

1. ALL "I" EMBEDMENTS WHICH ARE GROUTED ON TOP OF TG PEDESTAL SHOULD BE GROUTED MINIMUM 25mm INSIDE THE CONCRETE ON ONE END OR BOTH ENDS WHICH IS APPLICABLE.
2. LOADING ON EMBEDMENTS UNIFORMLY DISTRIBUTED LOAD
 - a. ANGLE IN HORIZONTAL RUN 50KN/M (SUM OF ALL THE POINT LOADS/M)
 - b. FLAT IN VERTICAL RUN 50KN/M (--D--)
 - c. FLAT IN HORIZONTAL RUN 40KN/M (--D--)

HOWEVER, NO POINT LOAD WITHIN A SPAN OF 300mm WILL EXCEED THE FOLLOWING VALUES:-

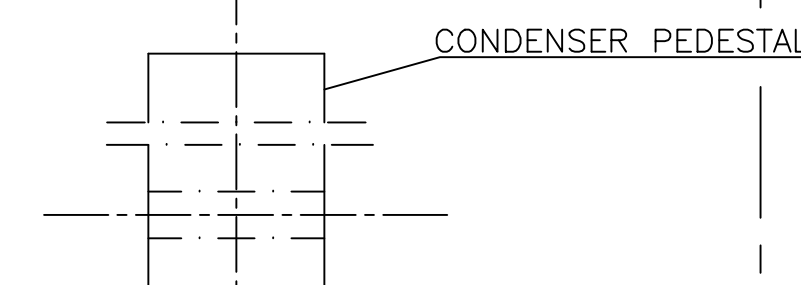
- a. ANGLE IN HORIZONTAL RUN 15KN
- b. FLAT IN VERTICAL RUN 22KN
- c. FLAT IN HORIZONTAL RUN 14KN

3. FOR LOADING ON POXXP SERIES EPS, SIEMENS DOCUMENT SUPPORT AND ANCHOR PLATE LIST MAY BE REFERRED.
4. DIMENSIONS MARKED WITH * ARE THE SPACES MEANT FOR LAYING LUB OIL PIPINGS AND THEREFORE ONLY REMOVABLE CHEQUERED FLOOR MAY BE PROVIDED IN THESE AREA.
5. THIS DECK ELEVATION MAY BE ACHIEVED EITHER THROUGH CONCRETE TOPPING OR THROUGH STEEL PLATFORM TO MATCH WITH OPERATING FLOOR ELEVATION (+17.0M), IF CIVIL DESIGNER SELECTS CONCRETE TOPPING OPTION, THEN IT MAY BE DONE IN A SINGLE GO ALONGWITH 15t STEEL CONCRETE.

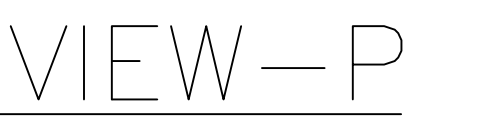
1.	FOUNDATION PLAN (SUPP.) DRG. NO.	0-13100-U6153	C
2.	FOUNDATION PLAN (SUPP.) DRG. NO.	0-13100-U6154	
3.	LIST OF EMBEDDED PARTS (SUPP.) DRG. NO.	2-13100-U6155	
4.	FOUNDATION PLAN DRG. NO.	12996-980111/001	
5.	FOUNDATION PLAN DRG. NO.	12996-980111/002	
6.	FOUNDATION PLAN DRG. NO.	12996-980111/003	



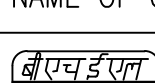
SECTION A-A



GMS- No / C.B.O.M _____				STATUS OF ORDER _____		TYPE OF PRODUCT _____		BHARAT HEAVY ELECTRICALS LTD			
AGREE DATE _____				NAME _____		OR NAME OF CUSTOMER/PROJECT _____		HARIDWAR			
EME MANJU				SIGN _____		DATE -16.05.13					
GRADE OF INTOL.DIM											
M/C.G.-2/M/F. AA0230208											
WELDING -A/B/E/B AA021104											
GAS CUTTING -T3/AA0621101											
REV	DATE	ALTERED	REVISION	REV	DATE	ALTERED	REVISION				
		CHECKED				CHECKED					
DEPT STE								SCALE 1:50			
CODE 4011								WEIGHT (KG)			
TITLE :								REF. TO ASSY. DRG.			
FOUNDATION PLAN (SUPP)								ITEM No. _____			
CARD CODE								DRAWING NO.			
0-13100-U6152								22.03.00			
QUANTITY NO. OF SHEETS								22.03.00			



1.	FOUNDATION PLAN (SUPP.) DRG. NO.	0-13100-U6152
2.	FOUNDATION PLAN (SUPP.) DRG. NO.	0-13100-U6154
3.	LIST OF EMBEDDED PARTS (SUPP.) DRG. NO.	2-13100-U6155
4.	FOUNDATION PLAN DRG. NO.	12991-980111/001
5.	FOUNDATION PLAN DRG. NO.	12991-980111/002
6.	FOUNDATION PLAN DRG. NO.	12991-980111/003

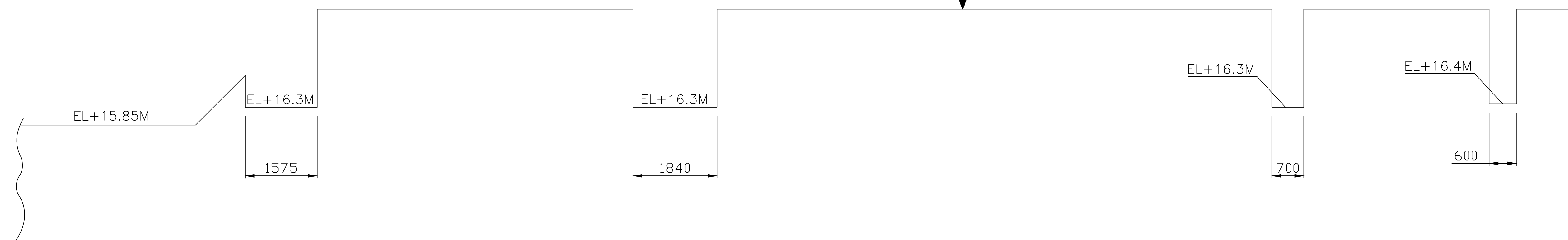
				<div>PROJECT RAGHUNATHPUR THERMAL POWER PROJECT</div> <div>PHASE-II (2X660 MW)</div> <div>PACKAGE STEAM TURBINE GENERATOR (STG)</div>												B
				<div>DAMODAR VALLEY CORPORATION</div> <div>DVC DRG/DOC NO. 9586-110-PVM-V-209-HW</div>												
				<div>TYPE OF PRODUCT BHARAT HEAVY ELECTRICALS LTD</div> <div>OR NAME OF CUSTOMER/PROJECT HARIDWAR</div>												
<div>GMS No. C.B.O.M</div> <div>STATUS OF DRG</div>				<div>ADDED DATE NAME SON DATE</div> <div>EMF Manju -sd- 16.05.13</div>												<div>DRN NAME SIGN DATE NO. OF</div> <div>CHK S.K.SWARMA -sd- 13.05.13 VAR</div> <div>CHK NANWETI -sd- 13.05.13</div> <div>APPRO S.K.GUPTA -sd- 13.05.13</div>
<div>GRADE OF UNTOL.DIM</div> <div>M/CG-R/M/F AAO230208</div> <div>WELDING-R/B/R/P AAO621104</div> <div>GAS CUTTING-T3-AAO621101</div>				<div>  <div>BHARAT HEAVY ELECTRICALS LTD.</div> <div>RANIPUR, HARDWAR</div> </div>												
<div>REV DATE ALTERED CHECKED</div>				<div>DEPT S/E SCALE WEIGHT (KG) CARD</div> <div>CODE 4011 1:50 -- --</div>												
<div>REV DATE ALTERED CHECKED</div>				<div>TITLE : DRAWING NO. 0-13100-U6153</div> <div>FOUNDATION PLAN (SUPP) 22.03.24</div>												
				<div>SHEET No. 01 No. OF SHEETS 24</div>												

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



- | | |
|--|------------------|
| 1. FOUNDATION PLAN (SUPP.) DRG. NO. | 0-13100-U6152 |
| 2. FOUNDATION PLAN (SUPP.) DRG. NO. | 0-13100-U6153 |
| 3. LIST OF EMBEDDED PARTS (SUPP.) DRG. NO. | 2-13100-U6155 |
| 4. FOUNDATION PLAN DRG. NO. | 12996-980111/001 |
| 5. FOUNDATION PLAN DRG. NO. | 12996-980111/002 |
| 6. FOUNDATION PLAN DRG. NO. | 12996-980111/003 |

EL +17.0M



REFER DRG. NO. 013100U6152

-GMS-No./ C.B.O.M STATUS OF DRC AGREED NAME SIGN DATE EME Manju -sd- 16.05.13				TYPE OF PRODUCT OR BHARAT HEAVY ELECTRICALS LTD NAME OF CUSTOMER/PROJECT HARIDWAR			
GRADE OF UNTOL/DIM M/CG.-E/M/F AAO230208 WELDING-A/B/E/P AAO621104 GAS CUTTING-T3AAO621101				<div style="display: flex; align-items: center;"> <div> BHARAT HEAVY ELECTRICALS LTD. RANIPUR, HARIDWAR </div> </div>			
REV DATE ALTERED CHECKED				<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> DRH P.S.SHARMA KGP NAVNEET APPR S.K.GUPTA </div> <div style="margin-left: 10px;"> NAME SIGN DATE P.S. SHARMA -sd- 13.05.13 KGP NAVNEET -sd- 13.05.13 S.K. GUPTA -sd- 13.05.13 </div> <div style="margin-left: 10px; text-align: right;"> NO. OF VAR - - - </div> </div>			
REV DATE ALTERED CHECKED				<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> DEPT SITE CODE 4011 </div> <div style="margin-left: 10px;"> SCALE 1:50 </div> <div style="margin-left: 10px;"> WEIGHT (KG) REF. TO ASSY. DRG. </div> <div style="margin-left: 10px;"> ITEM NO. OF ITEMS - - - </div> </div>			
TITLE : FOUNDATION PLAN (SUPP)				<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> CARD CODE 0-13100-U6154 </div> <div style="margin-left: 10px;"> DRAWING NO. - </div> <div style="margin-left: 10px;"> REV. 00 </div> </div>			
				SHEET No. 01 No. of SHEETS 22/23 24			

12345678

DIMENSIONING OF MAIN CONCRETE EDGES
Bemaßung der Hauptbetonkanten

- *) DIMENSION COMPRISED OF:
575 mm Q STEAM TURBINE - BEARING - COUPLING
27,8 mm AXIAL SHAFT EXPANSION AT STEAM TURBINE-RATED OPERATION CONDITION
3,4 mm AXIAL SHAFT EXPANSION OF GENERATOR IN RATED OPERATION
1200 mm Q OF COUPLING - GENERATOR BEARING
- Dieses Maß setzt sich zusammen aus:
575 mm Mitte DT-Lager -> Kupplung
27,8 mm Axiale Rotordehnung DT während Nennbetrieb
3,4 mm Axiale Rotordehnung Generator während Nennbetrieb
1200 mm Kupplung -> Mitte Generatorlager

NOTES:

1. Falls nicht anders angegeben, sind alle Einbauteile, Auflageplatten, Profileisen wie T100, Fl.100x10, eingegossene Rohre in Lieferumfang durch Andere sind im bauseitigen Lieferumfang.
2. Ankerplatten zur Befestigung der Längs- und Querverführungen des Generators sind im bauseitigen Lieferumfang.
3. Zulässige Toleranzen für Ankerrohre und Einbauteile in horizontaler Richtung ±10mm, bezogen auf die Hauptlängsachse (HLA) und Hauptquersachse (HQA).
4. Zulässige Toleranzen für Einbauteile Lage: Abweichung von Maßen zu den Hauptachsen (HLA/HQA) maximal ±10mm. Ebenheiten: Maximale Neigung der Oberfläche (Kopfstück) in jeder Richtung 1:100. Höhe: Sollhöhe ±5mm.
5. Angaben zu den Einbauteilen zur Befestigung von Rohrhaltern, Bühnen, Einhausungen, Portalcränen oder Hubgeräten liegen nicht im Umfang der Turbinenplanung.
6. Durchbrüche, die für eine Rohrleitungsdurchführung benötigt werden, müssen vom Rohrleitungsplaner angegeben werden.
7. Angaben zu Details der Oberflächengüte liegen nicht im Umfang der Turbinenplanung.
8. Im Fundament vorzusehende Abschragungen, Ausparungen etc. für Ölversorgungsleitungen sind vom Rohrleitungsplaner anzugeben.
9. Das Aufbringen des Aufbetons im Generatorbereich ist in Abstimmung mit der PG Montageaufsicht durchzuführen.

