



BIHAR STATE POWER TRANSMISSION COMPANY LTD., PATNA

A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna

CIN - U74110BR2012SGC018889

[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]

Head Office, Vidyut Bhawan, Bailey Road, Patna - 800021

E-mail address - ceplanningengg@gmail.com, engg.dept@bsptcl.bihar.gov.in

Website - www.bsptcl.in

Letter No. C.E. (P&E) 05/2024 51 / BSPTCL, Patna

Dated 31/01/2024

From,

**Kumar Prasant
Chief Engineer (P&E)**

To,

**JV of M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner)
and M/s BinodConstruction(JV partner)
Godrej Genesis Building,Unit No.609,Plot No.XI,
6th Floor,Block EP & GP,Sector-V,Salt Lake
Kolkata-700091**

Email:- info@abntower.com

Sub.:- Adoption of vendor alongwith GTP & Drawing of 33KV VCB of make M/s CG Power and Industrial Solution Ltd. for Construction of 2x50MVA, 132/33KV GSS Bhorey (Dist.Gopalganj) including residential quarter with construction of associated 02 nos. 132KV Line bays at GSS Hathua & Construction of its associated 132KV D/C Bhorey-Hathua Tr. Line with ACSR Panther Conductor (Line length-60RKM) on turnkey basis under state plan against NIT-10/PR/BSPTCL/2023 .

- Ref.:-
1. NIT No.- 10/PR/BSPTCL/2023.
 2. NOA No.- 13(service), Dated-01.09.23 & 12(supply), Dated-01.09.23
 3. Your Letter no.- ABN/23-24/10/BSPTCL/RL-1397, Dated-04.01.2024
 4. Your Letter no.- ABN/23-24/10/BSPTCL/RL-1434, Dated-10.01.2024
 5. Your mail,dated-31.01.24

Sir,

With reference to subject noted above, your request for adoption of vendor along with GTP & Drawing of 33KV VCB of make M/s CG Power and Industrial Solution Ltd. from NIT-49/PR/BSPTCL/2022 for Construction of 2x50MVA, 132/33KV GSS Bhorey (Dist-Gopalganj) including residential quarter with construction of associated 02 nos. 132KV Line bays at GSS Hathua & Construction of its associated 132KV D/C Bhorey-Hathua Tr. Line with ACSR Panther Conductor (Line length-60RKM) on turnkey basis under state plan against NIT-10/PR/BSPTCL/2023 is hereby considered on the risk and responsibility of **M/s ABN Tower & Transmission Pvt. Ltd.(Lead partner) JV with M/s Binod Construction(JV partner)**. Details of approved drawings are as follows:

Sl. No	Description	Document No.
33KV 2000A, 25KA for 3 sec, Vacuum Circuit Breaker		
1	GTP of 33KV 2000A, 25KA for 3 sec, Vacuum Circuit Breaker	-
2	Coversheet for 36KV O/D PCVCB	COVERSHEET
3	General arrangement drawing for 36KV Outdoor PCVCB	PV7518BGB
4	Rating plate details for 36KV Outdoor PCVCB	PV7518BGB
5	General arrangement for Breaker support structure	GP2078Q1
6	Schematic Drg for 36KV O/D PCVCB Control Circuit	PV7518BSC1
7	Schematic Drg for 36KV O/D PCVCB A.C. Circuit	PV7518BSC2
8	Legends Symbols Device Number	PV6512Q
33KV 1600A, 25KA for 3 sec, Vacuum Circuit Breaker		
1	33KV 1600A, 25KA for 3 sec, Vacuum Circuit Breaker	
2	Coversheet for 36KV O/D PCVCB	COVERSHEET
3	General arrangement drawing for 36KV Outdoor PCVCB	PV7518AGB
4	Rating plate details for 36KV Outdoor PCVCB	PV7518AGB
5	General arrangement for Breaker support structure	GP2078Q1
6	Schematic Drg for 36KV O/D PCVCB Control Circuit	PV7518ASC1



7	Schematic Drg for 36KV O/D PCVCB A.C. Circuit	PV7518ASC2
8	Legends Symbols Device Number	PV6512Q

Please note that this approval and issue of this letter does not absolve you from any contractual responsibility in terms of quality and correctness of the material and should be strictly in accordance with the tender specifications/ISS/IEC. If at any time, any abnormality is observed, BSPTCL reserves the right to withdraw this approval with immediate effect without any pre-intimation.

Encl: As above.

Yours faithfully,

[Signature]
31/01/24

(Kumar Prasant)
Chief Engineer(P&E)

[Initials]

CG Power and Industrial Solutions Limited
Switchgear Division: Power Systems
A-3 MIDC, Ambad, Nashik 422 010, Maharashtra, India
T: +91 253 238 1130 F: +91 253 238 1247



SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS OF 33 KV VCB

Sl. No.	Description	Parameters
1	Name of the Manufacturer	CGPISL
2	Manufacture's type and designation	Leon
3	Governing standards	IEC 62271-100
4	Rated voltage (kV)	33kV
5	Maximum continuous service rated voltage	36kV
6	Frequency (Mz)	50 HZ
7	Class (Outdoor)	Outdoor
8	Normal current rating (amps)	2000 A
	(i) Under standard condition	2000 A
	(ii) Under site condition	2000 A
	(iii) Derating factor, if any, for sites conditions	
9	Short time current rating (KA)	
	i) For 1 second	25
	(ii) For 3 second	
10	Maximum temperature rise over ambient 50 C due to rated current in main contacts, measured after breaking test.	Within Limit as per IEC
11	Rated short circuit breaking current	
	a) Rated short circuit current (AC component) KA (rms) at KV	25kA
	b) Percentage DC component	Less than 50%
	c) Asymmetrical breaking current (including DC component) at KV	
12	Making capacity (KA peak) part	62.5kA
13	Total break time (milli seconds)	
	(a) For interruption of 10% of the rated capacity	Less than 60mSec
	(b) For interruption of 30% of the rated capacity	Less than 60mSec
	(c) For interruption of 60% of rated capacity	Less than 60mSec
	(d) For interruption of the full rated capacity.	Less than 20mSec
14	Arcing time	Less than 60mSec
15	Make time	
16	Minimum reclosing time at rated interrupting capacity from the instant of the trip coil energization (milli seconds)	300mSec

*Adopted for NIT NO
-10/PR/BSPTCL/0023*
31/12/24

Registered Office:
CG House, 6th Floor, Dr Annie Besant Road, Worli, Mumbai 400 030, India
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APPROVED

Subject to the condition that you are not absolved of the responsibility for correctness of the materials supplied as per specification

murugappa
Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

8/24

07 SEP 2023

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17	Minimum Dead time	3 Min
	(a) 3 phase reclosing (milli second)	NA
	(b) 1 phase reclosing (do)	NA
	(c) Limit of adjustment of dead time for 1 phase reclosing	NA
	(d) Limit of adjustment of dead time for 1 phase reclosing.	NA
18	Date on restriking voltage for 100, 50% or 30% rated capacity.	As per IEC
	a) Amplitude factor	
	b) Phase Factor	
	c) Natural Frequency	
	d) Rate of Rise of Restriking Voltage (V) micro sec.	
19	Maximum interrupting capacity under phase opposition condition (MVA) – indicate value as per test report.	25% of Short Circuit Breaking MVA
20	Maximum line charging current breaking capacity without over voltage exceeding 2.5 time the rated phase to neutral voltage (amps – indicate value as per test report)	Not Applicable
21	Maximum line charging current breaking capacity and corresponding over voltage recorded in test	Not Applicable
	(a) On supply side }	
	(b) On line side }	
22	Maximum cable charging current breaking capacity and corresponding over voltage recorded in test	50 A
	(a) On supply side }	
	(b) On line side }	
23	Maximum shunt capacitor / Reactor Bank switching capacity (Single bank MVA)	400 A
24	Maximum breaking capacity on kilometric faults (MVA)	Not Applicable
25	Maximum over voltage on switching transformer on no load and the charging current	Not Applicable
26	Dry 1 minute power frequency test withstand voltage for complete circuit breaker.	
	(a) Between line terminal & ground parts (KV rms)	70kV
	(b) Between terminal with breaker contacts open KV (peak)	70kV
27	Wet 1 minute power frequency test withstand voltage for complete circuit breaker	70kV

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28	1.2 / 50 microsecond wave impulse withstand test voltage for complete circuit breaker –	170kV Peak ✓
	(a) Between the terminal & ground (KV peak)	170kV Peak ✓
	(b) Between terminal with circuit breaker contacts open (kv peak)	170kV Peak ✓
	SUPPORTING INSULATORS	
29	Make and type	Jaipur-Glass/CJI/RK/Reputed / <i>BSPTCL Approved make</i>
30	Weight	30kg(Appr) per insulator
31	Transport dimension-VCB(HXWXD)..Dimensions in mm	2530x1900x1000 (Approx)
32	Insulation class	C
33	Visible corona discharge voltage	AS PER IEC-85
34	Dry – 1 minute power frequency flashover voltage	70kV
35	Wet – 1 minute power frequency flashover voltage	70kV
36	1.2/5 microsecond impulse flashover voltage	170kV Peak
37	Creepage distance to ground (mm) for heavily polluted atmosphere	
	i) Total	900 mm
	ii) Protected	400 mm
38	Minimum clearance in air –(Tolerance +/-5%)	420 → 430 (as per TTR)
	a) Between phase (mm)	400
	b) Live parts and earth (mm)	3700
	c) Live parts to ground level (mm)	
	CONSTRUCTIONAL FEATURES	
39	No. of poles per circuit breaker	Three
40	No. of breaks per phase	One
41	Total length of breaks per phase (mm)	17 +/- 1 mm
42	Type of main contacts	Butt
43	Materials of main contacts	Copper Chromium Alloys
44	Whether main contacts silver plated (Yes/no)	No
45	Thickness of silver coating on – main contacts (mm)	Not Applicable
46	Contact pressure on main contacts (Kg/m2)	Adequate
47	Type of arcing contacts	No separate arcing contact is applicable
48	Contact pressure on arcing contacts (kg/m2)	Not Applicable
49	Type of auxiliary switches	Rotating
50	Material of switch contacts	Copper Alloy
51	Whether contacts silver plated (Yes/No)	Yes
52	No. of auxiliary switch contacts operating with all three poles or single pole of breaker	
	a) Which are closed when breaker is closed.	6

