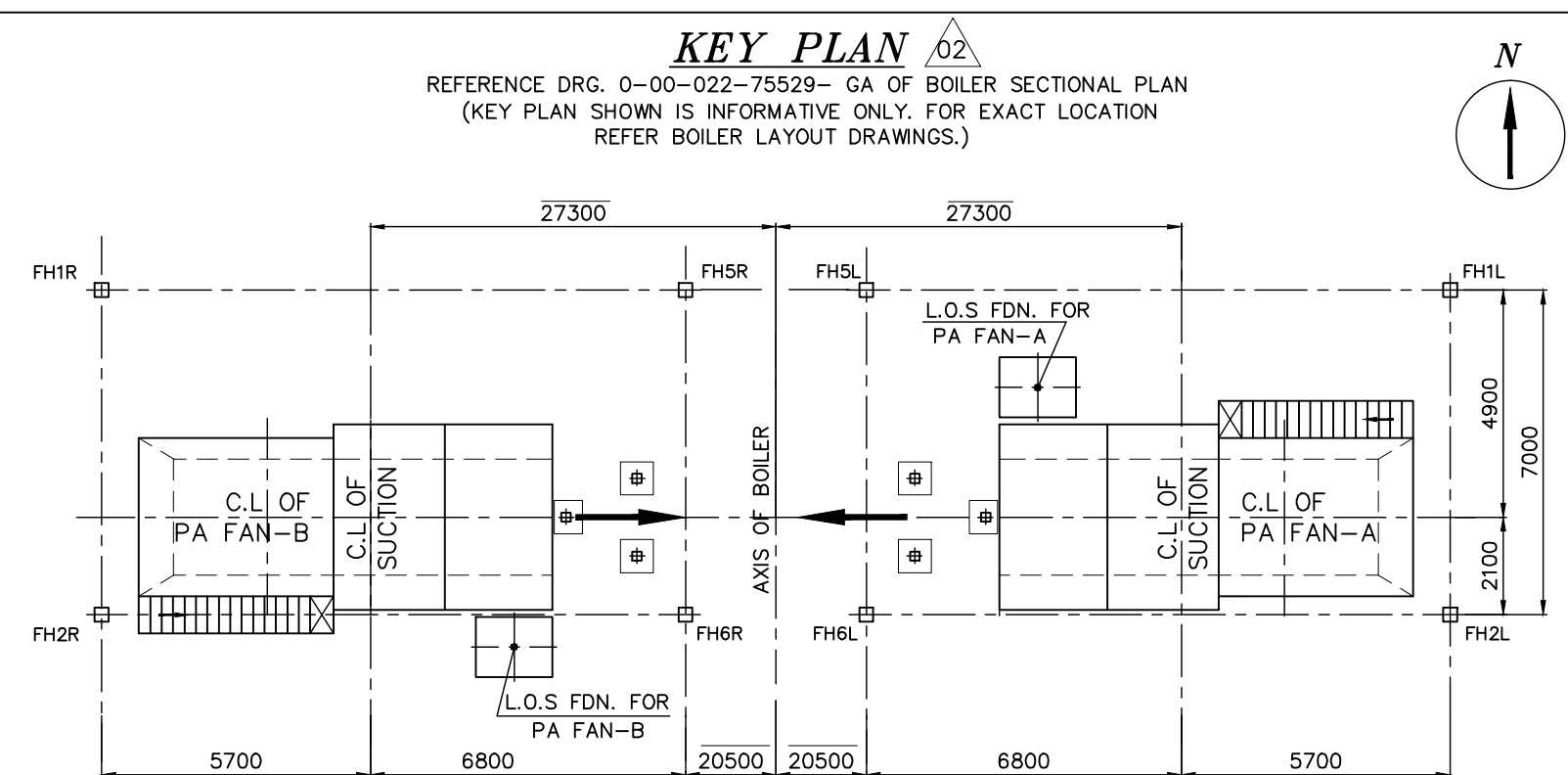
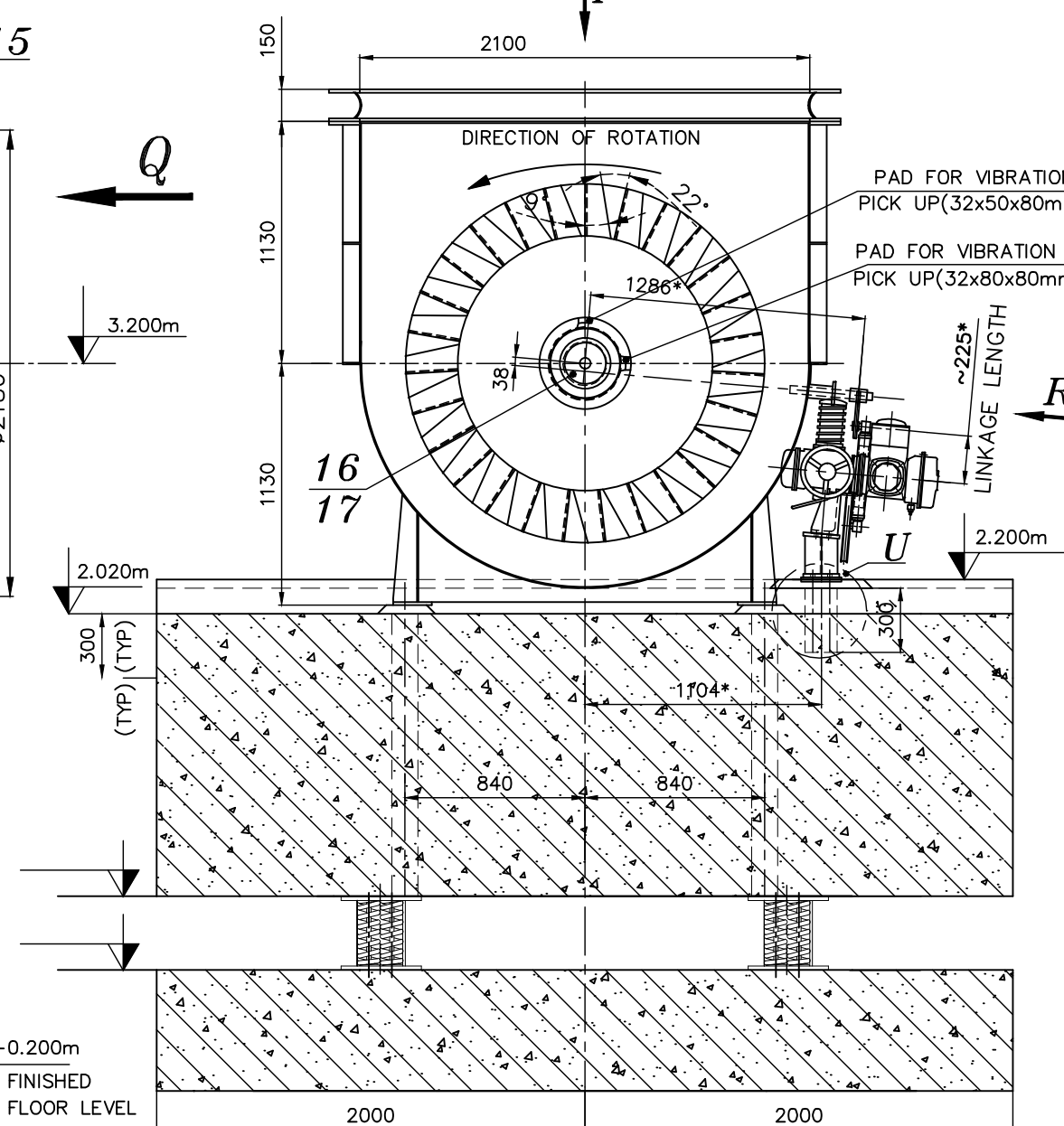