Maßangaben in Millimeter

Unterstrichene Maße sind unmaßstäblich

Typen der Ankerkanten für die Turbinenlagersockel:
A,C,E,Fl,P2,G

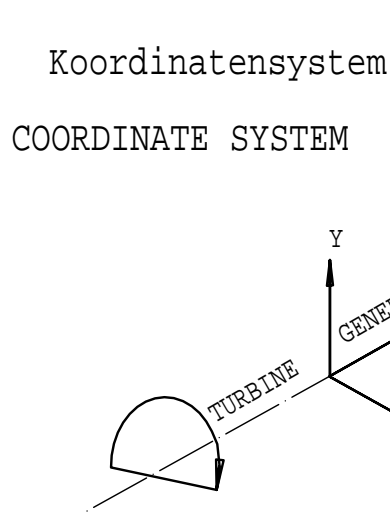
Durchbrüche in DT-Bereich mit Kantenschutz

Zugehörige Zeichnungen:

Fundamentplan Blatt 2	12996-980111/002
FOUNDATIONPLAN SHEET 2	
Fundamentplan Blatt 3	12996-980111/003
FOUNDATIONPLAN SHEET 3	
Fundamentbelastungsplan	12996-980115
FOUNDATION LOADS	
Fundamentangaben Generator	DSPPG-0176313 Rev A
FOUNDATION DATA GENERATOR	24-3103-161636
Generator Massbild	DSPPG-0176292 Rev A
GENERATOR OUTLINE	24-3101-161635
Erreger Massbild	SEE BHEL DOCUMENTATION
EXCITER OUTLINE	

Komponenten:
COMPONENTS:

HD Turbine:	H70-123-V4
HP Turbine:	
MD Turbine:	I50-V2
IP Turbine:	
ND Turbine:	L2x12,5-1-V2-M3
LP Turbine:	
FD-Ventile:	2*HPV250/200-V22
MAIN STEAM VALVE:	
HZÜ-Ventile:	2*IPV560/500-V22
HOT REHEAT VALVE:	
Generator:	SGEN5-3000W (115/67)
GENERATOR:	
Erreger:	ELR 70/90/30/6-20N
EXCITER:	

Koordinatensystem
COORDINATE SYSTEM

Zeichenerklärung

- Mitte Turbinenlager
- Ausparung
- Öffnung
- Ankerplatte
- Schräge
- Einbauteil

DESCRIPTION OF GRAPHICAL SYMBOLS

- CENTER OF T.G.-BEARINGS
- RECESS
- OPENING
- ANCHOR PLATE
- SLANT
- EMBEDDED PART

DVC Doc. No.: 9586-116-PVM-V-205-HW

DATE	14.01.12	NAME	Dr. S. S. S.
DATE	14.01.12	NAME	Dr. S. S. S.
DATE	14.01.12	NAME	Dr. S. S. S.
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DATE	14.01.12	NAME	Dr. S. S. S.

