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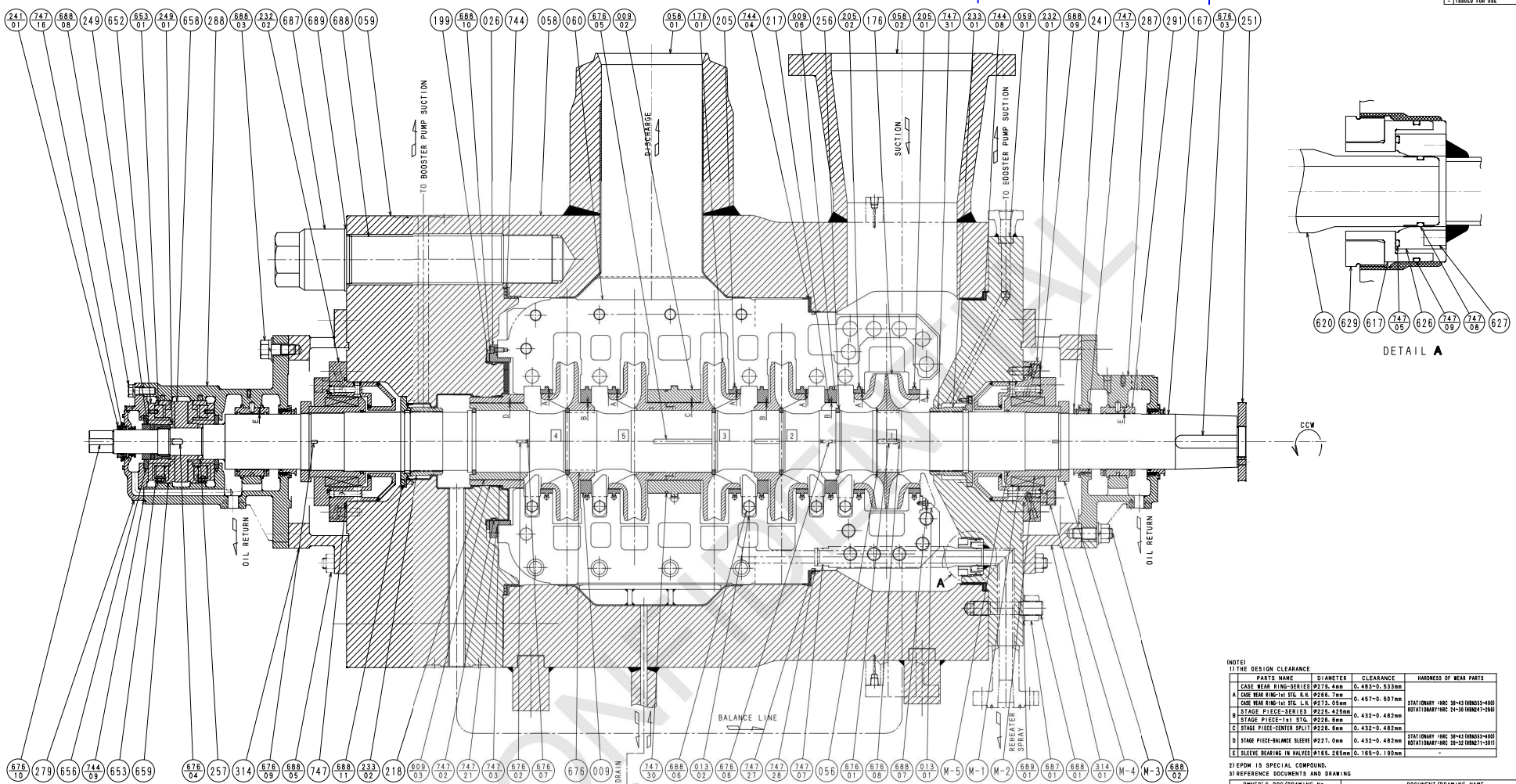

