Specification for Slow turning device of GR Fan Date: 07/05/15

TSGENCO –Manuguru- 4x 270 MW

1.0 Project : TSGENCO-MANUGURU TPP 4x270 MW

2.0 Application : Gas recirculation fan size and type NDV 21 Herakles

3.0 Brief description of the system:

The GR Fan is connected at one end by a main motor of drive of Capacity 210 KW at 980 rpm and other end is connected to this slow turning device.

When the main motor is switched -off, this slow turning device will rotate the fan rotor (about 4000 kg weight about 2.2 meter impeller diameter GD^2 of Fan is 3150 kg. m^2) at a slow speed of about 78 rpm to avoid sagging of fan rotor. This fan rotor handles flue gases at a temperature of about 200 deg C. The slow turning device assembly is located out side the fan casing and at a temperature of 50 Deg C. Refer GA drawing No: 1-00-105-29014 for location of device.

4.0 Scope of supply: Slow turning device consists of a geared motor, coupling and a one way clutch, power cylinder, support bracket etc to run the fan at about 78 rpm. This motor is to run at 415 V, 3phase,50Hz Ac power supply. Motor data sheet containing starting current, locked rotor with stand time & motor winding insulation class are required. This device is to be suitable for outdoor use. The slow turning device should match the torque- speed curve drawing no.4-00-105-32101 for the main motor. Auto power cylinder with supporting bracket also to be considered.

5.0 The offer is to include a detailed technical catalogue of the proposed model and drawing with outer dimensions for making erection drawing. This data is preferred in soft copy in AutoCAD format. 3D model of whole assembly also required.

6.0 Erection manual and O&M Manual are to be given in three hardcopies and one soft copy for electronic storage.

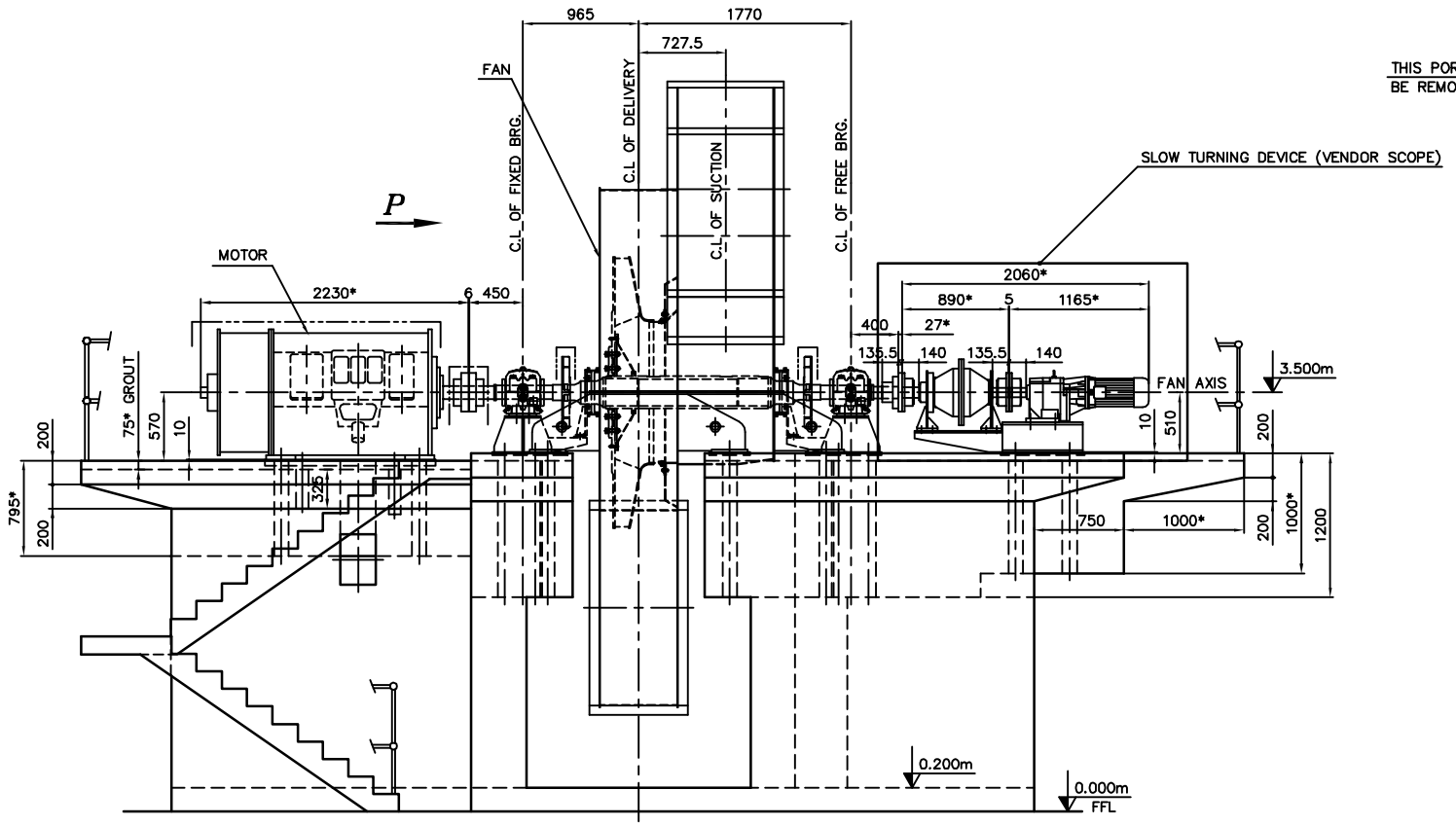
Rev No.& Date	Prepared by	Checked by	Approved by
00 Dt 07/05/15	Prasanna Kumar T	P Purushothaman	Prasanta Saha