IN(017) 10M

AMT010 300018

DATE: 14.01.12

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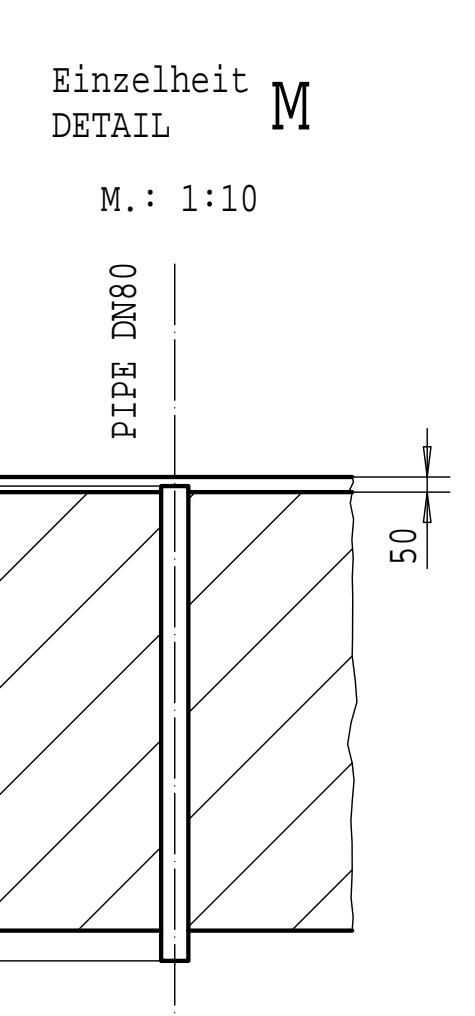
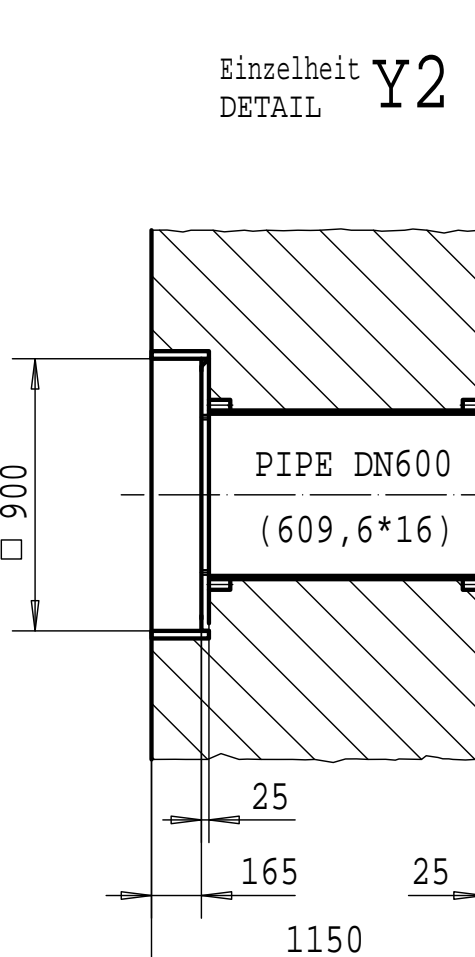
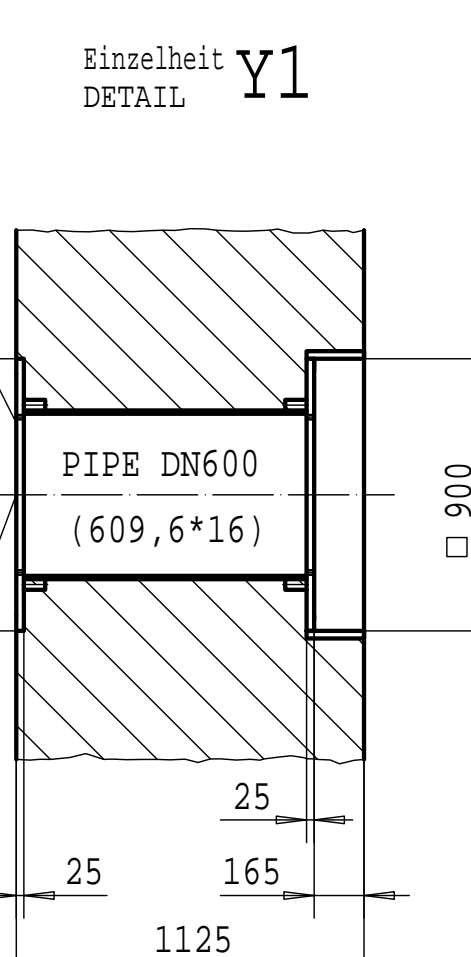
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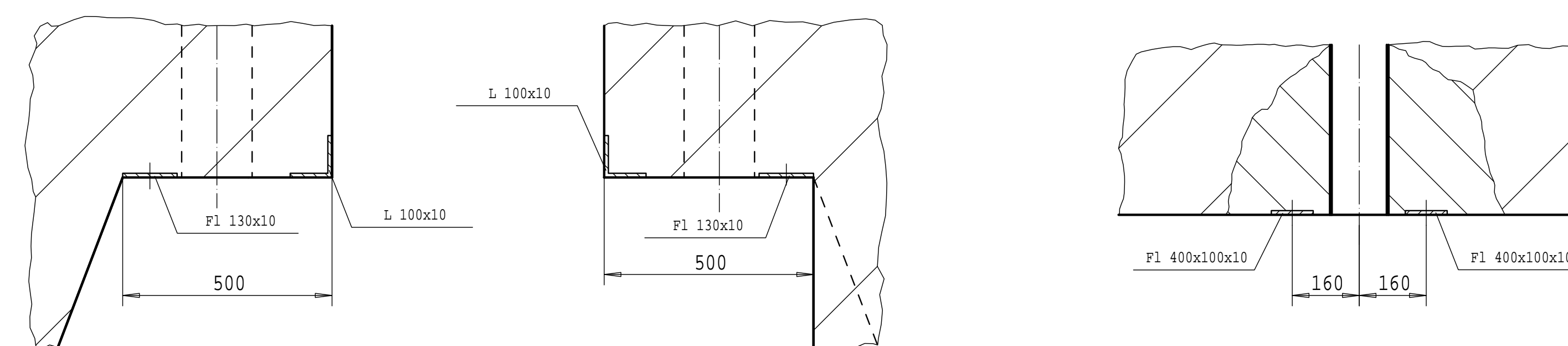
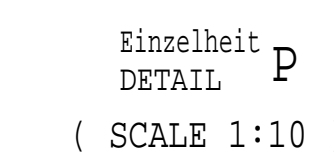
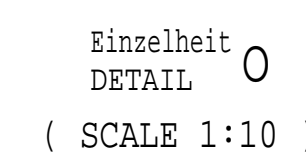
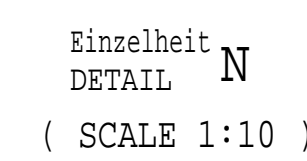
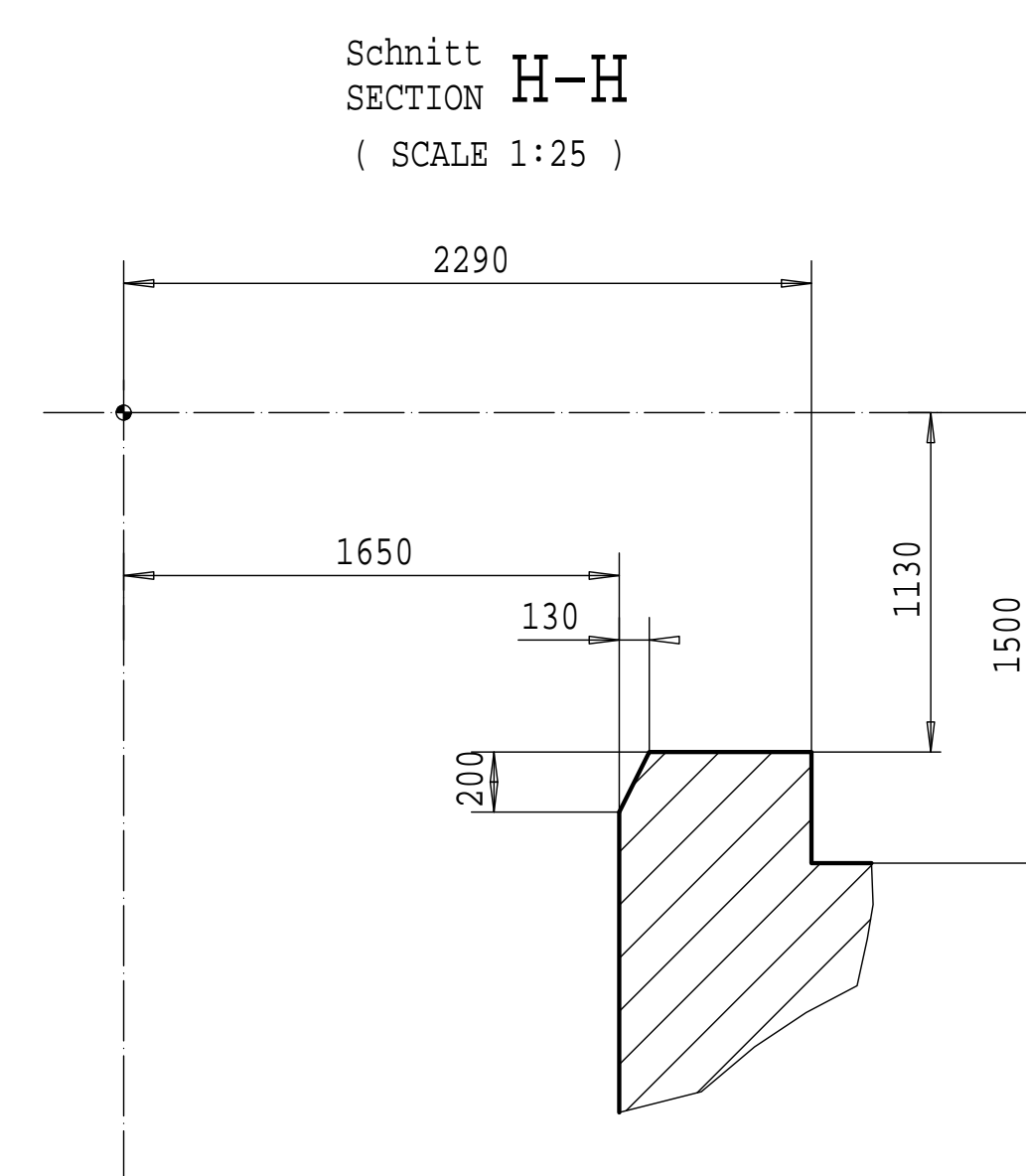