(NOTE)
1) THE DESIGN CLEARANCE

	PARTS NAME	DIAMETER	CLEARANCE	HARDNESS OF WEAR PARTS
A	CASE WEAR RING-SERIES	ø279.4mm	0.483~0.533mm	STATIONARY: HRC 38~43 (HBN353~400) ROTATIONARY: HRC 24~30 (HBN247~286)
	CASE WEAR RING-1st STG. L.R.	ø266.7mm	0.457~0.507mm	
	CASE WEAR RING-1st STG. L.H.	ø273.05mm		
B	STAGE PIECE-SERIES	ø225.425mm	0.432~0.482mm	
	STAGE PIECE-1st STG.	ø228.6mm		
C	STAGE PIECE-CENTER SPLIT	ø228.6mm	0.432~0.482mm	
D	STAGE PIECE-BALANCE SLEEVE	ø227.0mm	0.432~0.482mm	STATIONARY: HRC 38~43 (HBN353~400) ROTATIONARY: HRC 28~32 (HBN271~301)
E	SLEEVE BEARING IN HALVES	ø165.265mm	0.165~0.190mm	-

2) EPDM IS SPECIAL COMPOUND.
3) REFERENCE DOCUMENTS AND DRAWING

OWNER'S DOC/DRAWING. No.	DOCUMENT/DRAWING NAME
TJB56-LI-OFF-C-LAC-M-DAS-3630	DATA SHEET FOR TURBINE DRIVEN BOILER FEEDWATER PUMP
TJB56-LI-OFF-C-LAC-M-DRD-2600	OUTLINE DRAWING FOR TURBINE DRIVEN BOILER FEEDWATER PUMP SYSTEM
TJB56-LI-OFF-C-LAC-M-PID-2128	PIPING AND INSTRUMENT DIAGRAM FOR TURBINE DRIVEN BOILER FEEDWATER PUMP SYSTEM
TJB56-LI-OFF-C-LAC-M-DRD-2706	SECTIONAL DRAWING FOR TBFP AND BOOSTER PUMP MECHANICAL SEAL
TJB56-LI-OFF-C-LAC-M-DRD-2704	SECTIONAL DRAWING FOR TBFP COUPLING (BFPT TO BFP)
TJB56-LI-OFF-C-LAC-M-DRD-2703	SECTIONAL DRAWING FOR TBFP COUPLING (BFPT TO G/B)

4) EQUIPMENT KKS CODE
TBFP: 50LAC11 AP010KP02, 60LAC11 AP010KP02
·50LAC12 AP010KP02, 60LAC12 AP010KP02
5) HEAVY PARTS
TBFP

No.	PARTS NAME	WEIGHT (KG)
058	OUTER BARREL #1	12000
059	BARREL COVER-DISCH. END	4200
059-01	SUCTION COVER	2000
080	VOLUTE-IN-HALVES	2200
167	SHAFT	800
287	HOUSING-RADIAL BEARING	150
288	HOUSING-THRUST BEARING	300

※: IT IS NOT REMOVED IN OVERHAUL
6) SHAFT LENGTH: APPROX. 3600
SHAFT DIA. ON BEARING: ø165.1

No.	PART NAME	MATERIAL: ASTM or AISI	MATERIAL: JIS CODE	UNIT	REMARKS
217	SHAFT SLEEVE-1st STG.	(AISI 420)	SUS420J1	1	
205-02	CASE WEAR RING-IMP. 1st STG L.H.	(AISI 420)	SUS420J2	1	
205-01	CASE WEAR RING-IMP. 1st STG R.H.	(AISI 420)	SUS420J2	1	
205	CASE WEAR RING-SERIES	(AISI 420)	SUS420J2	4	
199	LOCATING RING-VOLUTE	(AISI 420)	SUS420J1	1	
176-01	IMPELLER-SERIES	ASTM A487M CL.4	-	4	
176	IMPELLER-1st STG.	ASTM A487M CL.4	-	1	
167	SHAFT	A276 TY.410N, MD	-	1	
080	VOLUTE-IN HALVES	ASTM A487M CL.4	-	1	
059-01	SUCTION COVER	ASTM A105M	-	1	
059	BARREL COVER-DISCH. END	ASTM A105M	-	1	
058-02	SUCTION NOZZLE	ASTM A105M	-	1	
058-01	DISCHARGE NOZZLE	ASTM A105M	-	1	
058	OUTER BARREL	ASTM A105M	-	1	
056	RETAINING RING	-	Stainless	1	
026	BUSHING-VOLUTE	(AISI 420)	SUS420J2	1	
013-02	SPLITTER SERIES	(AISI 420)	SUS420J2	10	
013-01	SPLITTER 1st STG.	ASTM A487M CL.4	-	2	
009-06	STAGE PIECE-1st STG.	(AISI 420)	SUS420J2	1	
009-03	STAGE PIECE-BALANCE SLEEVE	(AISI 420)	SUS420J2	1	
009-02	STAGE PIECE-CENTER-SPLIT	(AISI 420)	SUS420J2	1	
009	STAGE PIECE-SERIES	(AISI 420)	SUS420J2	2	
M-5	O-RING SLEEVE-MECH. SEAL	-	-	2	
M-4	COVER-MECH. SEAL	-	-	2	
M-3	SLEEVE NUT-MECH. SEAL	-	-	2	
M-2	SHAFT SLEEVE-MECH. SEAL	-	-	2	
M-1	MECHANICAL SEAL	-	-	2	