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31/1/24

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	b) Which are open when breaker is closed	6
	c) Those adjustable with respect to the position of main contacts.	NIL
53	No. of auxiliary switch contacts operating with individual pole of a breaker	Not Applicable
	a) Which are closed when breaker is closed.	
	b) Which are open when breaker is closed	
	c) Those adjustable with respect to the position of main contacts.	
54	No. of spare auxiliary switch contacts operating with all three poles or single pole of breaker	2 5
	a) Which are closed when breaker is closed.	2 5
	b) Which are open when breaker is closed	
	c) Those adjustable with respect to the position of main contacts.	NIL
55	No. of spare auxiliary switch contacts operative with individual pole of breaker	Not Applicable
	a) Which are closed when breaker is closed.	
	b) Which are open when breaker is closed	
	c) Those adjustable with respect to the position of main contacts.	
56	No. of operating possible without maintenance	100
	(a) At full rated interrupting capacity	100
	(b) At 50% of rated interrupting capacity	10000
	(c) At 100% of rated current	10000
	(d) At 50% of rated current.	
57	Mounting flange details	As per GA No.PV7058B
58	Type of operating mechanism	Spring charge stored energy
	(a) Opening	Spring charge stored energy
	(b) Closing	220V DC
59	Tripping and closing circuit voltage (V)	200 W (+/-5%)
60	Power required for tripping coil	200 W(+/-5%)
61	Power required for closing coil	TNC & LR
62	Details of various selector switches	ON CRP (Not in our Scope)
63	Details of push button switches	ON CRP (Not in our Scope)
64	Details of various selector switches	ON CRP (Not in our Scope)
65	Details of push button switches	ON CRP (Not in our Scope)
66	Contingencies for which alarm provided	ON CRP (Not in our Scope)

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31/1/24

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CG Power and Industrial Solutions Limited
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Smart solutions.
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67	Design data for supporting structure.	Kindly refer GA Drawings
68	Weight of supporting structure (Steel) per breaker	80kg (Approx)
69	Time required by motor to charge the closing spring	10-15 Sec
70	Endurance Class	E2-C2-M2
71	First Pole to Clear factor	1.5
72	Auto reclosing feature	Available

Adopted for NIT NO-
101PR1BSPIC49023

31/7/24

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* NO. of terminals in common control } All control & contacts circuits
Cabinet: } to be wired upto common
control cabinet plus 24
terminals.

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6798

92

REV 0	COVERSHEET		
IF IN DOUBT, ASK			
CG Power and Industrial Solutions Limited			
DRAWING FOR 33KV OUTDOOR PCVCB			
CUSTOMER : SHYAMA POWER INDIA LIMITED			
END CLIENT : BSPTCL			
		W.O.NO. PV7518B	
		CG Power and Industrial Solutions Limited	
		MID Switchgear Division	
		Amritsar, Nabha, India	
		SCALE: N/A Dwg. No. COVERSHEET	
		REV 0	

Adopted for NLT No -
- 101PRI/BSPTCL/2023

3/11/24

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(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

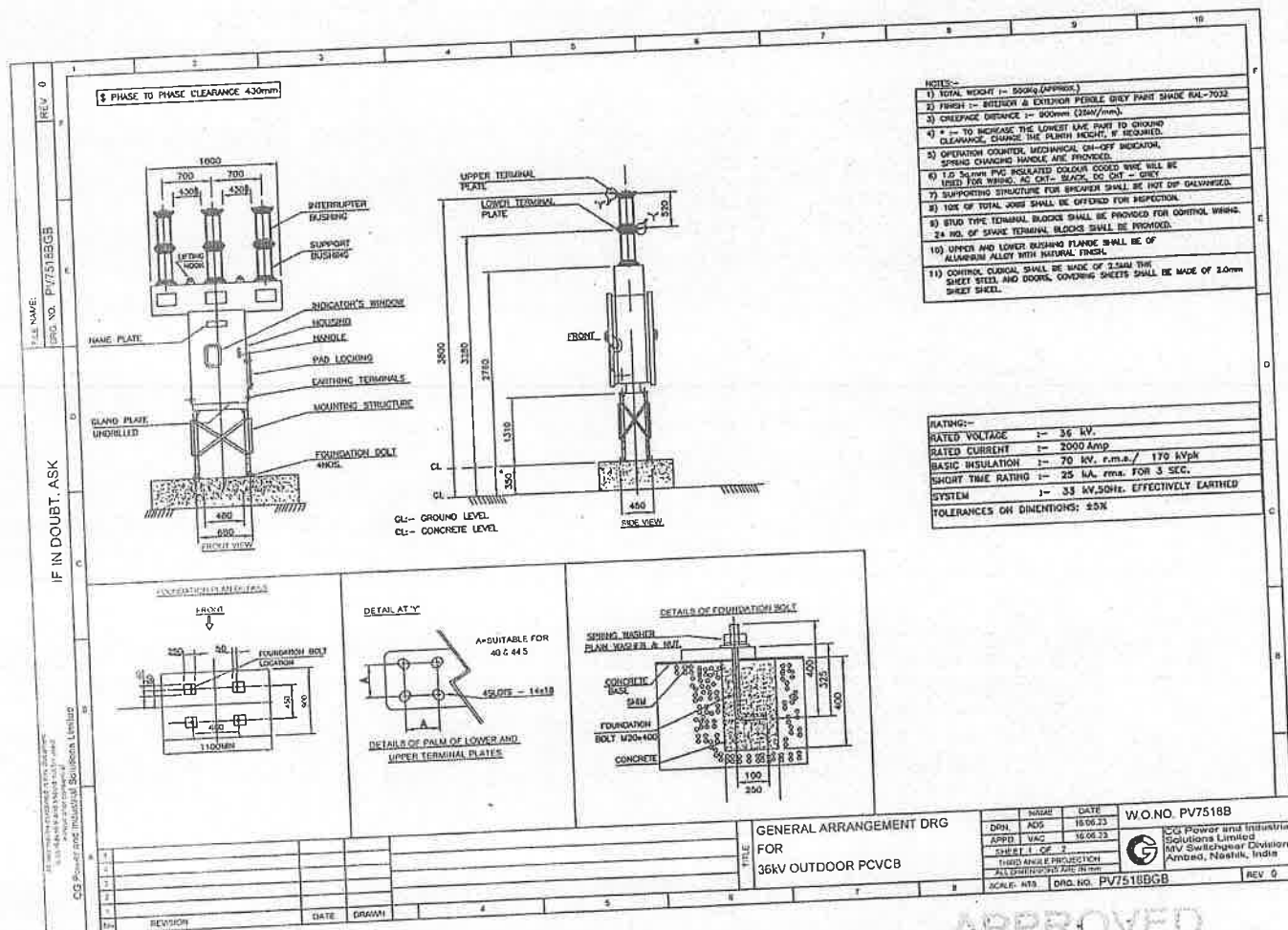
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Adopted for NIT NO-
10/PRI/BSPTCL/2023