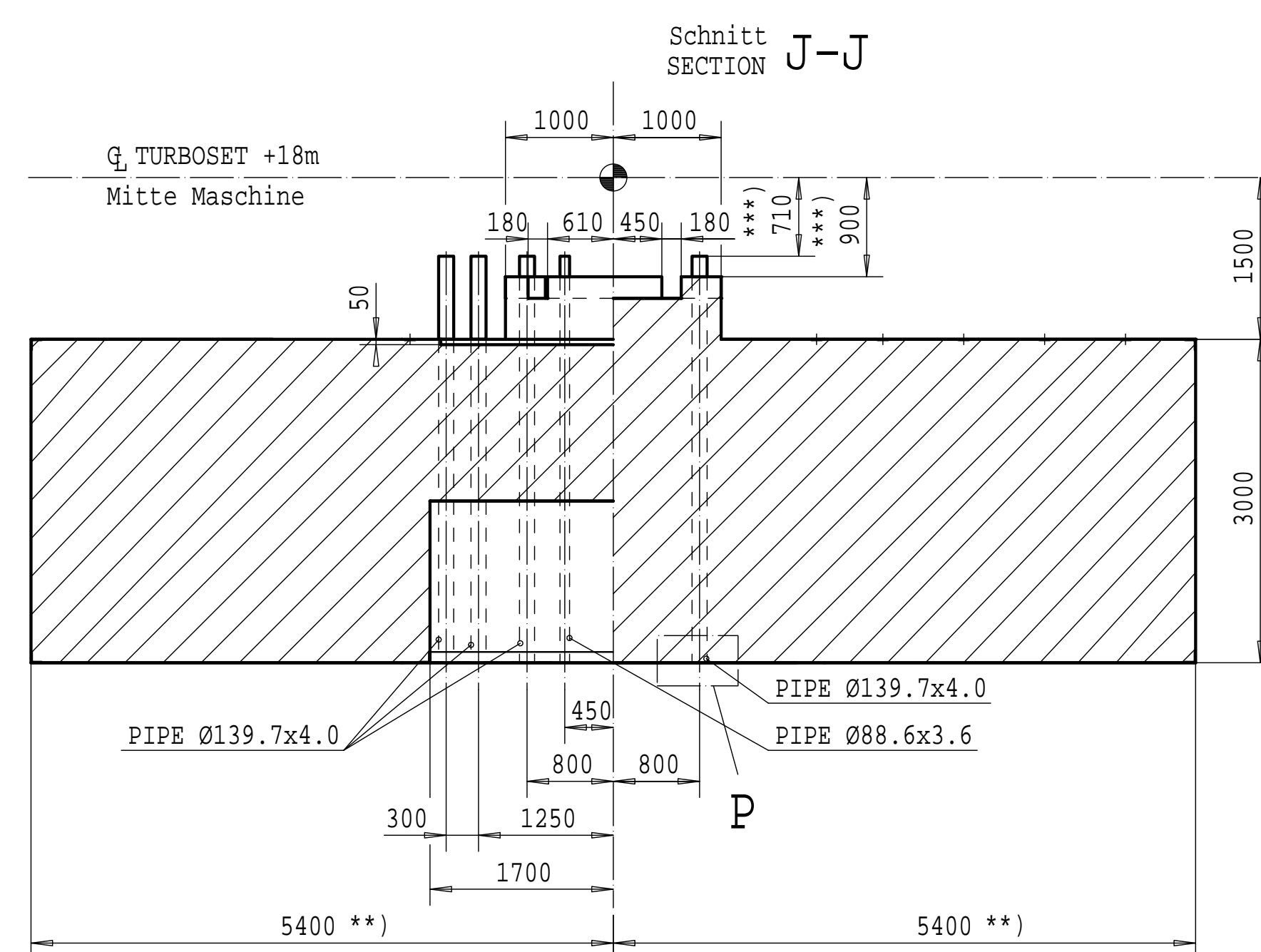
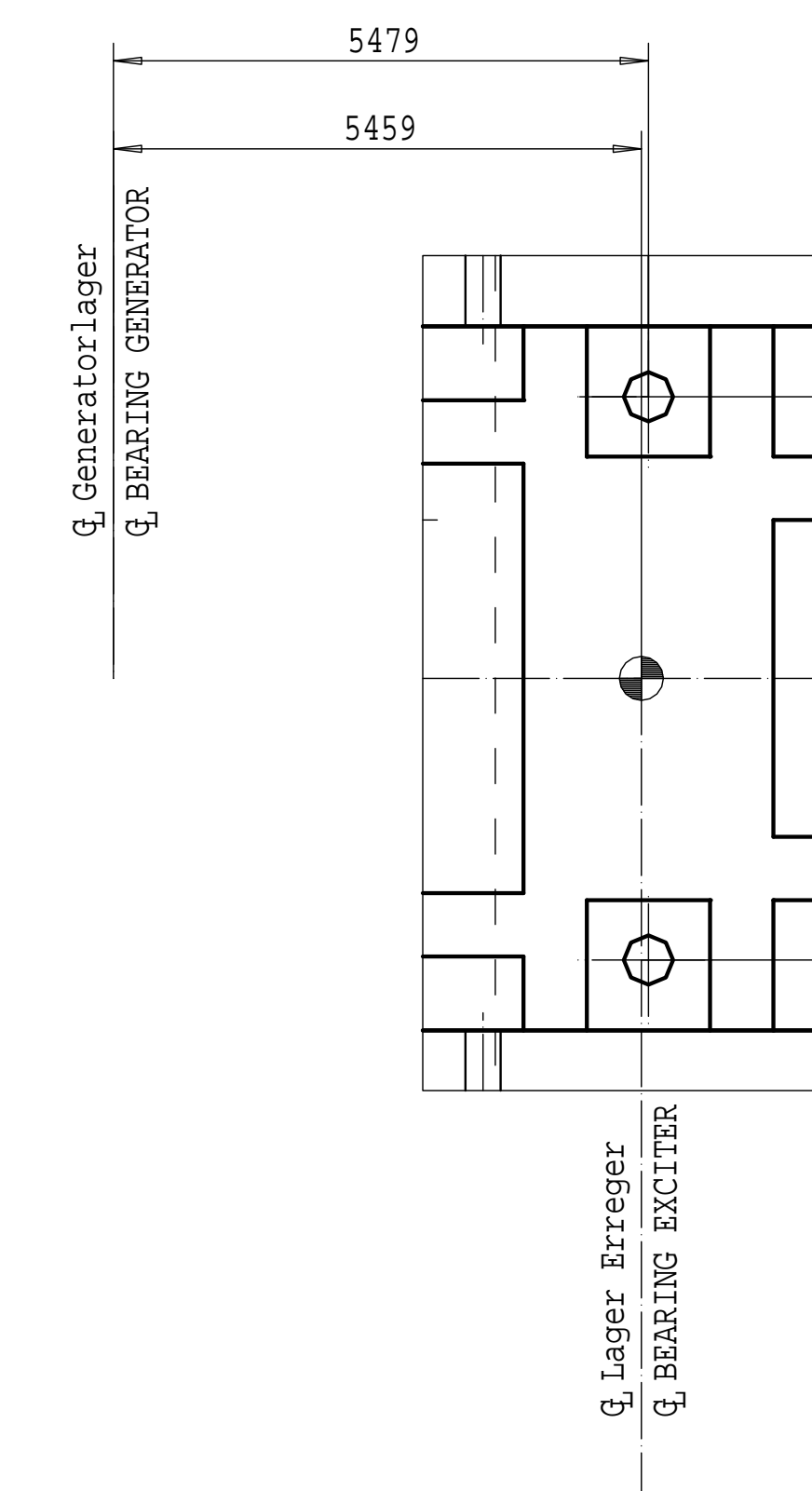
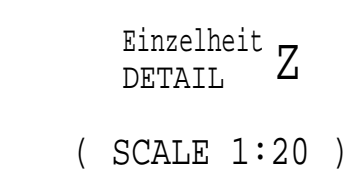
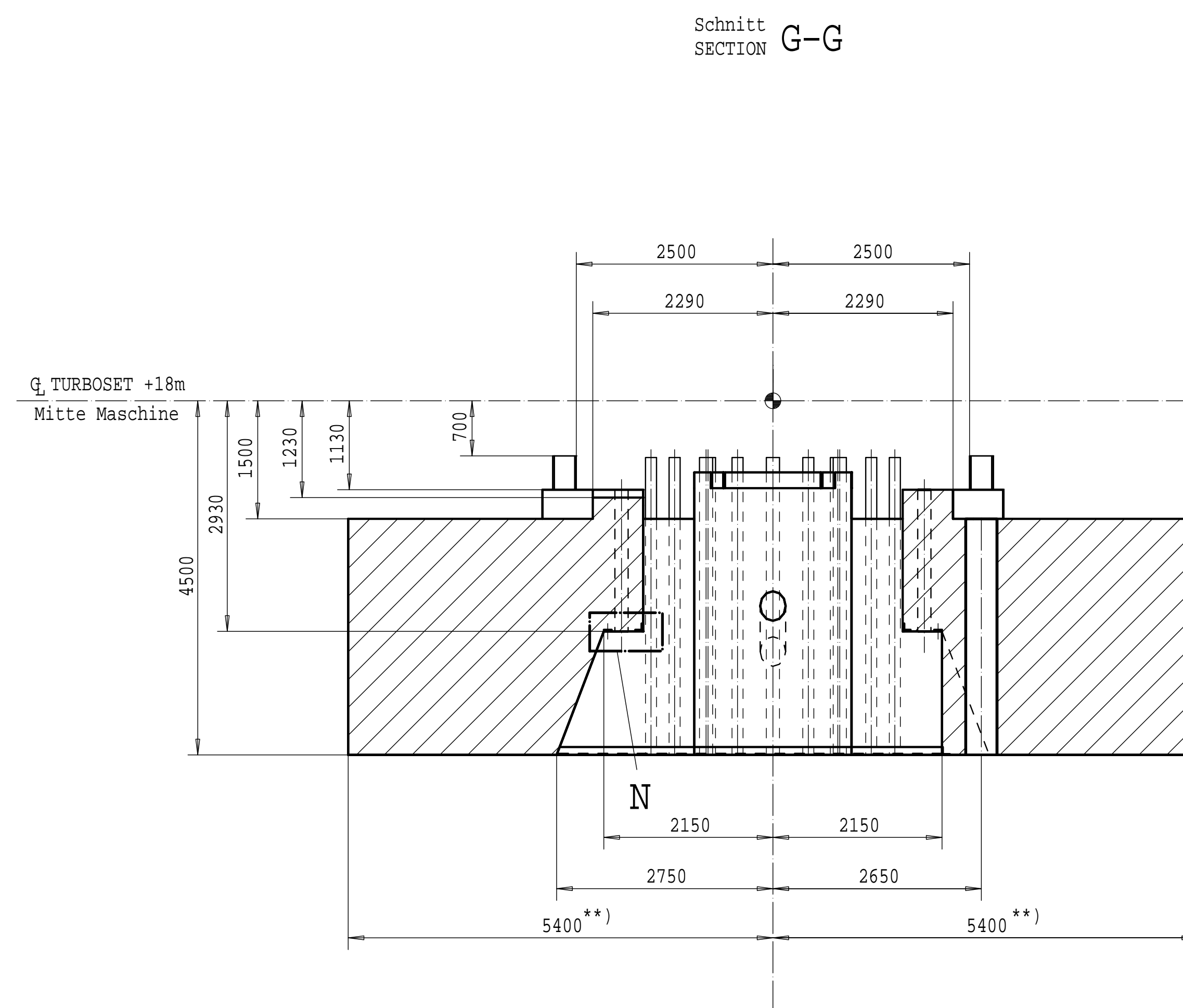
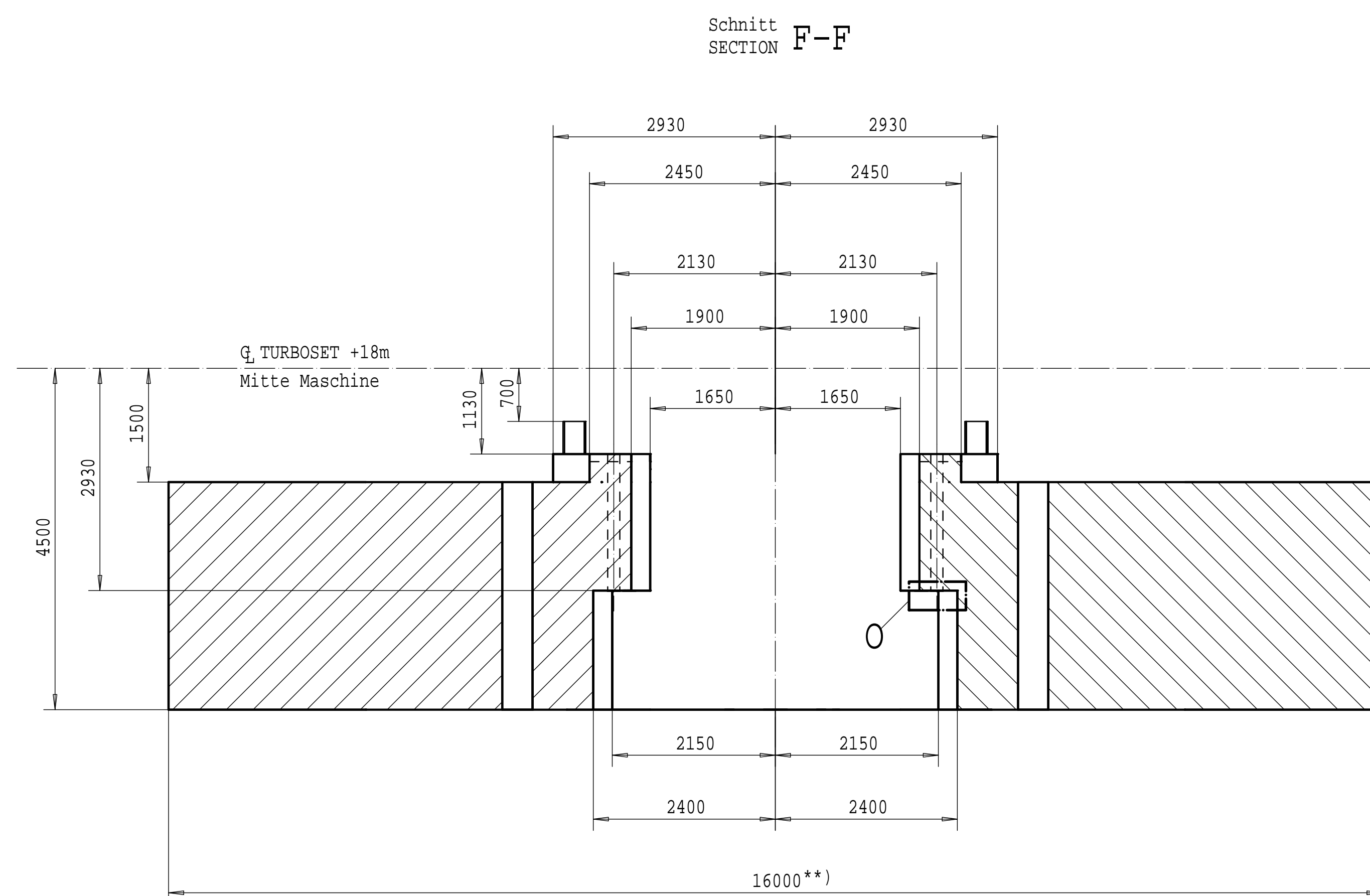
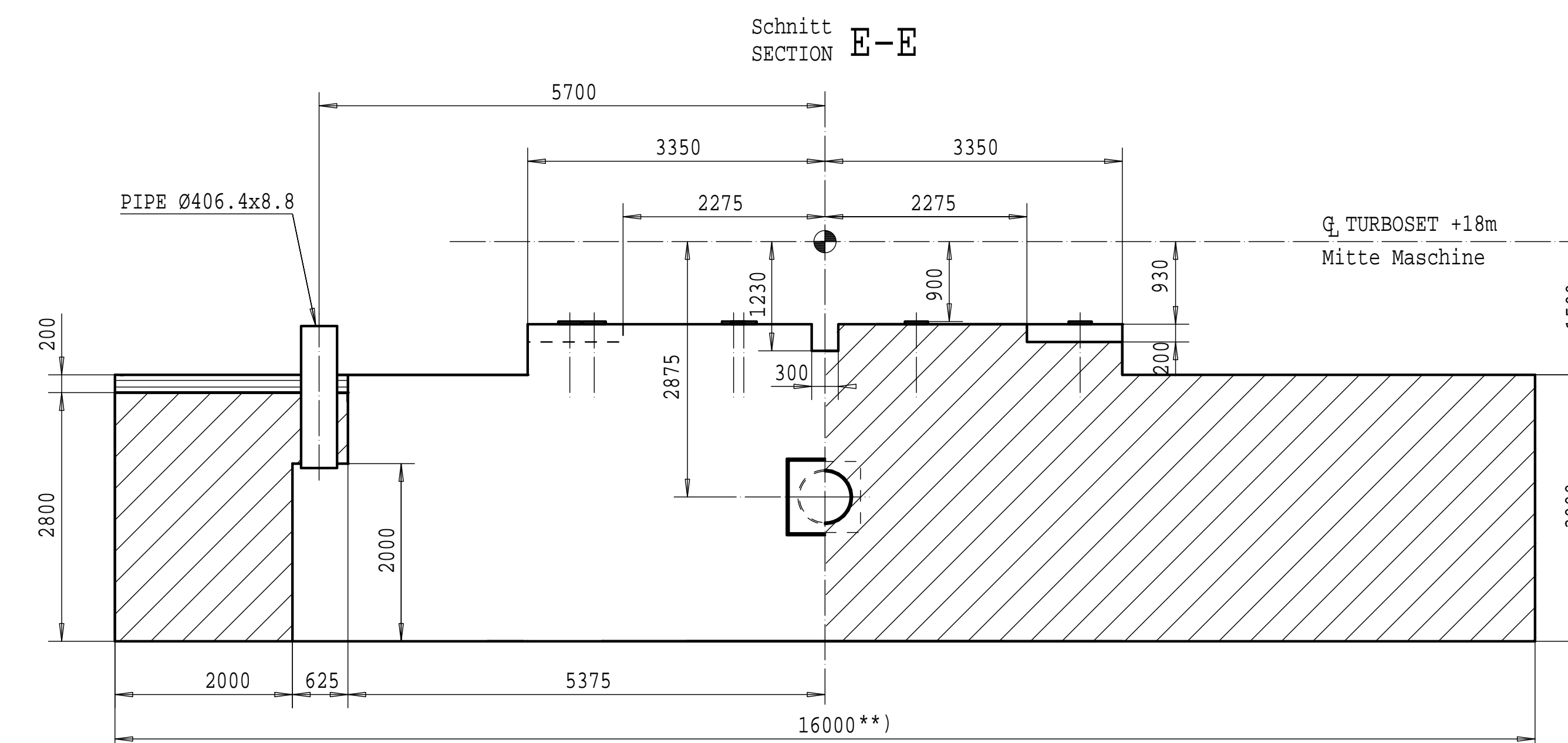
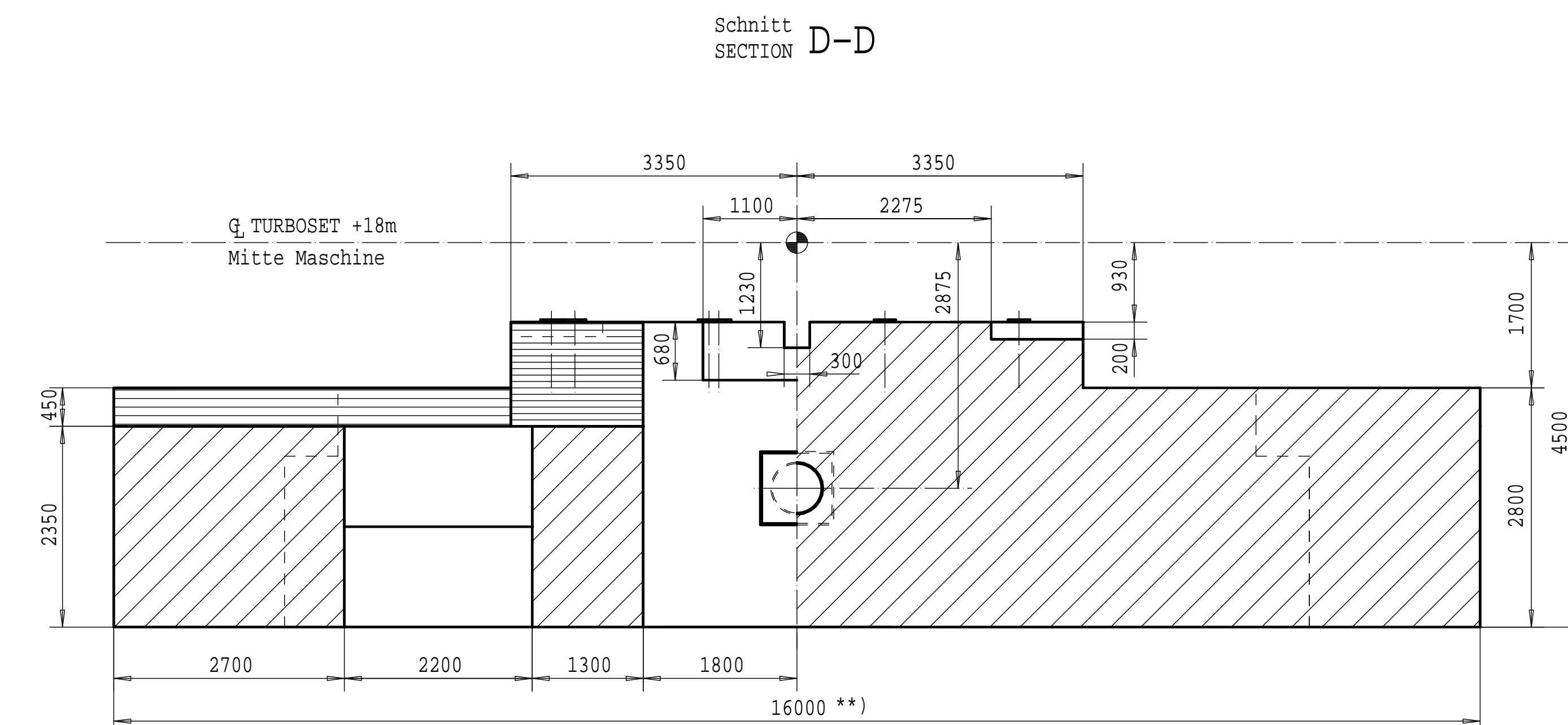
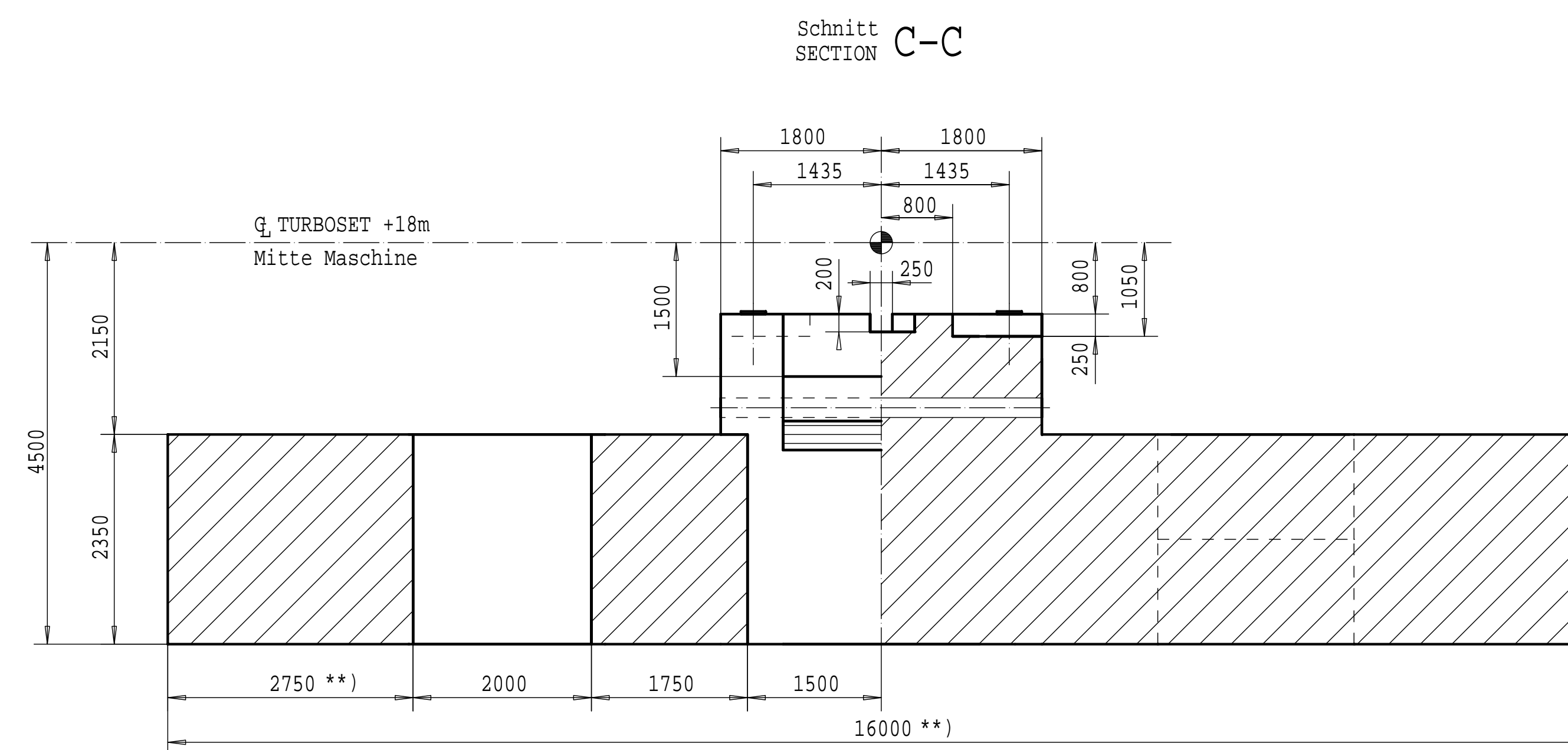
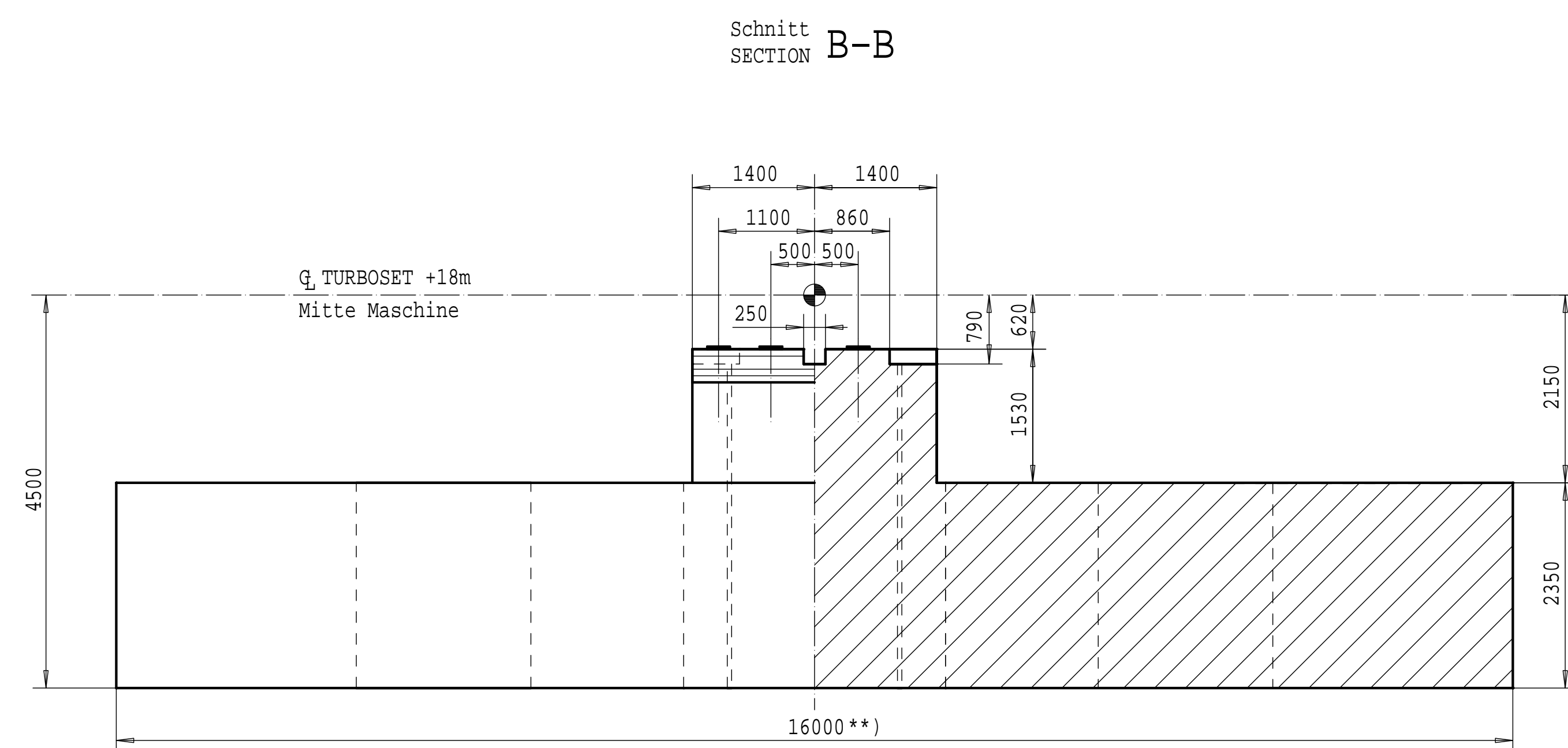
DIMENSIONING OF EMBEDDED PARTS
Bemaßung der EinbauteileSchnitt
SECTION A-A

