

**SULZER BINGHAM
PUMPS INC****IDENTIFICATION**

SERIAL No. 1C941/6
PUMP TYPE MSD
SIZE 3x6x9C

P.O. NO. MSMPG10085
ITEM NO. P-6302 A/B/C/D/E/F
SPARE PARTS No. 1S174

SPECIFICATIONS

SERVICE	BOILER FEED PUMPS			
PUMPAGE	BOILER FEEDWATER	@	269.9	°F
		sp gr	.934	
CAPACITY, gpm	504 *	HEAD	4516	ft
		SPEED	3560	rpm

*Pump to have 4th stage bleed-off

EQUIPMENT

STUFFINGBOX ☐ PACKED ☒ MECHANICAL SEAL ☐ PACKINGLESS.

VENDOR JOHN CRANE
TYPE 8B1

BEARINGS

VENDOR
TYPE THRUST BALL RADIAL SLEEVE

DRIVER

VENDOR	LOUIS-ALLIS		
FRAME NO.	7112CS	hp	800
VENDOR			
FRAME NO.		hp	

COUPLING

VENDOR	ZURN AMERIGEAR		
TYPE	FE	SIZE	102.50

(* INDICATES SUPPLIED BY CUSTOMER)

BINGHAM-WILLAMETTE CO. PORTLAND, OREGON - SHREVEPORT, LOUISIANA
 BINGHAM-WILLAMETTE LTD. BURNABY, B.C. - CAMBRIDGE, ONT., CANADA

SEE CURVE
 46490

HYDRAULIC TEST DATA SHEET

PAGE 1 OF 2

FORM NO. 930-4A

PUMP SIZE & TYPE										STGS.		CUSTOMER		PUMP TESTED		
36X36C MSD										14		ABB TURBINE		1C941		
PURCHASE ORDER NO: MSNP610085										CUSTOMER ITEM NO: P-6391						
CONDITION		R.P.M.	T.D. HEAD	G.P.M.	E.F.F.	S.P. GR.	EYE DIA.	EYE AREA	DISCH. PIPE I.D.	SUCT. PIPE I.D.	TESTED BY	DATE	START	STOP		
FIELD		3580	4516	499	75.0	934		9.3	2.9000	6.0650	CS/TU	1/31/99	9:57 AM	12:38 PM		
TEST																
REMARKS:																
*TRIM AFTER TEST: 9.00 IN. DIA.																
< NPSH FORMULA >																
NPSH = H _s + H _{atm} + H _{v2} /2G +/- H _e - H _{vp}																
STG.		IMP. PATTERN		VANES		IMP. MAX. DIA.		IMP. TEST DIA.		PUMP		CORRECTED TO		VIBRATION		
1		36MSD-768		5		9.38"		9.15"		EFF %		(FRIP AFTER TEST)		TRANSDUCER AT		
2		36MSD-768		5		9.38"		9.15"				3580 R.P.M.		0.934 S.P. GR.		
ON		CAPACITY		DISCHARGE		SUCTION		TOTAL		POWER		PUMP		WATER		
R.P.M.		46-4" VENT		"AA" DEADWT		HG COLUMB		DYNAMIC HEAD		C.T. = 40:1		PUMP		TEMP.		
		IN. HG.		R.S.I.		FEET OF WATER		IN. WATER		WATTS READ		EFF %				
		G.P.M.								P.E. = 1400						
										B.H.P. OUT.						
1	3596	0.00	0.0	2256	5211.4	25.2	5136.2	212	356.5	0.0	0.0	4940.9	340.9	318.4		
2	3595	0.60	141.1	2240	5174.4	25.5	5149.6	264	462.3	39.7	137.7	4808.7	430.3	401.9		
3										NPSH		He	Hv2/2G	He	Hvp	
4	3595	0.60	141.1	2248	5123.6	-20.0	5144.3	265		17.40		-20.00	34.16	0.04	3.80	0.59
5	3593	3.25	328.3	2204	5091.2	25.1	5089.9	356	630.9	66.6	320.7	4833.2	588.1	549.3		
6										NPSH		He	Hv2/2G	He	Hvp	
7	3593	3.25	328.3	2184	5045.0	-18.2	5067.0	356		19.44		-18.20	34.16	0.21	3.80	0.55
8	3591	7.60	502.0	2070	4800.2	24.6	4784.3	442	788.8	76.9	490.7	4570.7	736.5	687.9		
9										NPSH		He	Hv2/2G	He	Hvp	
10	3591	7.60	502.0	2054	4744.7	-14.0	4767.5	442		23.80		-14.00	34.16	0.48	3.80	0.55
11	3590	12.90	654.0	1842	4255.0	23.4	4246.3	499	893.9	78.5	639.5	4159.0	835.4	780.3		
12										NPSH		He	Hv2/2G	He	Hvp	
13	3590	12.90	654.0	1832	4231.9	-6.2	4253.0	499		32.07		-6.20	34.16	0.82	3.80	0.51
14	3590	19.00	812.3	1542	3562.0	22.0	3563.0	539	967.6	75.5	794.7	3499.6	905.8	846.1		
15																
16																
17																
18																
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22																
23																
24																
25																

WITNESS TEST PERFORMANCE
 SULZER-BINGHAM PUMPS, INC.
 PORTLAND, OREGON

WITNESSED BY:

David J. H. H.
David J. H. H.