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(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyan Bhawan, Patna-800021


Smr

hp

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197

1577

FILE NAME		REV. D	
Dwg. No. PV7518BGB			
RATING PLATE DETAILS			
PORCELAIN CLAD VACUUM CIRCUIT BREAKER			
	CG Power and Industrial Solutions Limited. Medium Voltage Switchgear Divn. Ambad, Nashik-422010. MADE IN INDIA.		RATING TO : IEC62271-100
			CIRCUIT BREAKER TYPE 36PV25A
		SR.NO ##	
VOLTAGE 36 kV	BREAKING CAPACITY 25 kA		
CURRENT 2000 AMP	MAKING CAPACITY 62.5 kAp	### YEAR	
FREQUENCY 50 Hz	SHORT TIME CURRENT 25 kA FOR 3 SEC		
NO OF POLES 3	DC COMPONENT < 50% BIL 70/170 kVp		
OPERATING SEQUENCE/DUTY : O - 0.3Sec - CO - 3Min - CO			
SHUNT TRIP 220 VDC	CLOSING COIL 220 VDC		
## Sr.Nos.			
### MONTH& YEAR TO BE INCORPORATED IN WHICH JOB IS DESPATCHED			
REVISION		DATE	DRAWN
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
TITLE		RATING PLATE DETAILS FOR 36KV OUTDOOR PCVCB	
SCALE: HTS		Dwg. No. PV7518BGB	
DATE		18/08/23	
APPROVED		18/08/23	
SHEET 1 OF 1		SHEET 1 OF 1	
THIRD ANGLE PROJECTION		THIRD ANGLE PROJECTION	
ALL DIMENSIONS ARE IN MM		ALL DIMENSIONS ARE IN MM	
W.O. NO. PV7518B		W.O. NO. PV7518B	
CG Power and Industrial Solutions Limited		CG Power and Industrial Solutions Limited	
Medium Voltage Switchgear Division		Medium Voltage Switchgear Division	
Ambad, Nashik, India		Ambad, Nashik, India	
REV. D		REV. D	

Adopted for NLT No
- 10/PRI/BSPTCL/2023

W
31/1/24

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supplied as per specification