DSPPG-0178557

12345678

DSPPG-0178557
12996-980111/001

C



Zugehörige Zeichnungen:


Fundamentplan Blatt 1	12996-980111/001
FUNDATION PLAN SHEET 1	
Fundamentplan Blatt 3	12996-980111/003
FUNDATION PLAN SHEET 3	
Fundamentbelastungsplan	
FUNDATION LOADS	12996-980115
Fundamentangaben Generator	DSPPG-0176313 Rev A
FUNDATION DATA GENERATOR	24-3103-161636
Generator Massbild	
GENERATOR OUTLINE	DSPPG-0176292 Rev A
	24-3101-161635

) DIMENSIONS INDICATED WITH "*" ARE RECOMMENDED
DIMENSIONS BASED ON PG EXPERIENCE FROM PREVIOUS
HIGH LEVEL TURBINE ARRANGEMENTS AND THEREFORE
NOT BINDING FOR EXECUTION.

) Die mit "*" gekennzeichneten Maße basieren auf hoch aufgestellten Maschinen, die bisher von PG geplant wurden. Sie sind Erfahrungswerte und daher für die Bauausführung nicht verbindlich.

THIS DRAWING IS VALID FOR RAGHUNATHPUR, UNIT 1 AND 2.
Diese Zeichnung gilt fuer Raghunathpur, Block 1 und 2.

***) SEE TABLE ON DRAWING 12996-980111/001
Siehe Tabelle auf Zeichnung 12996-980111/001

DVC Doc. No. :- 7586-110-PVM-V-206-HW			
OWNER	 NTPC LIMITED RAGHUNATHPUR THERMAL POWER PROJECT STAGE II - 2 x 660 MW STEAM TURBINE GENERATOR PACKAGE		
CONTRACTOR	 BHARAT HEAVY ELECTRICALS LIMITED RANIPUR, HAREWAR, INDIA		
483630640		C	
(M)		Rev.	
IN1017	10M	&MTB010	300019
Doc No.	Contract Code	SCC / I / II	Draw No.

[illegible]

Kanäle im Aufbeton für Ölrohrleitungen zu den Lagern und
Kabelkanäle im ND-Turbinen- und Generatorbereich
sind durch den Planer anzugeben.