No.	PART NAME	MATERIAL: ASTM or AISI	MATERIAL: JIS CODE	UNIT	REMARKS
656	OIL SEAL	(BS84 C93700)	CAC603	2	
653-01	ROCKER PLATE (6 PER SET)	(AISI 1020)	S10C	12	
653	LEVELING PLATE (6 PER SET)	(AISI 1020)	S10C	12	
652	HOUSING RING-THRUST	(ASTM A48 CL.45)	FC300	2	
629	SEALING NUT-INTERSTAGE	(AISI 420)	SUS420J2	1	
627	COIL SPRING	(A276 TYPE316)	SUS316	8	
626	SEALING SLEEVE-INTERSTAGE	(AISI 420)	SUS420J2	1	
620	TAKE OFF TUBE-INTERSTAGE	(AISI 420)	SUS410J1	1	
617	SLEEVE RETAINER-INTERSTAGE	(AISI 420)	SUS420J2	1	
314-01	BEARING BRACKET-SUCT. END	-	SC480	1	
314	BEARING BRACKET-DISCH.END	-	SC480	1	
291	SLEEVE BEARING IN HALVES	(AISI 1035/B33 No.3)		2	BGFN-160
288	HOUSING-THRUST BEARING	ASTM A48 CL.45	FC300	1	
287	HOUSING-RADIAL BEARING	ASTM A48 CL.45	FC300	1	
279	END COVER-THRUST BEARING	ASTM A48 CL.45	FC300	1	
257	LOCATING RING-SHAFT	(ASTM A283 Gr.D)	SS400	1	
256	SPLIT RING	(AISI 420)	SUS420J1	5	
251	LOCK NUT-COUPLING	(AISI 1035)	S35C	1	
249-01	LOCKING SLEEVE	(AISI 1035)	S35C	1	
249	NUT-SHAFT END	(AISI 1035)	S35C	1	
241-01	DEFLECTOR-DISCH. END	(ASTM B584 C90500)	CAC406	1	
241	DEFLECTOR	(ASTM B584 C90500)	CAC406	3	
233-02	INNER BUSHING DISCH.END	(AISI 420)	SUS420J2	1	
233-01	INNER BUSHING SUCT. END	(AISI 420)	SUS420J2	1	
232-02	STUFFING BOX-DISCH. END	(ASTM A487M CL.4)	-	1	
232-01	STUFFING BOX-SUCT. END	ASTM A487M CL.4	-	1	
218	BALANCE SLEEVE	(AISI 420)	SUS420J2	1	