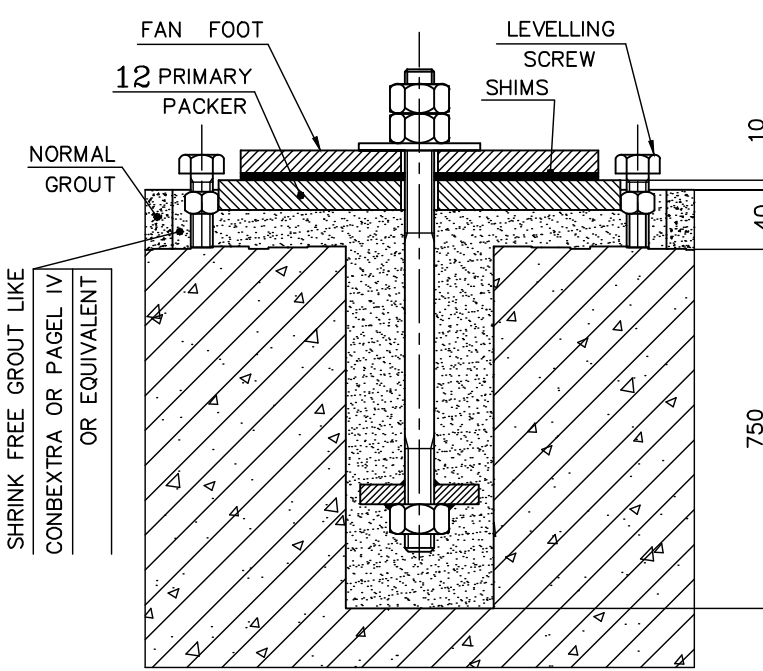