PIPE DN80

IN THIS AREA SLOPE OF FLOOR FINISH
TO THE DRAIN FUNNEL, BEFORE
EXCITER INSTALLATION MANUFACTURED

Auf dieser Fläche muss vor der
Erregersatzmontage ein Gefälleestrich
zum Entleerungsrohr hin verlegt werden

+17,0 m

+17,00 INCLUDING GROUTING IN
TO MANUFACTURE

+17,00 Inklusive Verguss
Dicke des Vergusses
nach Angaben d

+17,0 m TOP OF CONCRETE TOPPING

Niveau auf Beton

BEFORE PLACEMENT OF GROUT ON SURFACE AREAS CONTRACTOR HAS TO ENSURE THAT ANY PLAIN OR POLISHED SURFACE WILL BE REMOVED AND ROUGHENED WITH A NEEDLE HAMMER DRILL AND CUT BACK TO A SOUND BASE. THIS BASE MUST BE FREE FROM OIL, GREASE OR ANY LOOSE ADHERENT MATERIAL. ALL BOLT HOLES AND FIXING POCKETS MUST BE BLOWN CLEAN OF ANY DIRT OR DEBRIS.

Vor dem Einbringen des Vergewörmels muß sichergestellt sein, dass der Untergrund durch den Ausführenden mit einem Stahlhammer aufgeraut worden ist und dass eine feste, tragfähige Oberfläche vorliegt. Die Oberfläche muß vor dem Vergießen fett- und ölfrei sein, loses Material und Staub müssen entfernt werden. Alle Bolzenlöcher und Taschen müssen mit Druckluft von Staub und Partikeln gereinigt werden.

TYPICAL
CONCRETE TOPPING

TYPICAL
TOP CONCRETE TOPPING AFTER MOUNTING OF THE EXCITER

Fundamentplan Blatt 1 12996-980111/001

Fundamentplan Blatt 1 12996-980111/001

FOUNDATION PLAN SHEET 1

Fundamentplan Blatt 2 10000 000111 1000

FOUNDATION PLAN SHEET 2

Fundamentbelastungsplan 10006 000115

FOUNDATION LOADS 12996-980115

Fundamentangaben Generator DSPPG-0176313 Rev

FOUNDATION DATA GENERATOR 24-3103-161636

Generator Massbild DSPPG-0176292 REV

GENERATOR OUTLINE 24-3101-161635

Ermanen Marshild



SEE BHEL DOCUMENT

Für die Bauausführung nicht verbindlich, weil Kanäle im Aufbeton für Ölrohrleitungen zu den Lagern und Kabelkanäle im ND-Turbinen- und Generatorbereich nicht gegeben sind.

THIS DRAWING IS VALID FOR RAGHUNATHPUR, UNIT 1 AND 2.
Diese Zeichnung gilt fuer Raghunathpur, Block 1 und 2.

Technical drawing of the bottom view of a mechanical part. The drawing shows a large rectangular base with a slanted top edge. A long horizontal flange extends from the right side of the base, featuring a series of holes. A small rectangular protrusion is located on the right end of the flange. The drawing includes dimension lines indicating a width of 5450 and a height of 400. The text "BOTTOM VIEW" and "(LOOKING FROM TOP TO BOTTOM)" is present.

BOTTOM VIEW
(LOOKING FROM TOP TO BOTTOM)

DVC Doc No.:- 9586-110-PVM-V-207-HW			
OWNER		NTPC LIMITED	
		RAGHUNATHPUR THERMAL POWER PROJECT STAGE - I - 2 x 660 MW STEAM TURBINE GENERATOR PACKAGE	
CONTRACTOR			
		BHARAT HEAVY ELECTRICALS LIMITED RANIPUR, HARIDWAR, INDIA	
48.3630855			C
UND			Rev.
IN1017	10M	&MTB010	300266
PK2	Contents Code	DOC / U/A	Proj. No.

C	09.10.12	Chaudhury	Siegezt	EXCITER DETAILS ADDED	
B	31.07.12	Ochsenkiel	Siegezt	FINAL VERSION, CHANGES SEE /A/	
INDEX	DATE	NAME	GEBREICH	ÄNDERUNGS/SCHREIBUNG/DESCRIPTION OF CHANGE	
REFST_AUSG./ORG.OF	12991-980111/001_A			GRUND/REASON	

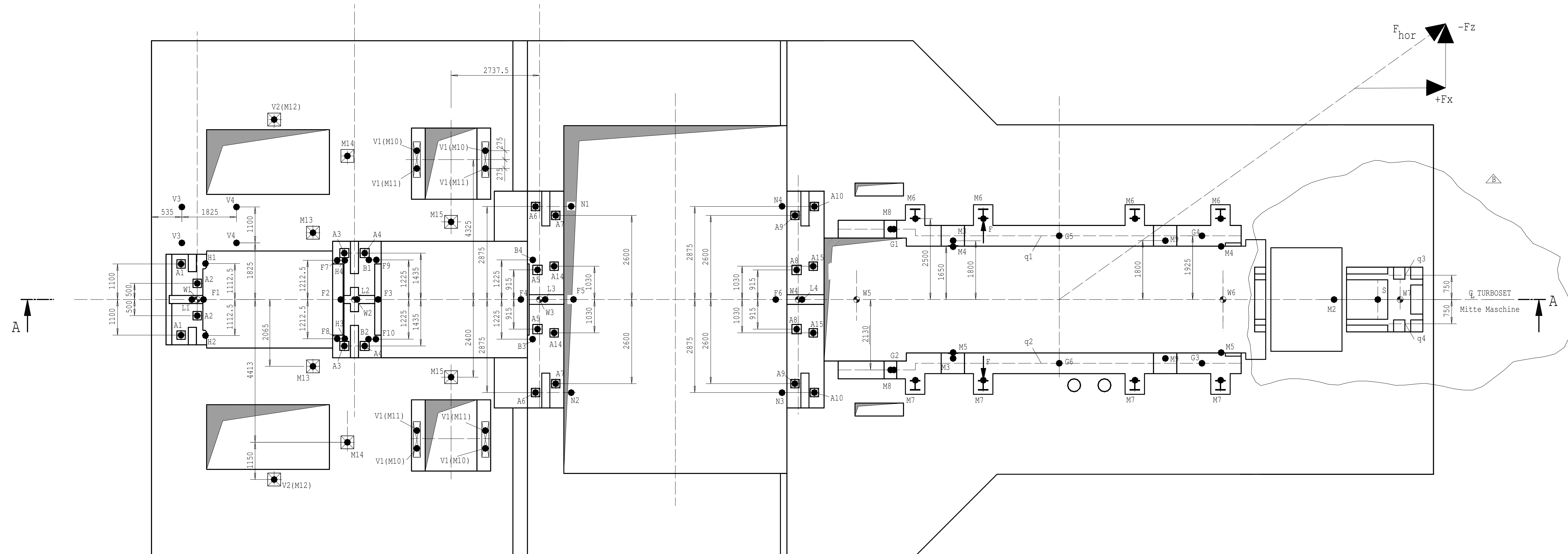
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BRITISH SEAL	16.11.12	Newmann	BUILDING/TITLE		HANDMADE CODE
EUROPEAN SEAL	04.11.12	Siegrist	FOUNDATION PLAN SHEET 3		
CHECKED	31.01.12	Tappich	OVERVIEW CONCRETE TOPPING		
			Fundamentplan Blatt 3		
			Uebersicht Aufbetton		
SERIAL REF.	SO EN RA AL		FORM-#1 SERIAL	ZEICHNUNG-NUMMER/DRAWING NUMBER / KENNZEICHEN/VALUE	LIN
Siemens AG Power Generation			00	DSPPG-0178560 12996-980111/003	
E-techn. pers. Ch. acc. st. and.	F-techn. pers. Ch. acc. prod.		Design	(SEE GEN.) TOTAL WT. 18 KG	
FRONTIER-CAD					
Class: RESTRIVITY					

DSPPG-01
12996-980111/003

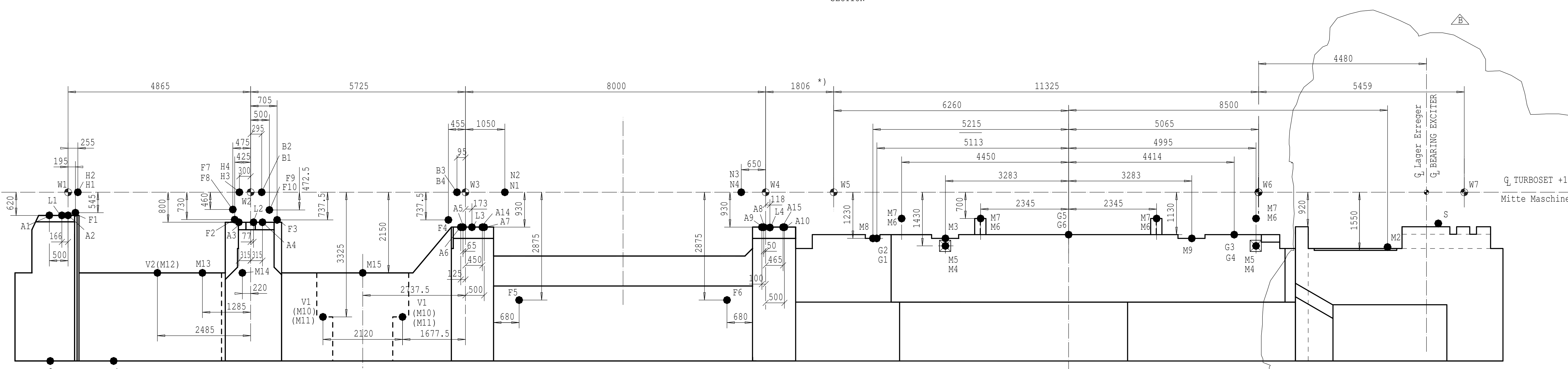
DSPPG-0178560

ZEICHEN	
SEKT	00
MP	

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Schnitt A-A

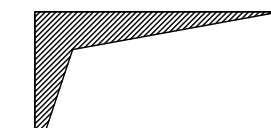


0V D5PPG-0178566

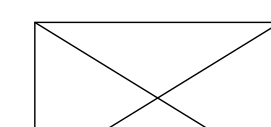
12345678

*1 Dieses Maß setzt sich zusammen aus:
575 mm Mitte DT-Lager --> Kupplung
27,8 mm Axiale Rotordehnung DT während Nennbetrieb
3,4 mm Axiale Rotordehnung Generator während Nennbetrieb
1200 mm Kupplung --> Mitte Generatorlager

DIMENSION COMPRISED OF:
575 mm Q STEAM TURBINE - BEARING - COUPLING
27,8 mm AXIAL SHAFT EXPANSION AT STEAM TURBINE-RATED OPERATION CONDITION
3,4 mm AXIAL SHAFT EXPANSION OF GENERATOR DURING RATED OPERATION
1200 mm Q OF COUPLING - GENERATOR BEARING



STRUCTURE IN CONCRETE

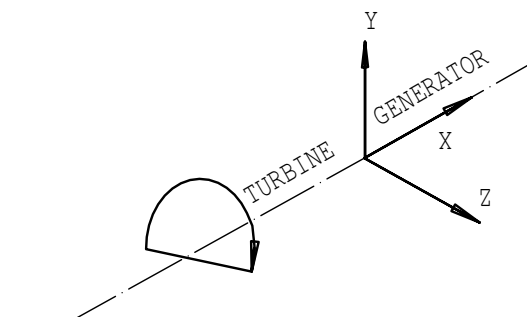


BRIDGED STEEL PLATE

Unterstrichene Maße sind unmaßstäblich
UNDERLINED DIMENSIONS ARE NOT TO SCALE

Koordinatensystem

COORDINATE SYSTEM



THE DAMPED CRITICAL NATURAL
FREQUENCIES (RPM) OF THE
TURBINE AND GENERATOR ASSEMBLY

Kritische Drehzahlen unter
Einfluss von Gleitlagern (min⁻¹)
für Turbine und Generator

	HP	IP	LP	GENERATOR
	1 st	1 st	1 st	1 st
HORIZONTAL			870	590
VERTICAL	2110	1890	1190	710

CROSSED-OUT BOXES INDICATE FREQUENCIES WHICH DON'T
CONTRIBUTE TO FOUNDATION DESIGN

Durchgekreuzte Kästchen identifizieren fuer die
Fundamentauslegung nicht relevante Frequenzen

NOTES

FOLLOWING LOADS ON TURBOSET FOUNDATION ARE NOT CONSIDERED:

- LOADS OF MOUNTING EQUIPMENT LIKE LIFTING PLATFORMS OR GANTRY CRANES.
- LOADS DUE TO HANGERS/SUPPORTS OF MAIN PIPING.
ONLY GLOBAL VALUES ARE GIVEN ACC. TO ITEM 5 OF THE DESCRIPTIONS.
- LOADS OF LARGE EQUIPMENT LAYED DOWN ON FOUNDATION DURING REVISIONS.
- LOADS DUE TO PLATFORMS AND NOISE ENCLOSURES.
- WEIGHT OF GROUT.