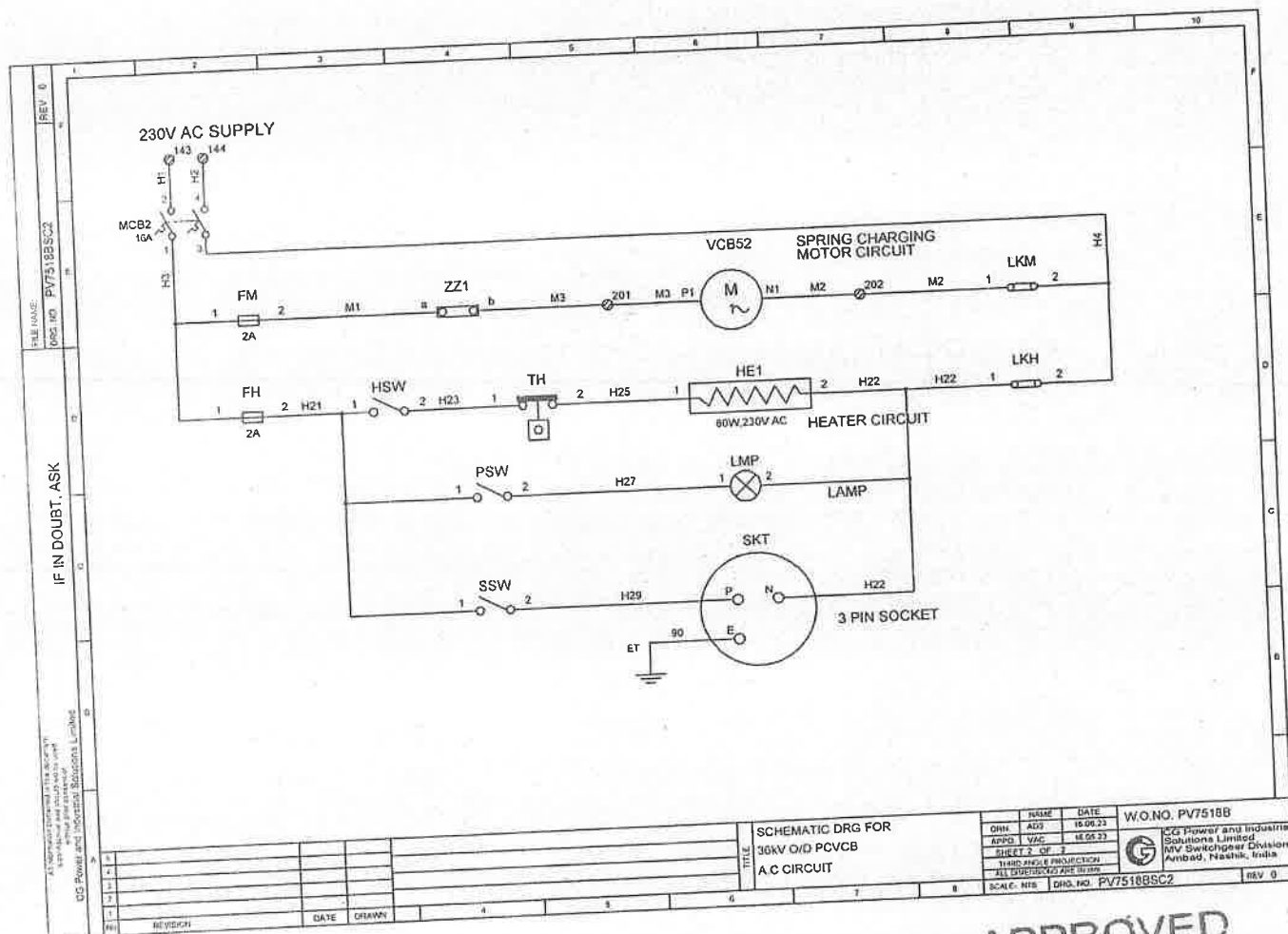
Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

Signature

07 SEP 2023



1524



Adopted for NIT No -
-10/PR/BSPTCL/2023

21/11/24

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

07 SEP 2023

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022

ANSI CODE, TAG, SYMBOL DESCRIPTIONS					
ANSI CODE	PROTECTIVE FUNCTIONS	SYMBOL	DESCRIPTION	TAG	TAG DESCRIPTION
94	ANTI PUMPING RELAY		HRC FUSE		
VCB52	VACUUM CIRCUIT BREAKER		LINK		
ZZ1	OPENS WHEN SPRINGS ARE CHARGED		NORMALLY OPEN CONTACT		
ZZ2,ZZ3	CLOSES WHEN SPRINGS ARE CHARGED		NORMALLY CLOSED CONTACT		
TNC	BREAKER CONTROL SWITCH		MOTOR		
LR	LOCAL REMOTE SWITCH		THERMOSTAT		
HE	SPACE HEATER		LAMP		
TH	THERMOSTAT		SWITCH (TNC, LR, AUTO MANUAL)		
HSW	TOGGLE SWITCH FOR HEATER		TOGGLE SWITCH		
SSW	TOGGLE SWITCH FOR SOCKET		COIL		
PSW	DOOR SWITCH FOR LAMP		(52a) VCB OPERATED NO CONTACT		
52X	AUX CONTACTOR FOR VCB CONTACT MULT		(52b) VCB OPERATED NC CONTACT		
VCR52CG	VCB CLOSING COIL		3PIN SOCKET		
VCB52TC	VCB TRIPPING COIL				
(X)	FUSES & MCB				
FC1,FC2	CLOSING CIRCUIT FUSES				
FT1,FT2	TRIPPING CIRCUIT FUSES				
FI1,FI2	INDICATION CIRCUIT FUSES				
FMLKM	FUSE/LINK FOR MOTOR CIRCUIT				
FHLKH	FUSE/LINK FOR HEATER CIRCUIT				
MCB	MINIATURE CIRCUIT BREAKER				

NOTES
1 THESE ARE THE FREQUENTLY USED ABBREVIATIONS AS PER CGL STANDARD DRAWINGS

REVISION	DATE	DRAWN
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

LEGENDS	SYMBOLS	DEVICE NUMBER

NAME	DATE	W.O. NO.
DRN. 1	18/08/23	PV7518B
APPD. 1	18/08/23	
SHEET 1	OF 1	
THIRD ANGLE PROJECTION		
ALL DIMENSIONS IN MM		
SCALE: 1:10	DWG. NO. PV6512Q	REV. 0