ALL DIMENSIONS ARE IN MILLIMETRES

FOR PRODUCTION

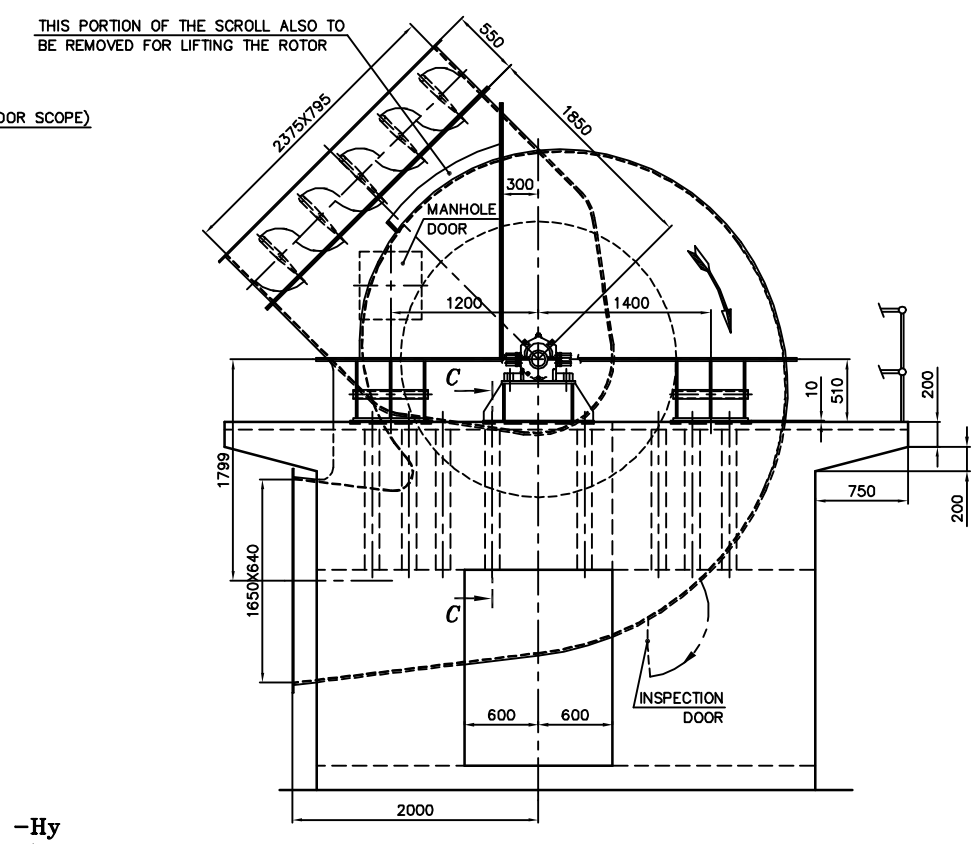
REF. PR:QA:590 FOR PAINTING
REF. PR:QA:500 FOR UNTOL. DIMNS.
REF. APPLICABLE GMS FOR MATCODE&SPEC.