SULZER BINGHAM PUMPS INC.

Form No. 1132

Parts List

PUMP: 14 STAGE SINGLE SUCTION, DOUBLE VOLUTE PUMP (HI-PRESSURE CONSTRUCTION)		PUMP SERIAL NO. 1C935/46
TYPE: MSD	SHEET NO. 1 of 3	DRAWING NO. B-1C935-11

ITEM NO.	PART NO.	QTY.	DESCRIPTION
100	2289326	1	CASE, VOLUTE ASS'Y. (HYDRO)
123	1980580	1	GASKET, CASE
135	1039334	28	LOCKPIN
136	1039415	2	LOCKPIN
203	2279134	1	RING, CASE W/CARBON INSERT
206	2278987	13	RING, CASE (SERIES) W/CARBON INSERT
209	2279010	12	STAGE PIECE (SERIES IMP. - HUB) W/CARBON INSERT
210	2279053	1	STAGE PIECE (CENTER) W/CARBON INSERT
215	2279096	1	BUSHING, THROTTLE W/CARBON INSERT
218	1266225	2	BUSHING, THROAT
222	1115553	1	
225	1115553	13	RING, IMPELLER (SERIES - EYE)
226	1115596	14	RING, IMPELLER (SERIES - HUB)
232	1119850	1	SLEEVE, SHAFT
233	1119729	1	SLEEVE, THROTTLE
241	2287951	1	IMPELLER (STG. #1)

Unnumbered parts in the illustrations are the same as corresponding parts with numbers.

SULZER BINGHAM

SULZER BINGHAM PUMPS INC.

Form No. 1132

Parts List

PUMP: 14 STAGE SINGLE SUCTION, DOUBLE VOLUTE PUMP (HI PRESSURE CONSTRUCTION)		PUMP SERIAL NO. 1C935/46
TYPE: MSD	SHEET NO. 2 of 3	DRAWING NO. 8-1C935-11

ITEM NO.	PART NO.	QTY.	DESCRIPTION
242	2287986	1	IMPELLER (STG. #2)
243	2287994	1	IMPELLER (STG. #3)
244	2288001	1	IMPELLER (STG. #4)
245	2288028	1	IMPELLER (STG. #5)
246	2288036	1	IMPELLER (STG. #6)
247	2288044	1	IMPELLER (STG. #7)
248	2288052	1	IMPELLER (STG. #8)
249	2288060	1	IMPELLER (STG. #9)
250	2288079	1	IMPELLER (STG. #10)
251	2288087	1	IMPELLER (STG. #11)
252	2288095	1	IMPELLER (STG. #12)
253	2288109	1	IMPELLER (STG. #13)
254	2289245	1	IMPELLER (STG. #14)
263	2289253	1	SHAFT, PUMP
265	1115855	15	RING, THRUST (IMP. & SLEEVE)
272	1401688	1	KEY (1ST. IMPELLER)

Unnumbered parts in the illustrations are the same as corresponding parts with numbers.

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Parts List

PUMP14 STAGE SINGLE SUCTION, DOUBLE VOLUTE PUMP (HI PRESSURE CONSTRUCTION)		PUMP SERIAL NO. 1C935/46
TYPE: MSD	SHEET NO. 3 of 3	DRAWING NO. 8-1C935-11

ITEM NO.	PART NO.	QTY.	DESCRIPTION
273	1138693	1	KEY (THROTTLE SLEEVE)
275	1401688	11	KEY (SERIES IMPELLER)
276	1401718	1	KEY (IMP. & CENTER SHAFT SLEEVE)
277	1401696	1	KEY (FINAL IMPELLER)
			FASTENERS REQUIRED (NOT ILLUSTRATED)
112	1050516	70	STUD (STD. TAP DEPTH)
113	1050532	2	STUD (LONG STD. THRU BOSS)
116	1105639	72	CAPNUT (CASE - STUDS)

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SULZER BINGHAM

SULZER BINGHAM PUMPS INC.