Hinweise

- Folgende Belastungen auf das Turbosatzfundament sind nicht berücksichtigt:
- Belastungen von Montagehilfsmitteln, wie Ruberüst, Säulendrehrkräne etc.
 - Belastungen aus Abhängung/Unterstützung von Hauptleitungen. Hier sind lediglich Pauschalwerte entsprechend Punkt 5) der Erläuterungen genannt.
 - Belastungen von ggf. auf dem Turbosatzfundament während Revisionen abzulegenden Großteilen.
 - Belastungen von Bedienungsbühnen, Schallschutzeinhausungen.
 - Vergußmörtelgewicht

DESCRIPTIONS

- STATIC LOADS OF STATIONARY COMPONENTS.
 - STATIC LOADS FROM ROTATING PARTS
(NOT INCLUDED IN LOAD CASE 1)
 - FORCES DUE TO POWER TORQUE.
 - VACUUM LOAD DUE TO BELLOW IN LP BEARING CASING.
 - STEAM PIPING FORCES ARE ACTING THROUGH TURBINE CASINGS TO IMBEDDED FIXING POINTS IN FOUNDATION. LOADS ON FOUNDATION DUE TO PIPING MUST BE CONSIDERED AS 500kN FOR HP- AND 200kN FOR IP- TURBINE.
 - FRICTION FORCES SHOWN FOR START UP OF TURBINE AND GENERATOR. AT COOLING DOWN THE SIGNS ARE REVERSED. MAXIMUM VALUES OF REACTION FORCES TO FIXING POINTS ARE SHOWN ONLY.
 - DYNAMIC FOUNDATION LOADS DUE TO MAX. PERMISSIBLE UNBALANCE ON TURBINE ROTOR.
 - LOADS DUE TO UNBALANCE FAILURE.
 F_r ACTS IN RADIAL DIRECTION AND CAN ASSUME ANY ANGLE BETWEEN 0° AND 360°
 - SHORT CIRCUIT FORCES.
TIME FUNCTION OF SHORT CIRCUIT TORQUE M_{sc} :
 $M_{sc} = 12105 e^{-0.138 t} \times \sin \omega t - 6052 e^{-0.275 t} \times \sin 2\omega t + 1014 e^{-0.138 t} \text{ kNm}$
 $M_{sc} = 16211 \text{ kNm}$
ANGULAR FREQUENCY $\omega = 314 \text{ 1/sec}$.
STATOR MOMENT OF INERTIA AROUND THE AXIS = 716,1 Mgm^2
ROTOR MOMENT OF INERTIA AROUND THE AXIS = 11,1 Mgm^2
OPERATING SPEED = 50 1/sec.
 - VIBRATION LOADS DURING OPERATION
($C_{horz.} = 0.2g$)
 - STRETCH ELONGATION OF FOUNDATION BOLTS IN KN
 - ERECTION AND ALIGNMENT OF TURBINE AND GENERATOR.
M6 AND M7 AT FIRST ERECTION
M4 AND M5 AT REVISION
ONLY ONE OF THE IPB-PROFILES (LOAD POINTS M6 AND M7) PER SIDE IS USED DURING ALIGNMENT OF THE GENERATOR AT THE SAME TIME ($\mu=0,1$).
 - ALLOWABLE LOADS AT CONNECTION POINTS DUE TO EARTHQUAKE ($C_{horz.} = 0.30g$, $C_{vert.} = 0.20g$)
 - TURBINE MASS (kg)
- THE MENTIONED FORCES IN THE LOAD CASE 2,7,10 AND 15 FOR THE LOAD POINT M6 AND M7 WORK TO CENTRE OF BEARING AND WILL BE SUPPORTED BY 50% AT EACH FOUNDATION BEAM!

RELATED DRAWINGS

12996-980111 FOUNDATION PLAN
REPORT: STIM-02.001
FOUNDATION DESIGN- DESCRIPTION OF LOADS AND DESIGN CRITERIA FOR FOUNDATION OF SIEMENS PG TURBINE-GENERATOR SETS.

DISCRIPTION OF GRAPH.SYMBOLS

- CENTER OF T.G.-BEARINGS
- VERTICAL LOAD POINT
- ANCHOR HOLES

Erläuterungen

- Statische Belastungen.
 - Stat. Belastungen aus den rot. Bauteilen
(Nicht im Lastfall 1 enthalten)
 - Belastungen aus der wirkenden Turbinenleistung.
 - Belastungen durch das Vakuum in den ND-Teilturbinen.
 - Belastungen durch Kräfte und Momente der Dampfleitungen.
Am Fundament angehängte Rohrleitungsgewichte sind im HD-Bereich mit 500kN und im MD-Bereich mit 200kN zu berücksichtigen.
 - Belastungen durch Reibungskräfte beim Anfahren von Turbine und Generator. Beim Abfahren kehren sich die Vorzeichen um. Max. Reaktionskräfte an den Festpunkten sind eingetragen.
 - Belastung durch maximal zulässige Unwucht des Wellenstranges.
 - Belastung durch Unwuchtstörfall.
 F_r wirkt in radialer Richtung und kann einen Winkel zwischen 0° und 360° annehmen
 - Belastungen durch Klemmenkurzschluss des Generators.
Zeitlicher Verlauf des Kurzschlussmomentes M_{sc} :
 $M_{sc} = 12105 e^{-0.138 t} \times \sin \omega t - 6052 e^{-0.275 t} \times \sin 2\omega t + 1014 e^{-0.138 t} \text{ kNm}$
 $M_{sc} = 16211 \text{ kNm}$
Kreisfrequenz $\omega = 314 \text{ 1/sec}$
0 - Ständer 716,1 Mgm^2
0 - Läufer 11,1 Mgm^2
Drehzahl $n = 50 \text{ 1/sec}$
 - Belastungen durch Erschütterungen
($C_{horz.} = 0.2g$)
 - Vorspannkräfte der Fundamentanker in kN.
 - Belastung bei der Montage der Turbosatzkomponenten.
M6 und M7 bei Erstmontage
M4 und M5 bei Revision
Von den IPB-Trägern (Lastpunkte M6 und M7) wird immer nur einer pro Seite für die Ausrichtung des Generators beaufschlagt ($\mu=0,1$).
 - Zulässige Lasten an den Anschlußpunkten aus Erdbeben ($C_{horz.} = 0.30g$, $C_{vert.} = 0.20g$)
 - Turbinenmassen (kg)
- Die im Lastfall 2,7,10 und 15 angegebenen Kräfte für Lastpunkt M6 und M7, wirken in der Lagermitte und werden je zur Hälfte auf den Lagerriegeln abgetragen!

Zugehörige Zeichnungen

12996-980111 Fundamentplan
Bericht: STIM-02.001

Zeichenerklärung

- Mitte Turbinenlager
- Vertikaler Belastungspunkt
- Ankerlöcher

DVG Doc. No.: 9586-110-FVM-V-203-HW	
OWNER: SIEMENS AG	PROJECT: POWER PROJECT
CONTRACT: 12996-980111	PACKAGE: STEAM TURBINE GENERATOR PACKAGE
CLIENT: SIEMENS AG	DESIGNER: SHANTAL HEAVY ELECTRICALS LIMITED
PROJECT NO.: 483931501	DESIGN NO.: 300021
DATE: 10/01/17	SCALE: 1:100
DESIGNER: SHANTAL HEAVY ELECTRICALS LIMITED	APPROVED: SHANTAL HEAVY ELECTRICALS LIMITED



DATE: 10/01/17	DESIGNER: SHANTAL HEAVY ELECTRICALS LIMITED	APPROVED: SHANTAL HEAVY ELECTRICALS LIMITED
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D5PPG-0178566
12996-980111/001

IN1017

Document Cover Sheet

OWNER		 NTPC LIMITED RAGHUNATHPUR THERMAL POWER PROJECT STAGE II - 2 x 660 MW STEAM TURBINE GENERATOR PACKAGE	
CONTRACTOR		 BHARAT HEAVY ELECTRICALS LIMITED RANIPUR, HARIDWAR, INDIA	
Projekt /Project		RAGHUNATHPUR	
Zeichnungsnummer / Drawing No.		UNID No.	PKZ-Nr./ PC
IN1017-10M-MED010-300022		483933697	IN1017 10M
Benennung / Title Foundation Load			
Ursprungszeichnungs-Nr. / Original drawing no.	Index	Blatt / page	Bemerkung/ Remark
12996-980115/002	B	1 / 2	
Siemens Energy	Transmittal, reproduction, dissemination and/or editing of this document as well as utilization or its contents and communication thereof to others without express authorization are prohibited. Offenders will be held liable for payment of damages. All rights created by patent grant or registration of a utility model or design patent are reserved.		Maße nicht abgreifbar/ Not to scale

DVC Doc. No. :- 9586-110-PVM-V-204-HW

B	Exciter loads confirmed	9/27/2012	Tapprich	Schmidt
REV.	DESCRIPTION OF CHANGE	DATE	NAME	CHECK

HMN-2flutig
HMN-2FLOW

	datum date	name name	Abteilung department	Entwurf / Scale			
Detail Coord.	2/12/2012	Tapprich		Benennung / Title			
approved checked	2/12/2012	M. Schmidt	SUENNA41	Fundamentlasten			
Prep'd Released	2/12/2012	M. Schmidt		FOUNDATION LOAD			
Handhabung / handling		Form.	Z-Sty.	Zeichnungs-Nr. / Drawing no.		Index	Blatt / page
Revisions / revision				12996 - 980115/002		B	1/2
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Alle Werte in kN

FORCES AND LOADS IN kN

Anmerkung 1: Hinweis zu den Lasten q3, q4
Note 1: Explanation on loads q3, q4



Name	Date	Name	Address	Molded / Scale
Account	2/12/2012	Tappich	Department	Versioning / Title
General Packaged	2/12/2012	M. Schmidt	SUENNA1	Fundamental Loads
Foreign Release	2/12/2012	M. Schmidt		FOUNDATION LOAD
Manufacturing / handling	Form.	2-By	Zrechnungs-Nr. / Drawing no.	DSPPG #178567
Releasability restricted			Notes	Sheet / page
			12996 -980115/002	B 2/2

SIEMENS AG
Power Generation

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FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