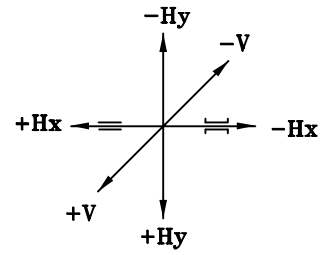
ELEVATION



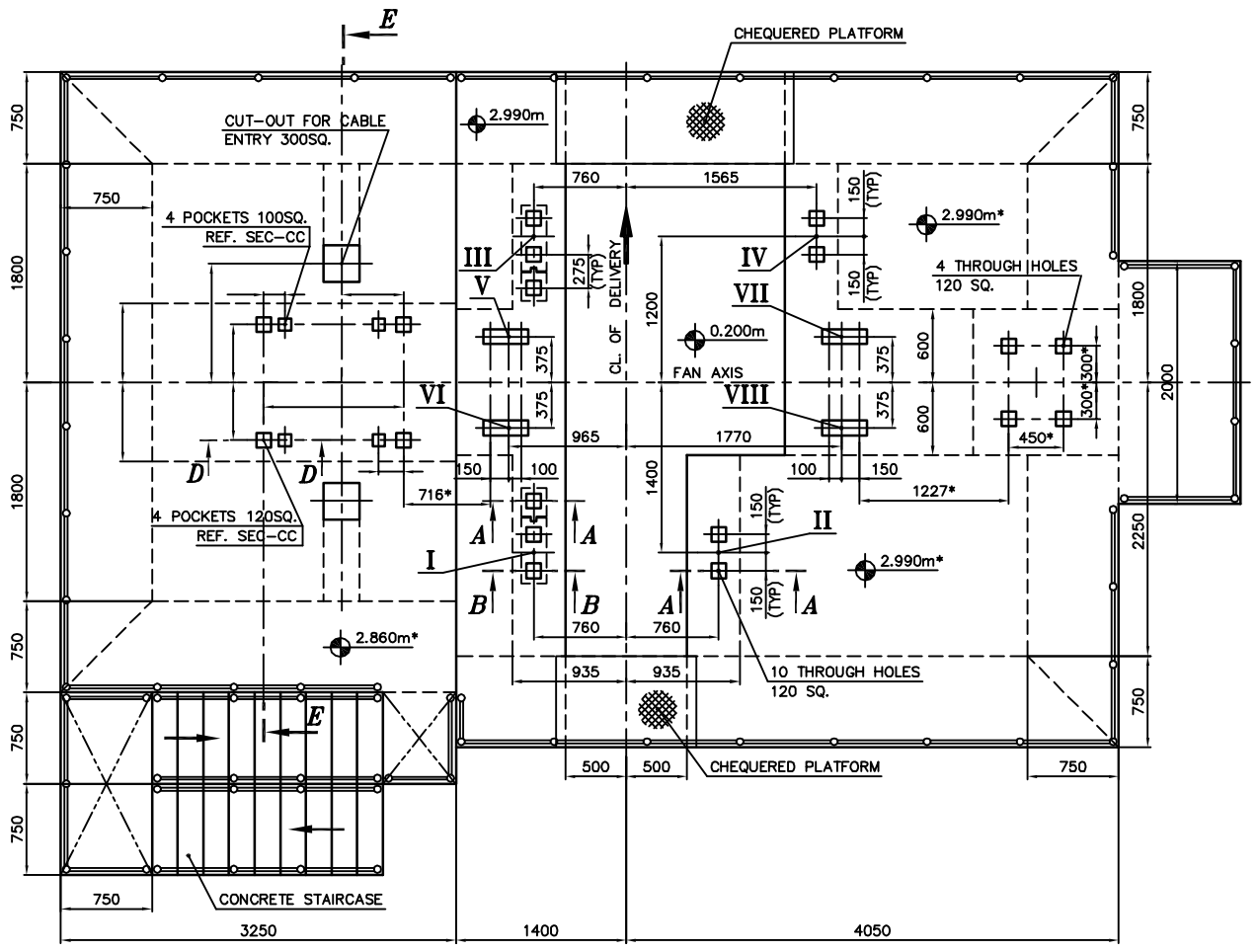
VIEW–P

(WITHOUT MOTOR & ITS FOUNDATION)

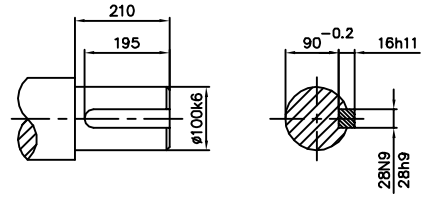




FOUNDATION PLAN



FAN FREE BRG. SHAFT END*



NOTES:–

01. DIMENSIONS SHOWN IN SLOW TURNING DEVICE ARE TENTATIVE, THIS DIMENSIONS WILL VERY AS PER MODEL SELECTED.

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

	NAME	SIGN	DATE
DRN.	VIKS	Sd/–	30.07.2015
CHD.	P. SAHA	Sd/–	30.07.2015
APPD.	P. SAHA	Sd/–	30.07.2015

ALL DIMENSIONS IN MILLIMETRE

PROJECTION

SCALE N.T.S

TITLE: FAN GENERAL ARRANGEMENT

DRG. NO. 1–00–105–29014

REV.