Form No. 1132

Parts List

PUMP: SLEEVE JOURNAL/BALL THRUST BEARING ASSEMBLY		PUMP SERIAL NO. 1C935/46	
TYPE:	SHEET NO. 1 of 2	DRAWING NO. B-40996	

ITEM NO.	PART NO.	QTY.	DESCRIPTION
263	2289253	1	SHAFT, PUMP
278	1107674	1	KEY (SHAFT EXT.)
281	1105736	1	LOCKNUT (SHAFT EXT.)
302	1131680	1	BEARING, HOUSING ASS'Y. (DR. END)
304	1405373	1	BEARING, HOUSING ASS'Y. (TH. END)
306	1130102	2	JOURNAL BEARING ASSEMBLY
322	1398067	2	GASKET (OIL COOLER TO BRG. HSG.)
324	1064754	2	SEAL, INNER (OIL COOLER TO BRG. HSG.)
325	1137565	1	COOLER, OIL (THRUST END)
326	1337459	1	COOLER, OIL (DRIVE END)
329	1100519	1	NUT, LOCK (BEARING)
333	1002902	1	WASHER, LOCK (BEARING)
334	1064711	5	PLUG, INSPECTION W/O-RING
336	1135368	1	COVER, BEARING
337	1056220	1	O-RING (COVER)
340	1106287	1	SHIM SET (END COVER)

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Form No. 1132

Parts List

PUMP: SLEEVE JOURNAL/BALL THRUST BEARING ASSEMBLY		PUMP SERIAL NO. 1C935/46	
TYPE:	SHEET NO. 2 of 2	DRAWING NO. B-40996	

ITEM NO.	PART NO.	QTY.	DESCRIPTION
341	1106309	1	SHIM SET (THRUST BEARING)
342	1125222	1	RING, OIL (THRUST BEARING)
343	1125249	1	SLEEVE, OIL RING MOUNTING
344	1106279	1	RING, RETAINER (BEARING)
345	1063502	1	BEARING, THRUST (ANGULAR CONTACT)
348	1507206	2	OILER, TRICO W/GUARD
360	1114395	4	RING, OIL (JOURNAL BEARING)
361	1115510	3	DISC. DEFLECTOR
Unnumbered parts in the illustrations are the same as corresponding parts with numbers.			

SULZER BINGHAM

REPORT OF TEST-INDUCTION MOTOR

DATE OF TEST 1-25-89

MANUFACTURERS
ORDER NO. 8J44754

PURCHASER BINGHAM INTERNATIONAL

PURCHASERS
ORDER NO. 36966

RATING

TYPE	FRAME	RATED H.P.	FULL LOAD R.P.M.	VOLTS	PH	HZ.	FULL LOAD AMPERES	SERVICE FACTOR	TIME RATING
WPIIX	7112	800	3580	4160	3	60	97	1.15	CONT.

CONDITIONS OF TEST

TEMPERATURE RISE-DEG. C

HOURS RUN	LINE VOLTS	LINE AMPERES	COOLING AIR DEG. C	STATOR		ROTOR		COLLECTOR RINGS
				CORE BY THERMO- COUPLE METHOD	WINDINGS (CROSS OUT THREE) BY RESISTANCE METHOD BY THERMO-COUPLE METHOD BY THERMO-COUPLE METHOD BY THERMO-COUPLE METHOD	CORE BY THERMO- METER METHOD	WINDINGS (CROSS OUT ONE) BY RESISTANCE METHOD BY THERMO- METER METHOD	
3	4160	96	25½	28	39.4	--	--	--
		FULL LOAD HEAT	RUN @	801	HP.			

CHARACTERISTICS

SLIP-PERCENT	AMPERES RUNNING LIGHT	RESISTANCE IN OHMS AT 21°C (BETWEEN LINES)		SECONDARY VOLTS AT STANDSTILL	SECONDARY AMPERES PER RING AT FULL LOAD
		STATOR BETWEEN TERMINALS	ROTOR BETWEEN RINGS		
.48	24.5	.42848	--	--	--

TORQUE AND STARTING CURRENT

HIGH-POTENTIAL TESTS

BREAK-DOWN TORQUE LBS. AT 1 FT. RADIUS @2392 VOLTS	LOCKED ROTOR TORQUE LBS. AT 1 FT. RADIUS WITH-* VOLTS APPLIED	STARTING CURRENT AMPERES (LOCKED ROTOR) WITH-* VOLTS APPLIED	VOLTS A-C FOR 60 SEC.	
			STATOR	ROTOR
1125	1179	564	9300	--

*3487

EFFICIENCIES AND POWER FACTOR

EFFICIENCY, PERCENT			POWER FACTOR, PERCENT		
FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD
96.4	96.7	96.7	89.6	87.9	82.6

NOTES: DATA FROM TEST ON THIS MOTOR. IN ACCORDANCE WITH IEEE 112-1984
(THIS OR DUPLICATE) FORM A-2.