CG Power and Industrial Solutions Limited
Ambedkar, Noida, India


Adopted for NIT No
-10/PR/BSPT/4/2023

31/11/24

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

07 SEP 2023

 Ganga Transmission Project Smart solutions. Strong relationships.		B-SHEET FOR W.O.NO.	PV7518B	REV'0'
		B'SHEET.NO.:	PB7518B	
		BOARD NO.:	36kV O/D PCVCB	
		TOTAL QTY.:	4	No.
		PREPARED BY:	ADS	
		APPROVED BY:	VAC	
		DATE:	16.06.23	
IT	DESCRIPTION	PCVCB	TOTAL	
1	BASIC UNIT 33kV/2000A/25kA SP.CH.MOTOR:230V AC,AUX.SUPPLY: 220VDC	1	4	
2	ANTI PUMPING DEVICE AUX.SUPPLY: 220VDC.	1	4	
3	TNC SWITCH W/O BELL ALARM CONTACT TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:1N/O IN EACH POSITION	1	4	
4	LOCAL/REMOTE SELECTOR SWITCH TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:2N/O IN EACH POSITION	1	4	
5	ON-OFF TOGGLE SWITCH FOR HEATER & SOCKET RATING: 6A,230V AC	2	8	
6	DOOR OPERATED SWITCH RATING : 2A,230V AC	1	4	
7	SPACE HEATER RATING : 80W,230V AC	1	4	
8	3PIN SOCKET RATING : 5A,230V AC	1	4	
9	PANEL LAMP RATING : 5W,230V AC	1	4	
10	HOLDER FOR PANEL LAMP	1	4	
11	THERMOSTAT-RIGID PROBE TYPE RATING : 230V AC	1	4	
12	MCB A)MCB1- 2POLE, 16A, 220V DC SUPPLY B)MCB2- 2POLE,16A, 230V AC SUPPLY ADD ON BLOCK FOR MCB2	1 1 1	4 4 4	
13	AUXILIARY SWITCH CONTACTS:12NO+12NC	1	4	

(M) per GTP-Drawing

(As per GTP-Drawing & B08)

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021


07 SEP 2023

Adopted for NIT NO
-10/PRI/BSPTC/2023

31/1/24

115

157

BILL OF MATERIAL			
		W.O.NO.: PV7518B SPARES	
		B'SHEET.NO.: PB7518B SPARES	
		QTY.: 1	NOS.
		PREPARED BY: ADS	
		APPROVED BY: VAC	
		DATE: 16.06.23	
SPARES			
IT	DESCRIPTION		TOTAL
1	TRIPPING COIL ASSLY. CONTROL VOLTAGE: 220V DC		1
2	CLOSING COIL ASSLY. CONTROL VOLTAGE: 220V DC		1
3	TNC SWITCH W/O BELL ALARM CONTACT TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:1N/O IN EACH POSITION		1
4	LOCAL/REMOTE SELECTOR SWITCH TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:2N/O IN EACH POSITION		1
5	AUXILIARY SWITCH CONTACTS:12NO+12NC		1

Adopted for NIT No.

— 10/PR/BSPTCL/2023

31/1/24

(As per GTP Drawing & BOM)

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Electrical Superintending Engineer
(Planning and Engineering)
Bihar State Power Transmission Company Limited
Vidyut Bhawan, Patna-800021

07 SEP 2023

CG Power and Industrial Solutions Limited
Switchgear Division: Power Systems
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T: +91 253 238 1130 F: +91 253 238 1247



SCHEDULED OF GUARANTEED TECHNICAL PARTICULARS OF 33 KV VCB

Sl. No.	Description	Parameters
		CGPISL
1	Name of the Manufacturer	Leon
2	Manufacture's type and designation	IEC 62271-100
3	Governing standards	33kV
4	Rated voltage (kV)	36kV
5	Maximum continuous service rated voltage	50 HZ
6	Frequency (Mz)	Outdoor
7	Class (Outdoor)	
8	Normal current rating (amps)	1600 A
	(i) Under standard condition	1600 A
	(ii) Under site condition	1600 A
	(iii) Derating factor, if any, for sites conditions	
9	Short time current rating (KA)	
	i) For 1 second	25
	(ii) For 3 second	
10	Maximum temperature rise over ambient 50 C due to rated current in main contacts, measured after breaking test.	Within Limit as per IEC
11	Rated short circuit breaking current	
	a) Rated short circuit current (AC component) KA (rms) at KV	25KA
	b) Percentage DC component	Less than 50%
	c) Asymmetrical breaking current (including DC component) at KV	62.5KA
12	Making capacity (KA peak) part	
13	Total break time (milli seconds)	
	(a) For interruption of 10% of the rated capacity	Less than 60mSec
	(b) For interruption of 30% of the rated capacity	Less than 60mSec
	(c) For interruption of 60% of rated capacity	Less than 60mSec
	(d) For interruption of the full rated capacity.	Less than 60mSec
14	Arcing time	Less than 20mSec
15	Make time	Less than 60mSec
16	Minimum reclosing time at rated interrupting capacity from the instant of the trip coil energization (milli seconds)	300mSec