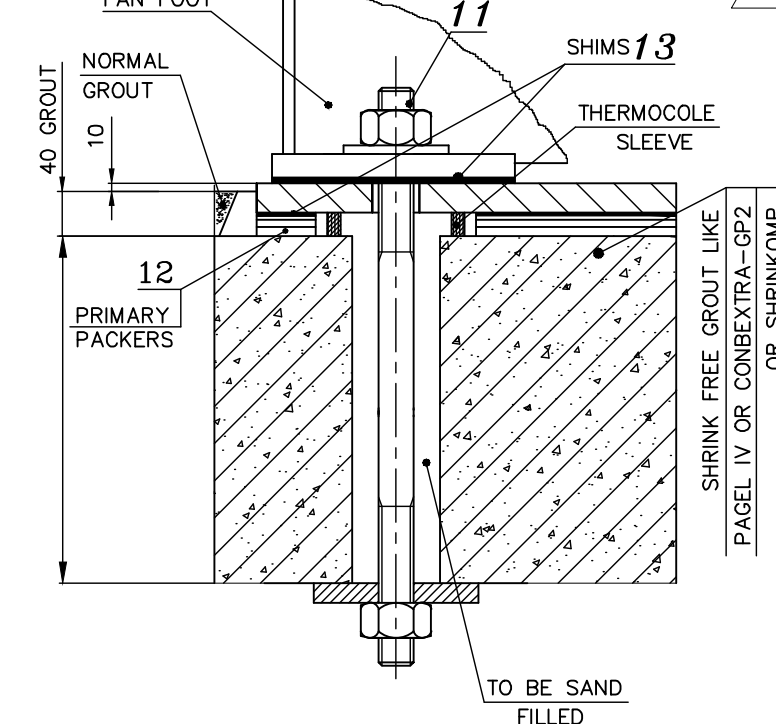
SECTION-EE 02



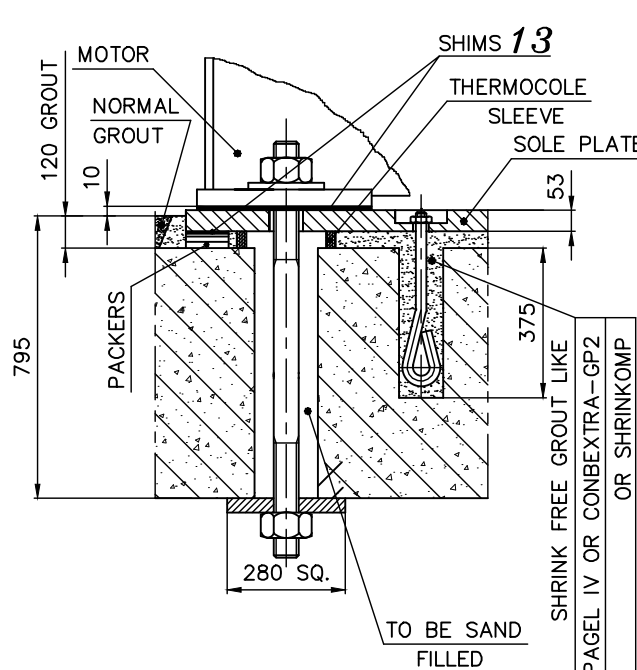
SECTION-AA



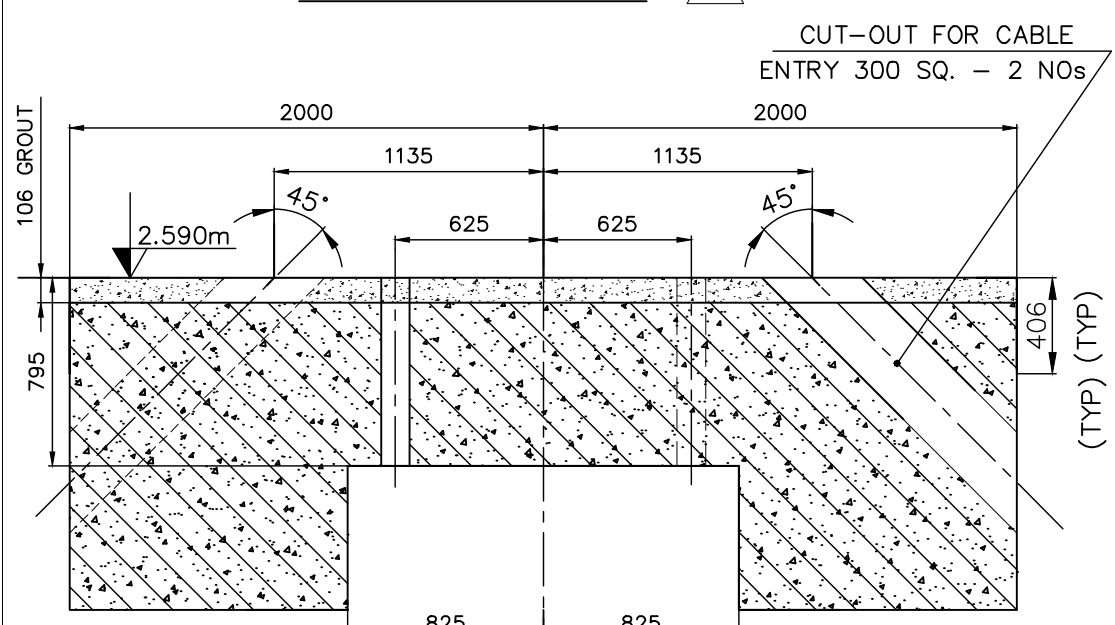
SECTION-BB 01