THIS DATA FOR REFERENCE ONLY UNLESS OTHERWISE SPECIFIED

PREPARED BY RRS

APPROVED BY *[Signature]*

DATE 1-27-89

MagneTek  Louis Allis
Motors & Generators

71Y988

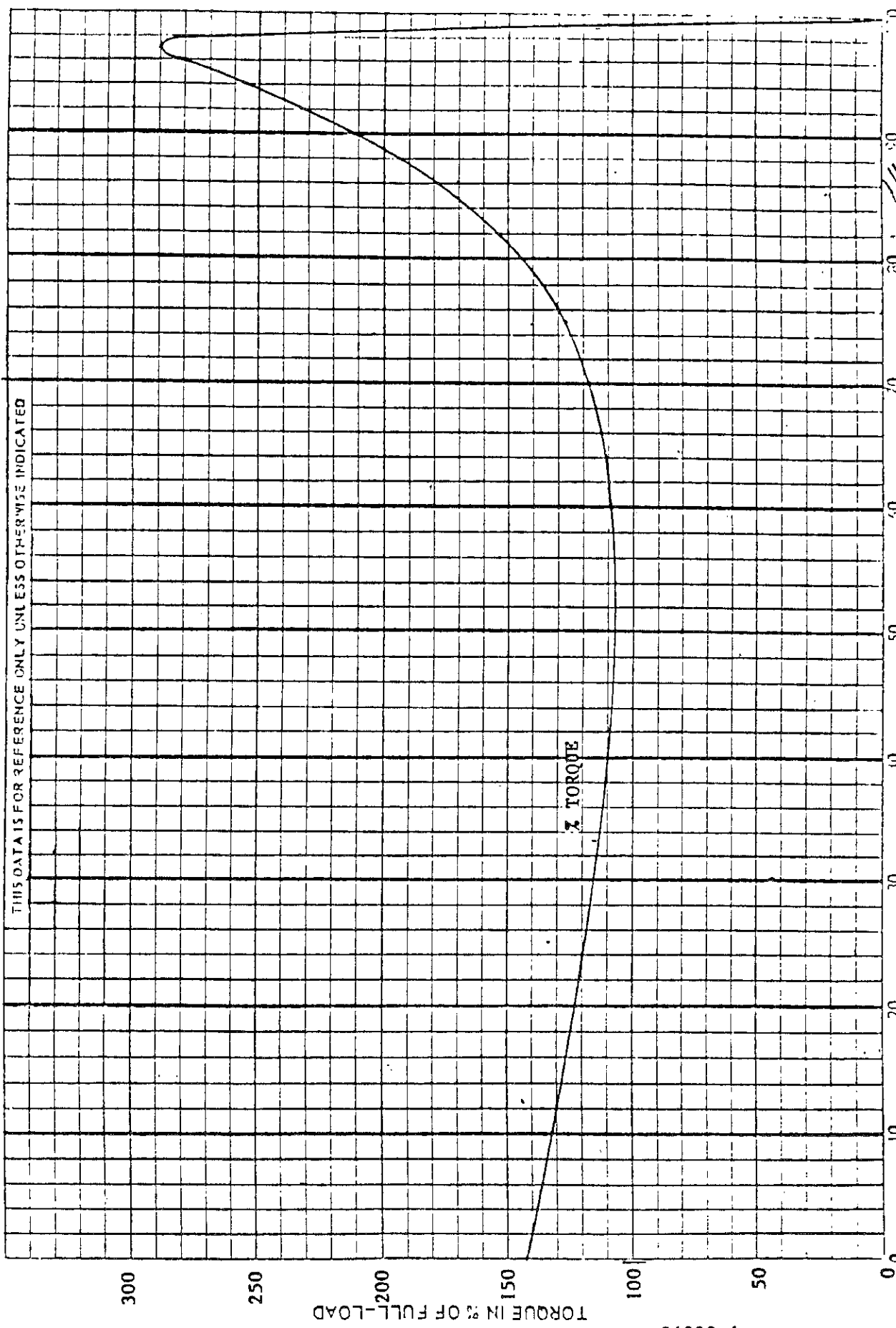
SHEET 1 OF 1



ALCOA ALUMINUM WORKING 5100

SPEED - TORQUE CURVE

TYPE WP1IX ENCL. -- FRAME 7112 HP 800 F.L. RPM 3580 HERTZ 60 PHASE 3
VOLTS 4160 F.L. TORQUE 1174 LBS. FT. F.L. AMPS 97 EL. SPEC. 71Y988



CURVE NO. 21029-1

DATE - NOV. 1 - 1958

SYNCHRONOUS SPEED

APPVD. BY

11/1/58 1.26-87