*Adopted for NIT No-
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17	Minimum Dead time	300mSec
	(a) 3 phase reclosing (milli second)	NA
	(b) 1 phase reclosing (do)	NA
	(c) Limit of adjustment of dead time for 1 phase reclosing	NA
	(d) Limit of adjustment of dead time for 1 phase reclosing.	NA
18	Date on restriking voltage for 100, 50% or 30% rated capacity.	As per IEC
	a) Amplitude factor	
	b) Phase Factor	
	c) Natural Frequency	
	d) Rate of Rise of Restriking Voltage (V) micro sec.	
19	Maximum interrupting capacity under phase opposition condition (MVA) – indicate value as per test report.	25% of Short Circuit Breaking MVA
20	Maximum line charging current breaking capacity without over voltage exceeding 2.5 time the rated phase to neutral voltage (amps – indicate value as per test report)	Not Applicable
21	Maximum line charging current breaking capacity and corresponding over voltage recorded in test	Not Applicable
	(a) On supply side }	
	(b) On line side }	
22	Maximum cable charging current breaking capacity and corresponding over voltage recorded in test	50 A
	(a) On supply side }	
	(b) On line side }	
23	Maximum shunt capacitor / Reactor Bank switching capacity (Single bank MVA)	400 A
24	Maximum breaking capacity on kilometric faults (MVA)	Not Applicable
25	Maximum over voltage on switching transformer on no load and the charging current	Not Applicable
26	Dry 1 minute power frequency test withstand voltage for complete circuit breaker.	
	(a) Between line terminal & ground parts (KV rms)	70kV
	(b) Between terminal with breaker contacts open KV (peak)	70kV
27	Wet 1 minute power frequency test withstand voltage for complete circuit breaker	70kV

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28	1.2 / 50 microsecond wave impulse withstand test voltage for complete circuit breaker –	
	(a) Between the terminal & ground (KV peak)	170kV Peak
	(b) Between terminal with circuit breaker contacts open (kv peak)	170kV Peak
	SUPPORTING INSULATORS	
29	Make and type	Jaipur Glass/CJI/RK/Reputed
30	Weight	30kg(Appr) per insulator
31	Transport dimension-VCB(HXWXD)..Dimensions in mm	2530x1900x1000 (Approx)
32	Insulation class	C
33	Visible corona discharge voltage	AS PER IEC-85
34	Dry – 1 minute power frequency flashover voltage	70kV
35	Wet – 1 minute power frequency flashover voltage	70kV
36	1.2/5 microsecond impulse flashover voltage	170kV Peak
37	Creepage distance to ground (mm) for heavily polluted atmosphere	
	i) Total	900 mm
	ii) Protected	400 mm
38	Minimum clearance in air –(Tolerance +/-5%)	
	a) Between phase (mm)	430
	b) Live parts and earth (mm)	400
	c) Live parts to ground level (mm)	3280
	CONSTRUCTIONAL FEATURES	
39	No. of poles per circuit breaker	Three
40	No. of breaks per phase	One
41	Total length of breaks per phase (mm)	17 +/- 1 mm
42	Type of main contacts	Butt
43	Materials of main contacts	Copper Chromium Alloys
44	Whether main contacts silver plated (Yes/no)	No
45	Thickness of silver coating on – main contacts (mm)	Not Applicable
46	Contact pressure on main contacts (Kg/m2)	Adequate
47	Type of arcing contacts	No separate arcing contact is applicable
48	Contact pressure on arcing contacts (kg/m2)	Not Applicable
49	Type of auxiliary switches	Rotating
50	Material of switch contacts	Copper Alloy
51	Whether contacts silver plated (Yes/No)	Yes
52	No. of auxiliary switch contacts operating with all three poles or single pole of breaker	
	a) Which are closed when breaker is closed.	6
	b) Which are open when breaker is closed	6

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	c) Those adjustable with respect to the position of main contacts.	NIL
53	No. of auxiliary switch contacts operating with individual pole of a breaker	Not Applicable
	a) Which are closed when breaker is closed.	
	b) Which are open when breaker is closed	
	c) Those adjustable with respect to the position of main contacts.	
54	No. of spare auxiliary switch contacts operating with all three poles or single pole of breaker	
	a) Which are closed when breaker is closed.	2
	b) Which are open when breaker is closed	2
	c) Those adjustable with respect to the position of main contacts.	NIL
55	No. of spare auxiliary switch contacts operative with individual pole of breaker	Not Applicable
	a) Which are closed when breaker is closed.	
	b) Which are open when breaker is closed	
	c) Those adjustable with respect to the position of main contacts.	
56	No. of operating possible without maintenance	
	(a) At full rated interrupting capacity	100
	(b) At 50% of rated interrupting capacity	100
	(c) At 100% of rated current	10000
	(d) At 50% of rated current.	10000
57	Mounting flange details	As per GA No.PV7058A
58	Type of operating mechanism	
	(a) Opening	Spring charge stored energy
	(b) Closing	Spring charge stored energy
59	Tripping and closing circuit voltage (V)	220V.DC
60	Power required for tripping coil	200 W (+/-5%)
61	Power required for closing coil	200 W (+/-5%)
62	Details of various selector switches	TNC & LR
63	Details of push button switches	ON CRP (Not in our Scope)
64	Details of various selector switches	ON CRP (Not in our Scope)
65	Details of push button switches	ON CRP (Not in our Scope)
66	Contingencies for which alarm provided	ON CRP (Not in our Scope)
67	Design data for supporting structure.	Kindly refer GA Drawings
68	Weight of supporting structure (Steel) per breaker	80kg (Approx)

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69	Time required by motor to charge the closing spring	10-15 Sec
70	Endurance Class	E2-C2-M2
71	First Pole to Clear factor	1.5
72	Auto reclosing feature	Available