DRG. NO. 2-13100-U6155

PART NO.	QTY. IN NOS.	DESCRIPTION	SUPPLIER	REMARKS	DRAWING NO.
01	1	EMBEDMENT FOR LP CASING GUIDE BOLT	BHEL-HWR	FOR GUIDING LP CASING	0-13100-U4152
02	1	EMBEDMENT FOR LP CASING GUIDE BOLT	BHEL-HWR	FOR GUIDING LP CASING	0-13100-U4152
11	2	T SECTION 100X7100	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
12	4	T SECTION 100X2125	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
13	3	FLAT 10X100X15660	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
14	4	FLAT 10X100X23555	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
15	12	FLAT 10X100X1660	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
16	3	FLAT 10X100X2660	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
17	10	FLAT 10X100X3460	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
18	4	FLAT 10X100X3560	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
19	4	FLAT 10X100X1860	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
20	4	FLAT 10X100X1400	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
21	8	FLAT 10X100X1000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
22	2	FLAT 10X100X3260	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
23	6	FLAT 10X100X4185	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
24	4	FLAT 10X100X4585	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
25	4	FLAT 10X100X5210	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
26	2	FLAT 10X100X11720	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
27	4	FLAT 10X100X6560	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
29	4	FLAT 10X100X3335	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
30	2	ANGLE 100X100X23500	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
31	1	ANGLE 100X100X16000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
32	5	FLAT 10X100X4750	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
33	3	FLAT 10X100X1700	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
34	3	FLAT 10X100X9240	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
35	1	FLAT 10X100X3377	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
36	4	ANGLE 100X100X4000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
37	4	ANGLE 100X100X2200	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
38	2	ANGLE 100X100X4100	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
39	1	ANGLE 100X100X3200	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
40	2	ANGLE 100X100X600	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
41	1	ANGLE 100X100X1900	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
42	4	ANGLE 100X100X2400	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
43	4	ANGLE 100X100X1800	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
44	2	ANGLE 100X100X4725	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
45	2	ANGLE 100X100X3800	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
46	2	ANGLE 100X100X12000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
47	4	ANGLE 100X100X2200	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
48	8	PLATE 400X400X20	BHEL-PSER	FOR ESV & IV SUPPORT	0-13100-U4152
49	6	PIPE Ø406.4X8.8, L=1600	BHEL-PSER	FOR LP TURBINE	0-13100-U4153
50	4	PLATE 220X1100X10	BHEL-PSER	FOR IV SUPPORT	0-13100-U4153
51	4	FLAT 10X100X10778	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
52	2	FLAT 10X100X6795	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
52A	2	FLAT 10X100X1325	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
53	4	T SECTION 100X4000	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
54	4	T SECTION 100X2200	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
55	4	T SECTION 100X2400	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
56	4	ANGLE 100X100X2650	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
57	2	T SECTION 100X3900	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
58	2	T SECTION 100X3500	BHEL-PSER	FOR SUPPORT & FIRE PROTECTION	0-13100-U4152
59	1	ANGLE 100X100X16000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
60	2	ANGLE 100X100X11180	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
61	1	PIPE Ø219.1X6.3, L=3600	BHEL-PSER	FOR CABLE CONDUIT	0-13100-U4152
65	04	PLATE 10X100X1000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
66	02	ANGLE 100X100X3335	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4153
67	2	FLAT 10X100X500	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
68	1	FLAT 10X100X2180	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
70	1	FLAT 10X100X4325	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
71	2	FLAT 10X100X1845	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
72	2	FLAT 10X100X580	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
73	1	FLAT 10X100X908	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
74	2	FLAT 10X100X672	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
75	2	FLAT 10X100X2720	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
76	1	FLAT 10X100X1560	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
77	2	FLAT 10X100X1105	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
78	2	FLAT 10X100X700	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
79	5	FLAT 10X100X1000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
80	2	FLAT 10X100X5200	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
80A	2	FLAT 10X100X3425	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
81	2	FLAT 10X100X400	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152

PART NO.	QTY. IN NOS.	DESCRIPTION	SUPPLIER	REMARKS	DRAWING NO.
82	2	FLAT 10X100X2950	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
83	1	FLAT 10X100X2400	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
84	1	FLAT 10X100X1400	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
85	1	FLAT 10X100X925	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
86	4	FLAT 10X100X4450	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
87	1	FLAT 10X100X5900	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
88	2	FLAT 10X100X3350	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
89	2	FLAT 10X100X4200	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
92	1	FLAT 10X100X3000	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
93	1	FLAT 10X100X5850	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
94	8	PLATE 500X500X20	BHEL-PSER	FOR INSV MAINTENANCE PLATFORM SUPPORT.	0-13100-U4152
P001P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P002P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P003P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P006P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P007P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P008P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P009P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P012P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P015P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P016P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P017P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P018P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P019P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P020P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P021P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P022P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4154
P024P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P025P	1	PLATE 400X400X20	BHEL-PSER	RECOMMENDED FOR FIXING OF PIPE SUPPORTS.	0-13100-U4152
P026P	1	PLATE 400X5450X20	BHEL-PSER	FOR OVERLOAD VALVE SUPPORT. PLATE THICKNESS SHALL BE DECIDED BY FOUNDATION DESIGNER.	0-13100-U4154
P027P	1	PLATE 400X5450X20	BHEL-PSER	FOR OVERLOAD VALVE SUPPORT. PLATE THICKNESS SHALL BE DECIDED BY FOUNDATION DESIGNER.	0-13100-U4154
A	8	ANCHOR BOX	BHEL-HWR	FOR LP FRONT AND REAR PEDESTALS	0-13100-U4152
C	4	ANCHOR BOX	BHEL-HWR	FOR LP FRONT AND REAR PEDESTALS	0-13100-U4152
E	4	ANCHOR BOX	BHEL-HWR	FOR IP FRONT PEDESTAL	0-13100-U4152
F1	2	ANCHOR BOX	BHEL-HWR	FOR HP FRONT PEDESTAL	0-13100-U4152
F2	2	ANCHOR BOX	BHEL-HWR	FOR HP FRONT PEDESTAL	0-13100-U4152
G	4	ANCHOR BOX	BHEL-HWR	FOR LP FRONT AND REAR PEDESTALS	0-13100-U4152

PART NO.	QTY. IN NOS.	DESCRIPTION	SUPPLIER	REMARKS	DRAWING NO.
A*	24	PIPE 168.3x4 L=1800	BHEL-PSER	FOR ANCHOR BOLTS OF GENERATOR	
A1*	5	PIPE 168.3x17.5 L=2290	BHEL-PSER	FOR ANCHOR BOLTS OF EXCITER	
B*	4	PIPE DN125, L=3790	BHEL-PSER	FOR ANCHOR BOLTS OF EXCITER	
B1*	5	PIPE DN125, L=2290	BHEL-PSER	FOR EXCITER CABLES	
C*	1	PIPE DN 80 L=1570	BHEL-PSER	FOR EXCITER DRAIN	
C1*	1	PIPE DN 80 L=2290	BHEL-PSER	FOR EXCITER CABLES	
D*	2	PIPE 406.4x8.8 L=3500	BHEL-PSER	FOR PRIMARY WATER PIPES	
E*	8	BEAM IPB 300 L=1600	BHEL-PSER	FIXING POINT OF STATOR ALIGNMENT	
F*	4	PLATE 300x300x16	BHEL-PSER	FIXING POINT OF STATOR ALIGNMENT	
G*	2	PLATE 2600x200x16	BHEL-PSER	RECOMMENDED FOR ERECTION OF TERMINAL BOX	
G1*	5	PLATE 350X350X80	BHEL-PSER	RECOMMENDED FOR PIPE SUPPORT	
H*	4	ANGLE 100x100x10,L=1500	BHEL-PSER	FOR BETTER CIVIL WORK	
J*	1	PIPE DN 300, L=1290	BHEL-PSER	RECOMMENDED FOR ERECTION OF TERMINAL BOX	
K*	2	ANGLE 100x100x10,L=14200	BHEL-PSER	FOR BETTER CIVIL WORK	
L*	2	ANGLE 100x100x10,L=10497	BHEL-PSER	FOR BETTER CIVIL WORK	
M*	2	ANGLE 10x100x3400	BHEL-PSER	FOR BETTER CIVIL WORK	
N*	2	ANGLE 10x100x3035	BHEL-PSER	FOR BETTER CIVIL WORK	
P*	5	FLAT 100X10,L=1470	BHEL-PSER	FOR FIXING OF ANCHOR BOLTS	
Q*	1	ANGLE 75x175x5,L=2000	BHEL-PSER	FOR BETTER CIVIL WORK	
R*	2	ANGLE 100x100x10,L=500	BHEL-PSER	FOR BETTER CIVIL WORK	
S*	1	ANGLE 100x100x10,L=10800	BHEL-PSER	FOR BETTER CIVIL WORK	
T*	4	ANGLE 100x100x10,L=400	BHEL-PSER	FOR BETTER CIVIL WORK	
U*	2	ANGLE 100x100x10,L=1800	BHEL-PSER	FOR BETTER CIVIL WORK	
V*	2	ANGLE 100x100x10,L=637	BHEL-PSER	FOR BETTER CIVIL WORK	
W*	11	FLAT 10x100x520	BHEL-PSER	FOR FIXING OF ANCHOR BOLTS	
W1*	2	FLAT 10x100x3710	BHEL-PSER	FOR BETTER CIVIL WORK	
W2*	1	FLAT 10x100x3670	BHEL-PSER	FOR BETTER CIVIL WORK	
W3*	2	FLAT 10x100x835	BHEL-PSER	FOR BETTER CIVIL WORK	
X*	2	FLAT 10x100x2700	BHEL-PSER	FOR BETTER CIVIL WORK	
X1*	1	FLAT 10x100x6395	BHEL-PSER	FOR BETTER CIVIL WORK	
X2*	1	FLAT 10x100x6075	BHEL-PSER	FOR BETTER CIVIL WORK	
Y*	4	FLAT 10x100x14200	BHEL-PSER	FOR BETTER CIVIL WORK	
Z1*	1	ANGLE 100x100x10,L=4800	BHEL-PSER	FOR BETTER CIVIL WORK	
Z2*	2	ANGLE 100x100x10,L=2546	BHEL-PSER	FOR FIXING OF ANCHOR PLATES	
Z3*	2	ANGLE 100x100x10,L=2770	BHEL-PSER	FOR BETTER CIVIL WORK	
Z4*	1	ANGLE 100x100x10,L=6075	BHEL-PSER	FOR BETTER CIVIL WORK	
Z5*	1	ANGLE 100x100x10,L=4834	BHEL-PSER	FOR BETTER CIVIL WORK	
Z6*	2	FLAT 10x130x10000	BHEL-PSER	FOR FIXING OF ANCHOR PLATES	
Z7*	2	FLAT 10x130x1800	BHEL-PSER	FOR FIXING OF ANCHOR PLATES	
Z8*	1	ANGLE 100x100x10,L=4514	BHEL-PSER	FOR BETTER CIVIL WORK	
Z9*	1	ANGLE 100x100x10,L=6395	BHEL-PSER	FOR BETTER CIVIL WORK	

REFERENCE DRAWINGS:-

- FOUNDATION PLAN (SUPP.) DRG. NO.0-13100-U6152
- FOUNDATION PLAN (SUPP.) DRG. NO.0-13100-U6153
- FOUNDATION PLAN (SUPP.) DRG. NO.0-13100-U6154
- FOUNDATION PLAN DRG. NO. 12996-980111/001
- FOUNDATION PLAN DRG. NO. 12996-980111/002
- FOUNDATION PLAN DRG. NO. 12996-980111/003

NOTES:

- WHERESOEVER MATERIAL IS NOT MENTIONED , IT MAY BE TAKEN AS STRUCTURAL STEEL OF COMMERCIAL QUALITY.
- MATERIAL OF PIPES IS SEAMLESS PIPE ATSM A106 GR.B , HOWEVER , ERW PIPES CAN ALSO BE USED.

PROJECT		RAGHUNATHPUR THERMAL POWER PROJECT	
PHASE-II (2X660) MW		PACKAGE: STEAM TURBINE GENERATOR (STG)	
OWNER		DAMODAR VALLEY CORPORATION	
BHEL-PSER DRG/DOC NO.		9586-110-PVM-V-211-HW	
TYPE OF PRODUCT		BHARAT HEAVY ELECTRICALS LTD	
OR		HARIDWAR	
NAME OF NTPC/PROJECT		BHARAT HEAVY ELECTRICALS LTD.	
RANIPUR, HARIDWAR		NAME	
DRN		P.S.SHARMA	
CHD		NAVNEET	
APPD		S.K.GUPTA	
DEPT		PED	
CODE 4266		SCALE	
TITLE:		DRAWING NO.	
LIST OF EMBEDDED PARTS (SUPP)		2-13100-U6155	
SHEET No. 01		No. OF SHEETS 01	