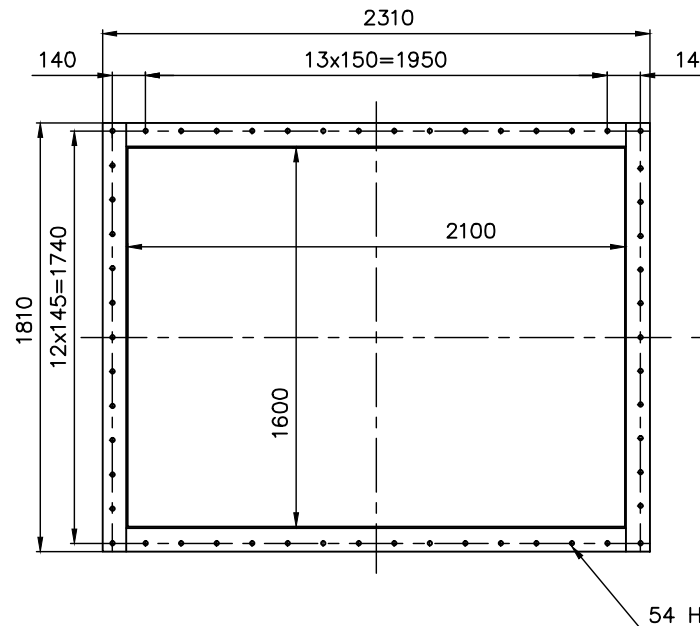
SECTION-CC 01



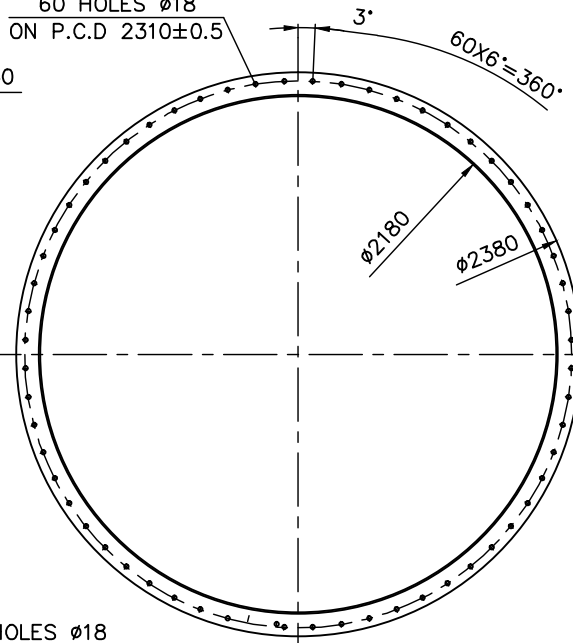
SECTION-DD 02



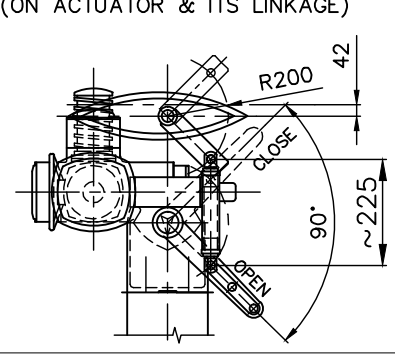
VIEW-P



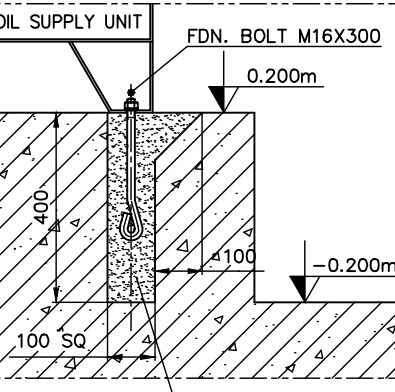
VIEW-Q



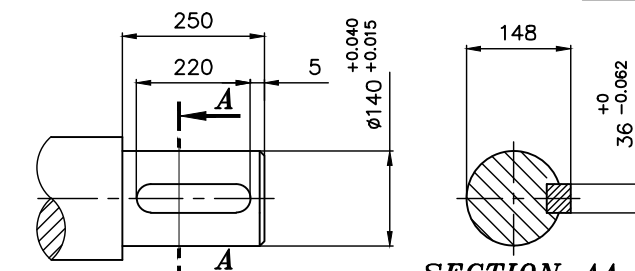
VIEW-R*



SECTION-FF



MOTOR SHAFT END 01



SECTION-AA

FAN DETAILS:

