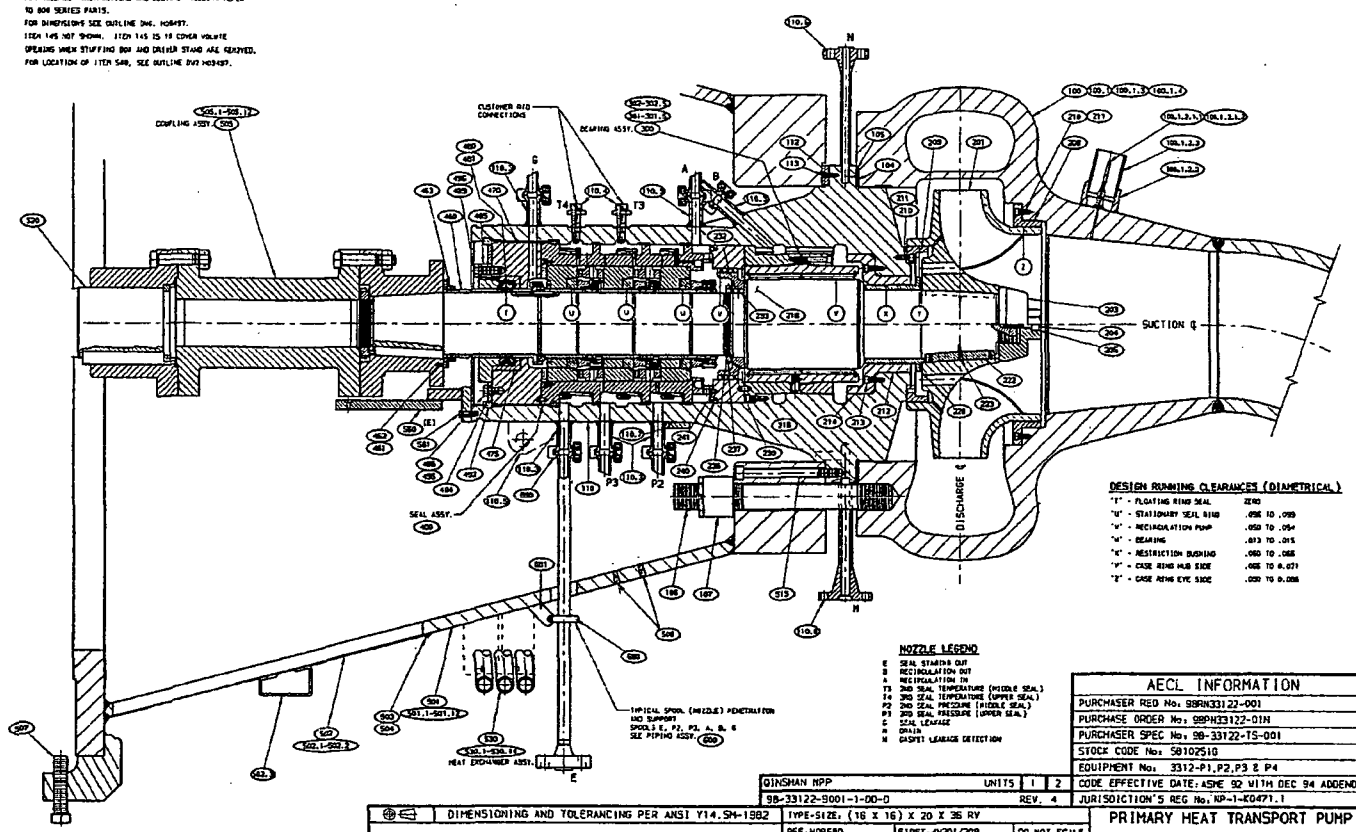
H09498

REV C

H09513	REV. E	BY: CTB	APVD: PSH	DATE: 19-JUL-00	ECN: 032874	DESCN: REVISED MOUNTING BRACKET (ITEM 560)

MATERIAL LIST NOTE

SEE CONTRACT SPECIFIC PARTS LIST (DWG. 6-44201-09) WITH CORRESPONDING ITEM NO.'S FOR ITEM DESCRIPTION, QUANTITY, MATERIAL, AND MANUFACTURING INFORMATION.
FOR ASSEMBLY INSTRUCTIONS AND CUSTOMER TOOLING REFER TO 800 SERIES PARTS.
FOR DIMENSIONS SEE OUTLINE DWG. H08497.
ITEM 145 NOT SHOWN. ITEM 145 IS 18 COVER VOLUTE OPENING WHEN STUFFING BOX AND DRIVER STAND ARE REMOVED.
FOR LOCATION OF ITEM 560, SEE OUTLINE DWG H08497.