Size A3

STARTING TORQUES FOR RADIAL FAN
TYPE: NDV 21

APPLICATION : GAS RECIRCULATION FAN — QUANTITY: 2 NOS/BOILER

PROJET : TSGENCO / MANUGURU THERMAL POWER PROJECT–4X270 MW

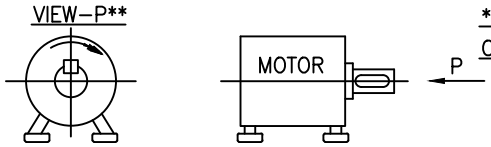
CUSTOMER NO : R373–R376

POWER ABSORBED AT THE MOTOR COUPLING AT THE RATED OUTPUT ['P'MAX]: 183 KW

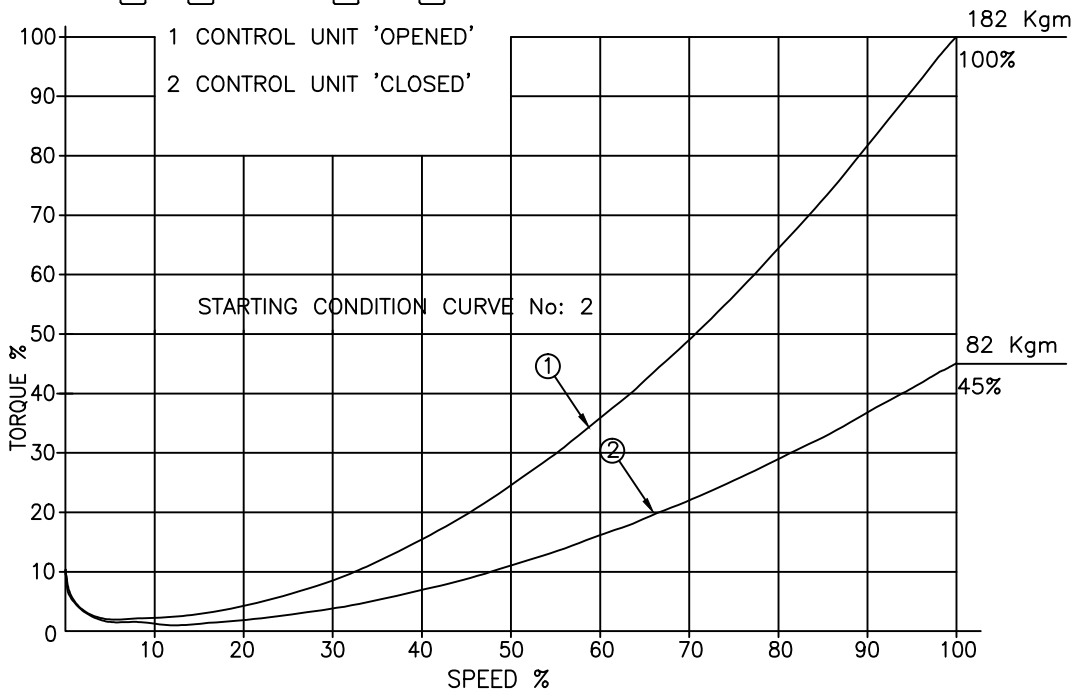
RECOMMENDED MOTOR RATING	: 210 KW
FAN SPEED	: 980 RPM
MOTOR SPEED	: 980 RPM
TORQUE AT P MAX REFERRED TO THE MOTOR SPEED	: 182 Kgm
DENSITY OF THE MEDIUM HANDLED	: 0.7814 Kg/Cu.m.
GD^2 REFERRED TO FAN SHAFT	: 3150 Kg sq meter.

FAN IS DIRECTLY COUPLED TO THE MOTOR BY PIN TYPE FLEXIBLE COUPLING

* FOR COLD START
STARTING WITH AN INLET TEMPERATURE OF 8.4°C HAVING A DENSITY OF 1.251 KG/CU.M , THE TORQUE HAS TO BE MULTIPLIED BY A FACTOR OF 1.60



**BHEL/BHOPAL TO GET CONFIRMATION ON DIRECTION OF ROTATION OF THE MOTOR



MAX. ALLOWABLE TORQUE : 3.0 X RECOMMENDED MOTOR RATED TORQUE

DRAWN: A.KIRAN DATE: 03.03.15	CHECKED: UMASHANKAR DATE: 03.03.15	APPROVED: V.P.SHYAM DATE: 03.03.15	DRG No. 4–00–105–32101	REV 00

FLEXIBLE/HYDRAULIC/STARTING CLUTCH

1600 026 4056 [4]