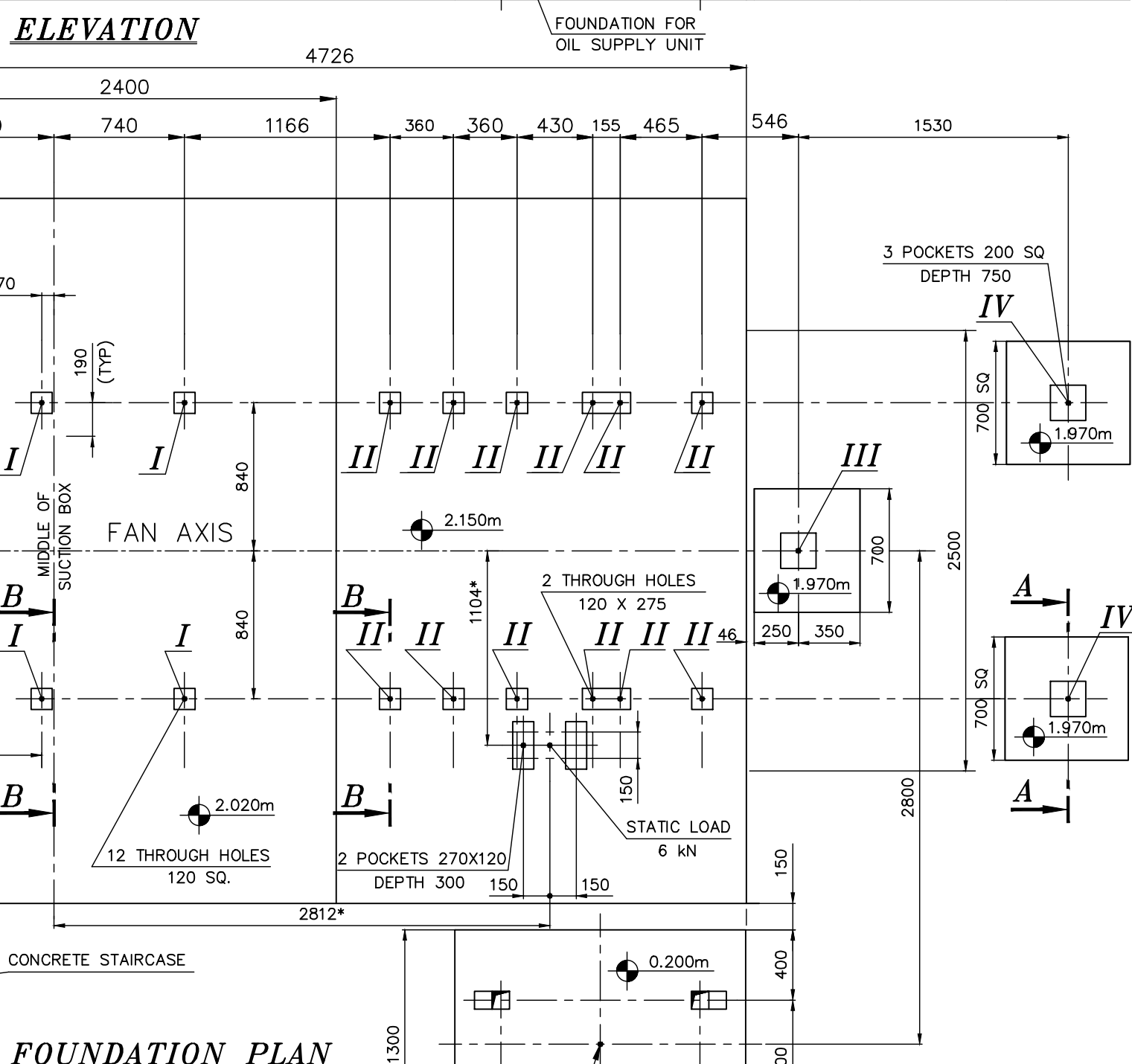
TYPE : PAF 17/11.8-2
NO. OF FANS PER BOILER : TWO (IDENTICAL)
WEIGHT OF ROTATING PARTS : 2900 kg
GD² OF FAN : 1700 kg.m²
SPEED OF FAN : 1490 RPM

MOTOR DETAILS:

RATING : 1600 KW/1491 RPM
TYPE : SQ. CAGE INDUCTION, 1LA7802-4P, TENV, IP55, B3
MAKE : BHEL, BHOPAL
WEIGHT OF MOTOR : 8850 KG
WEIGHT OF ROTATING PARTS : 1900 KG
GD² OF MOTOR : 292 KG M²
MOTOR DRG. NO. : 34020045259
MAX. FOUNDATION LOADING (ALTERNATING) : 93 KN UPWARDS
PER MOTOR LONGITUDINAL SIDE : 181 KN DNWARDS
BEARINGS : DE : NU230M+6230C3
NDE : NU226M (INSULATED)
LUBRICATION : GREASE SERVOGEM-3 OR EQUIVALENT