No.	PART NAME	MATERIAL: ASTM or AISI	MATERIAL: JIS CODE	UNIT	REMARKS
689	WASHER-DISCH.COVER TO BARREL	(ASTM A283 Gr. D)	SS400	14	ø210
688-11	STUD-INNER BUSHING	(AISI 420)	SUS420J1	16	M10X16L
688-10	STUD-BUSHING-VOLUTE	(AISI 420)	SUS420J1	8	M16X30L
688-09	STUD-STUFFING BOX	(AISI 4137)	SCM435	16	M24X50L
688-06	STUD-END COVER	(ASTM A283 Gr. D)	SS400	8	M22X65L
688-07	STUD-SPLITTER, 1st STG.	(AISI 420)	SUS420J1	4	M16X40L
688-05	STUD-SPLITTER	(AISI 420)	SUS420J1	10	M20X40L
688-04	STUD-BEARING BRACKET	(AISI 4135H)	SCM435	24	M30X125L
688-03	STUD-BEARING HOUSING UPPER	(AISI 4135H)	SCM435	8	M30X120L
688-02	STUD-BEARING HOUSING LOWER	(AISI 4135H)	SCM435	12	M30X120L
688-01	STUD-DISCH.COVER TO BARREL	(AISI 4135H)	SCM435	20	1. 5/8" X225L
688	STUD-DISCH.COVER TO BARREL	(AISI 4135H)	SCM435	14	5. 1/4" X700L
687-01	NUT-SUCT.COVER TO BARREL	(AISI 1045)	S45C	20	1. 5/8" X42T
687	NUT-DISCH.COVER TO BARREL	(AISI 1045)	S45C	14	5. 1/4" X280T
678-10	KEY-COUPLING(GEAR)	-	SNC631	1	
678-09	KEY-MECHANICAL SEAL	(AISI 420)	SUS420J2	2	
678-08	KEY-1st. Impeller	(AISI 316)	SUS316	2	
678-07	KEY-SHAFT SLEEVE	(AISI 316)	SUS316	2	
678-06	KEY-1st STG.SHAFT SLEEVE	(AISI 420)	SUS420J2	1	
678-05	KEY-IMPELLER-CENTER	(AISI 420)	SUS420J2	2	
678-04	KEY-THRUST DISC	(AISI 1045)	S45C	1	
678-03	KEY-COUPLING(TURBUNE)	-	SNC631	2	
678-02	KEY-BALANCE SLEEVE	(AISI 420)	SUS420J2	1	
678-01	KEY-IMPELLER 1st STG	(AISI 420)	SUS420J2	2	
676	IMPELLER-SERIES	(AISI 420)	SUS420J2	6	
659	THRUST SHOE ASSEMBLY (4 PER SET)	(AISI 1045/B33R NO.2)	S45C/W.J2	12	KTB#10.5
658	WASHER-SPLITTER	(ASTM A283 Gr. D)	SS400	1	

No.	PART NAME	MATERIAL: ASTM or AISI	MATERIAL: JIS CODE	UNIT	REMARKS
747-31	"O"RING-INNER BUSHING	-	EPDM NDTE2)	2	
747-30	"O"RING-CENTER-SPLIT	-	EPDM NDTE2)	1	
747-28	BACK UP RING VOLUTE	-	TEFLON	1	
747-27	"O"RING-VOLUTE	-	EPDM NDTE2)	1	
747-21	"O"RING-VOLUTE TO BUSHING	-	EPDM NDTE2)	1	
747-18	"O"RING-DEFLECTOR-DIS.END	-	NBR	1	
747-13	"O"RING-DEFLECTOR	-	NBR	3	
747-09	"O"RING-SLEEVE RETAINER INTERSTAGE	-	EPDM NDTE2)	1	
747-08	"O"RING-TAKE OFF TUBE INTERSTAGE	-	EPDM NDTE2)	1	
747-07	"O"RING-TAKE OFF TUBE INTERSTAGE	-	EPDM NDTE2)	1	
747-05	"O"RING-SEALING SLEEVE INTERSTAGE	-	EPDM NDTE2)	1	
747-03	"O"RING-BALANCE STAGE PEACE	-	EPDM NDTE2)	1	
747-02	"O"RING-DISCH.COVER TO VOLUTE	-	EPDM NDTE2)	1	
747	O-RING-STUFFING BOX	-	EPDM NDTE2)	2	
744-09	GASKET-RINGING-THRUST BEARING	-	VMS300	1	
744-08	GASKET-DISC.COVER TO BARREL	(AISI 304&GRAPHITE)	SUS304 GRAPHITE	1	
744-01	GASKET-VOLUTE TO BARREL	(AISI 304&GRAPHITE)	SUS304 GRAPHITE	1	
744	GASKET-DISCH.COVER TO BARREL	(AISI 304&GRAPHITE)	SUS304 GRAPHITE	1	
689-01	WASHER-DISCH.COVER TO BARREL	(ASTM A283 Gr. D)	SS400	1	

No.	PART NAME	MATERIAL: ASTM or AISI	MATERIAL: JIS CODE	UNIT	REMARKS

REVISIONS				
NO.	DESCRIPTION	DATE	BY	APP
A	REVISED	Dec.11,'17	N. M	A. T
B	REVISED	Dec.19,'18	N. M	A. T
	ISSUED FOR USE	Dec.19,'18	N. M	A. T

EBARA DOC No. R170411901 R170411905
MODEL 16×16×18-5stg HDB
APP'D BY A. TAKIGAMI
DRW'D BY T. IETA
CUSTOMER TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION
No. 4
PT BHUMI JATI POWER
TITLE SECTION DRAWING FOR TURBINE DRIVEN BOILER FEEDWATER PUMP
EBARA CORPORATION
DWG No. PR170411901/905 REV. 3
REF. No. R170411901-105 REV. 3

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