DESIGN RUNNING CLEARANCES (DIAMETRICAL)

"T" - FLOATING RING SEAL	ZERO
"U" - STATIONARY SEAL RING	.096 TO .099
"W" - RECIRCULATION PUMP	.050 TO .054
"W" - BEARING	.013 TO .015
"K" - RESTRICTION BUSHING	.060 TO .065
"V" - CASE RING HUB SIDE	.065 TO 0.071
"Z" - CASE RING EYE SIDE	.050 TO 0.056

NOZZLE LEGEND

E	SEAL STARTER OUT
B	RECIRCULATION OUT
A	RECIRCULATION IN
T3	3RD SEAL TEMPERATURE (MIDDLE SEAL)
T4	3RD SEAL TEMPERATURE (UPPER SEAL)
P2	2ND SEAL PRESSURE (MIDDLE SEAL)
P3	2ND SEAL PRESSURE (UPPER SEAL)
G	SEAL LEAKAGE
M	DRAIN
N	GASPIT LEAKAGE DETECTION

AECL INFORMATION	
PURCHASER REQ No:	98RN33122-001
PURCHASE ORDER No:	98PH33122-01N
PURCHASER SPEC No:	98-33122-TS-001
STOCK CODE No:	58102SIG
EQUIPMENT No:	3312-P1,P2,P3 & P4
CODE EFFECTIVE DATE:	ASME 92 WITH DEC 94 ADDENDA
JURISDICTION'S REG No:	NP-1-K0471.1

QINSHAN NPP	UN175	1	2
98-33122-9001-1-00-0		REV. 4	

DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982

TYPE-SIZE: (16 X 16) X 20 X 36 RV

REF: H08580	FIRST: 04201/208	DO NOT SCALE
BY: MEL	APVD: PSH	DATE: 29-OCT-97	ECN: -

PRIMARY HEAT TRANSPORT PUMP

SECTIONAL DRAWING

CAD

SULZER BINGHAM PUMPS INC | H09513 | REV E

X COM/NV7
1100567/

ENCLOSURE 2

BUSINESS PROPRIETARY

THIS LICENSE EXPIRES 31 December 2003

United States of America

Nuclear Regulatory Commission

XCOM1122
Page 1 of 2

Pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 and the regulations of the Nuclear Regulatory Commission issued pursuant thereto, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued to the licensee authorizing the export of the materials and/or production or utilization facilities listed below, subject to the terms and conditions herein.

LICENSEE	ULTIMATE CONSIGNEE IN FOREIGN COUNTRY
Sulzer Bingham Pumps Inc. 2800 N.W. Front Avenue Portland, OR 97210 Attn: T. Morton	Third Qinshan Nuclear Power Company Near Tanglangshan Zhejiang Province P.R.C. (For use in Qinshan Units 1 & 2 Nuclear Power Plants)
INTERMEDIATE CONSIGNEE IN FOREIGN COUNTRY	**OTHER PARTIES TO EXPORT**
Sulzer Bingham Pumps Inc. 4129 Lozells Avenue Burnaby, B.C. V5A 2Z5, Canada (Assembly & testing of pumps prior to shipment to China)	See attached list (Suppliers)

APPLICANT'S REF. NO. 4N201/208 COUNTRY OF ULTIMATE DESTINATION China

QUANTITY	DESCRIPTION OF MATERIALS OR FACILITIES
	1. Initial Order of parts for Primary Heat Transport (PHT) Pumps and Shutdown Cooling (SDC) Pumps. Value of items to be exported [redacted] 2. Replacement and spare parts for PHT and SDC pumps as may be required. Value of items to be exported [redacted] Total value of all items to be exported [redacted] END

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954, as amended and the Energy Reorganization Act of 1974.

This license is subject to the right of recapture or control by Section 108 of the Atomic Energy Act of 1954, as amended and to all of the other provisions of said Acts, now or hereafter in effect and to all valid rules and regulations of the Nuclear Regulatory Commission.

THIS LICENSE IS INVALID UNLESS SIGNED BELOW BY AUTHORIZED NRC REPRESENTATIVE

Ronald D. Hauber

Ronald D. Hauber, Director
Division of Nonproliferation, Exports and Multilateral Relations
Office of International Programs

DATE OF ISSUANCE February 2, 1999

EXPORT LICENSE

OTHER PARTIES TO EXPORT (SUPPLIERS):

National Mechanical Carbon
504 N. Ash. St.
Dunn, NC 28334

Kennametal Inc.
Route 217 N. Chestnut
Ridge Rd.
Latrobe, PA 15650

Graphite Metallizing Corp.
1050 Nepperhan Ave.
Yonkers, NY, 10702

Curran Coil Co.
9265 S.W., Fifth St.
Wilsonville, OR 97070

Other suppliers as required