CUSTOMER NO. R212 & R213

- NOTES:-**
- THE LOADS INDICATED ON FOUNDATION ARE WITHOUT ALLOWANCES FOR VIBRATIONS. CIVIL DESIGNERS/CONSULTANTS ARE RESPONSIBLE FOR PROPER DESIGN OF FOUNDATION TAKING INTO ACCOUNT OF THE ALLOWANCES FOR VIBRATION ALSO.
 - THE DIFFERENT NATURAL FREQUENCIES OF THE FOUNDATION HAVE TO BE 30% AWAY FROM THE SPEED FREQUENCY, $f_{nmax} = n/60$ AND 20% AWAY FROM THE DOUBLE OF THE SPEED FREQUENCY, $2 \times f_{nmax}$. THIS MEANS: $0.7 \times f_n$ TO $1.3 \times f_n$ AND $0.8 \times (2 \times f_n)$ TO $1.2 \times (2 \times f_n)$. SPEED FREQUENCY $f_{nmax} = 24.83$ HZ ($2 \times f_{nmax} = 49.66$ HZ)
 - THE STIFFNESS OF THE FOUNDATION HAS TO BE AT LEAST $C_f > 1.0E+06$ N/mm IN LONGITUDINAL, TRANSVERSAL AND VERTICAL DIRECTIONS RELATING TO THE FAN AXIS. IT HAS TO BE TAKEN INTO CONSIDERATION THAT ON SETTLING THE FOUNDATION THE TOTAL NATURAL FREQUENCIES OF THE FOUNDATION CAN ARISE DUE TO THE SOIL COMPACTION AND THE RESULTING INCREASES OF THE ELASTIC MODULUS. AN UNEVEN SETTLING OF THE FOUNDATION HAS TO BE EXCLUDED.
 - THE RATIO OF THE FOUNDATION MASS TO THE ROTOR MASS HAS TO BE GREATER THAN 25.
 - ADOPT IS: 2974 / PART-IV FOR THE FOUNDATION DESIGN.
 - THE CONNECTING DUCTS AT INLET AND OUTLET OF FAN MUST BE SELF SUPPORTED AND SHOULD NOT BE WELDED WITH EXPANSION JOINTS.
 - FOUNDATION POCKETS SHOULD BE PERPENDICULAR TO THE FLAT SURFACES OF FOUNDATION.
 - ACCURATE TEMPLATES SHALL BE USED FOR LOCATING CORES FOR POCKET HOLES TO ENSURE THEIR DIMENSIONAL ACCURACY.
 - TOLERANCE BETWEEN ANY TWO POCKET CENTRES IS ± 5 mm.
 - TOLERANCE ON CONCRETE LEVELS ± 25 mm.
 - IN AREAS WHERE SOLE PLATES AND ANCHOR PLATES ARE TO BE INCORPORATED IN FOUNDATION CONCRETE, THE SIZE OF THE COARSE AGGREGATE USED SHALL NOT EXCEED 20 mm AND DOWN GRADED TO FACILITATE CHIPPING AND SCRAPPING AND THEREBY ENSURING MAXIMUM CONTACT ON THE MATING AREAS.
 - NON-SHRINK GROUT IS TO BE USED. REFER GENERAL SPECIFICATIONS ISSUED BY BHEL/RANIPET FOR NON-SHRINK GROUT. THIS ALSO CONTAINS THE PREPARATIONS OF PRIMARY PACKERS & SHIMS.
 - GROUTING SHOULD BE DONE ONLY AFTER FINAL ALIGNMENT OF FAN.
 - ELEVATIONS & POCKET DEPTH SHOWN IN FOUNDATION PLAN ARE EXCLUDING GROUTING THICKNESS.
 - GROUTING IS IN THE SCOPE OF ERECTION GROUP/CONTRACTOR.
 - HANDRAILS, STEEL PLATFORMS, STEEL STAIRS, LADDERS, CANOPY OF MOTOR & THEIR EMBEDMENTS ARE, IN THE SCOPE OF BHEL/TRICHY.
 - FAN FOUNDATION SHOULD NOT BE USED AS SUPPORT FOR OTHER STRUCTURES OR EQUIPMENTS.
 - FOUNDATION CONFIGURATION SHOWN IN THIS DRAWING IS ONLY INFORMATIVE/TYPICAL. TYPE AND DETAILS OF FOUNDATION ARE TO BE FINALISED BY CIVIL DESIGNERS/CONSULTANTS.
 - FOR MOTOR ERECTION, REFER MOTOR SUPPLIER'S ERECTION MANUAL.
 - CIVIL DESIGNER TO CHECK THE FOLLOING OF FAN FOUNDATION BOLT WITH VIS SPRING LOCATION.



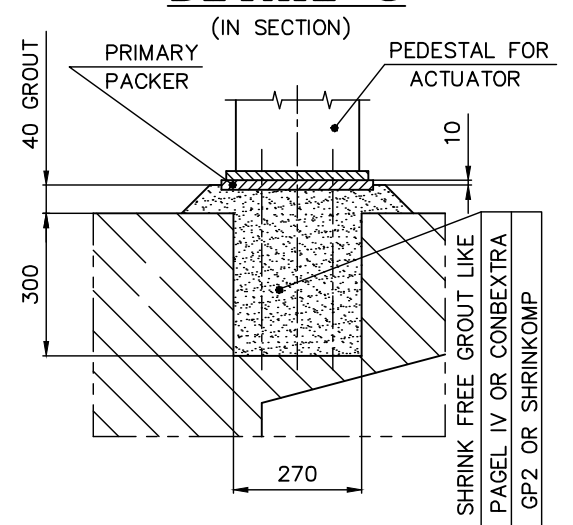
FOUNDATION PLAN

SL NO	DESCRIPTION	MATERIAL	THICKNESS (MM)	QTY
17	BEARINGS	NU230.C3		2
16	SHAFT	7034B.MP.UA		3
15	OUTLET EXPANSION JOINT	IS: 2062 & RUBBER		1
14	INLET EXPANSION JOINT	IS: 2062 & RUBBER		1
13	SHIMS	S.S		AS REQD
12	PRIMARY PACKER	IS : 2062	25	10
11	FOUNDATION FASTENERS FOR FAN	ASTM A105		17
10	COUPLING GUARD	IS : 2062		1
09	SPACER COUPLING	STEEL		1
08	MOTOR WITH FNDN. FASTENERS	1600 KW / 1491 RPM		1
07	BLADES	FORGED/CAST ALUMINUM ALLOY BHN MIN 75		40
06	IMPELLER HUB	P355 NH		2
05	HOUSING CORE	IS : 2062	10	1
04	DIFFUSER	IS : 2062	5	1
03	OUTLET GUIDE VANE ASSY.	IS : 2062	12	1
02	IMPELLER HOUSING	IS : 2062	12	1
01	SUCTION CHAMBER	IS : 2062	5	1
SL NO	DESCRIPTION	MATERIAL	THICKNESS (MM)	QTY

BILL OF MATERIAL 01 02

DIMENSION MARKED "*" WILL BE FURNISHED LATER

DETAIL-U



LOAD POINT	DEAD LOAD VERTICAL	DYNAMIC LOAD VERTICAL	DEAD LOAD HORIZONTAL IN AXIAL DIRECTION	DYNAMIC LOAD HORIZONTAL IN AXIAL DIRECTION	DEAD LOAD HORIZONTAL ACROSS TO THE AXIS	DYNAMIC LOAD HORIZONTAL ACROSS TO THE AXIS
I	+4800	± 100	± 1200	± 100	± 100	± 100
II	+13000	± 1600 ± 5600	± 2500	± 100	± 1400 ± 4700	± 100
III	+8700	± 100		± 100	± 100	± 100
IV	+5400	± 100		± 100	± 100	± 100

REV	DATE	ALT: A.K.K	CHKD: R.GIRI	APPD: V.P.S
02	23.06.11	A.KIRAN	R.Giridhar	

DRAWING UPDATED AS PER CUSTOMER COMMENTS VIDE TRANSMITTAL REF: PE:MTPP2:0350:108:723 DATED 11.04.11 AND MAIL DATED:15.06.11.

- OVERALL FAN AND MOTOR FOUNDATION CONFIGURATION ALTERED.
- SECTION-EE & SECTION-DD UPDATED.
- KEYPLAN UPDATED.
- MOTOR DETAILS UPDATED.
- BOM TABLE UPDATED.

REV	DATE	ALT: C.DHANA	CHKD: R.GIRI	APPD: V.P.S
01	26.03.11	C.DHANA	R.Giridhar	

DRAWING UPDATED AS PER CUSTOMER COMMENTS VIDE TRANSMITTAL REF: PE:MTPP2:0350:108:134 DATED 09.11.10.

- MOTOR AND ITS FOUNDATION DETAILS UPDATED.
- FAN AND ITS FOUNDATION DETAILS UPDATED WITH TYPICAL SPRING ARRANGEMENT (VIS).
- KEY PLAN UPDATED.
- BILL OF MATERIAL UPDATED.
- KEY PHASER SLOT INDICATED.
- PADS FOR VIBRATION PICK-UP INDICATED.
- NOTE NO: 20 ADDED.

NTPC DRG.NO. 0350-108-01RN-PVM-B-003

KANTI BIJLEE UTPADAN NIGAM LIMITED
(A JOINT VENTURE BETWEEN NTPC LTD. & BSEB)
MUZAFFARPUR THERMAL POWER PROJECT
STAGE-II (2x195 MW) UNITS-3&4

BHARAT HEAVY ELECTRICALS LTD.
BOILER AUXILIARIES PLANT
RANIPET - 632 406

DRAWN	S.M	sd.....	TITLE
CHECKED	R.G.	sd.....	
APPROVED	V.P.S	sd.....	
DATE	18.10.2010		
ALL DIMENSIONS ARE IN mm			
SCALE	1:30		
DRAWING NO.			

GENERAL ARRANGEMENT OF PRIMARY AIR FAN
PAF 17/11.8-2

1-00-100-21936 02