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17

1525

FILE NAME Dwg. No. COVERSHEET	REV. D		
IF IN DOUBT, ASK			
CG Power and Industrial Solutions Limited			
DRAWING FOR 33KV OUTDOOR PCVCB			
CUSTOMER : SHYAMA POWER INDIA LIMITED			
END CLIENT : BSPTCL			
		☆☆☆☆	
		W.O.NO. PV7518A	
		CG Power and Industrial Solutions Limited MV Switchgear Division Ambedkar, Mumbai, India	
		SCALE: 1:1 Dwg. No. COVERSHEET	
		REV. D	

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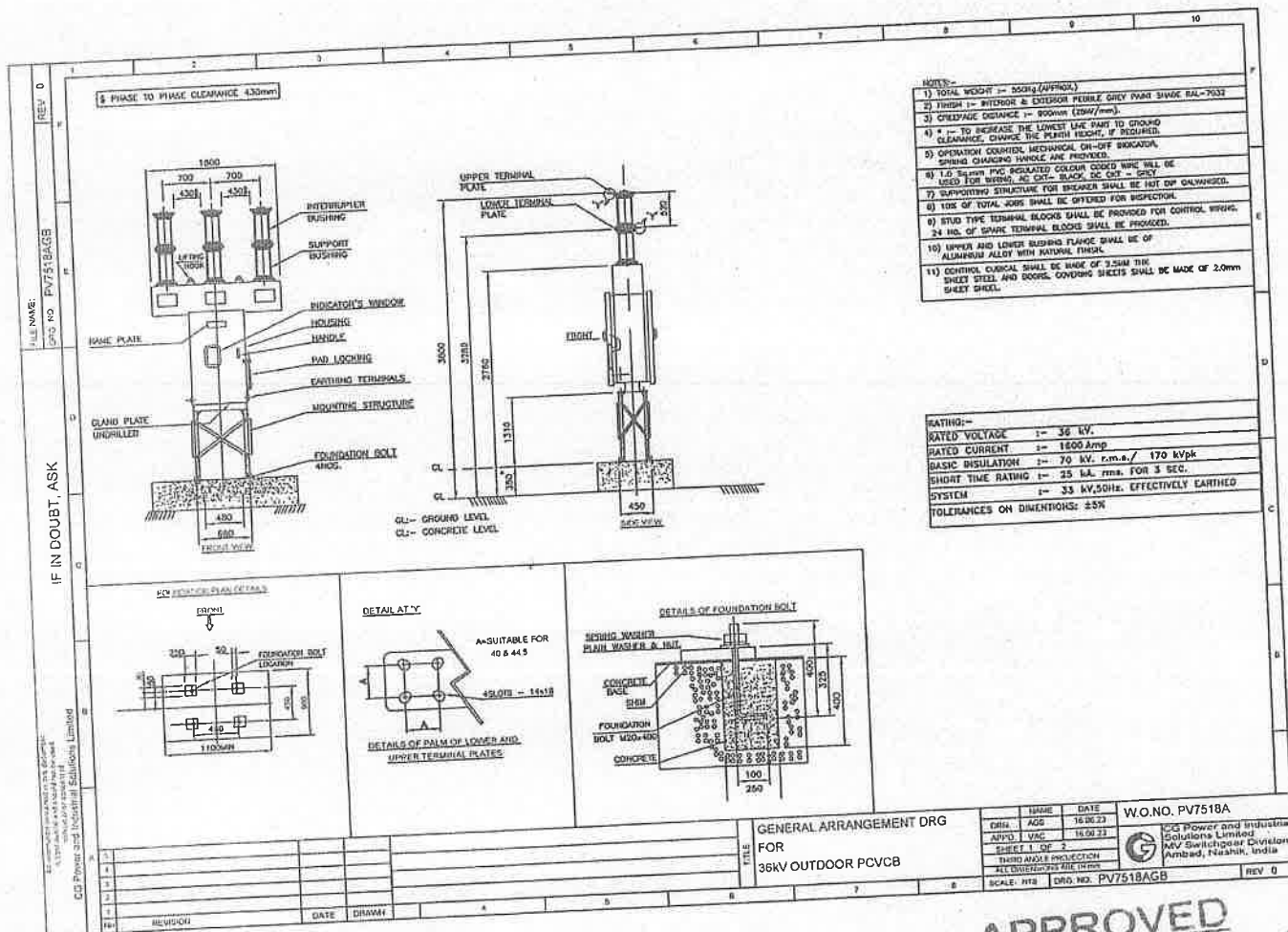
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17

CSB's

FILE NO.	REV. 0
IF IN DOUBT, ASK	
CG Power and Industrial Solutions Limited	
RATING PLATE DETAILS	
PORCELAIN CLAD VACUUM CIRCUIT BREAKER	
 CG Power and Industrial Solutions Limited. Medium Voltage Switchgear Divn. Ambad, Nashik-422010. MADE IN INDIA.	
RATING TO : IEC62271-100	
CIRCUIT BREAKER TYPE 38PV25A	
SR.NO ##	
VOLTAGE 38 kV	BREAKING CAPACITY 25 KA
CURRENT 1600 AMP	MAKING CAPACITY 62.5 kAp
FREQUENCY 50 Hz	SHORT TIME CURRENT 25 KA FOR 3 SEC
NO OF POLES 3	DC. COMPONENT < 50% BIL 70/170 kVp
OPERATING SEQUENCE/DUTY : O - 0.3Sec - CO - 3Min - CO	
SHUNT TRIP 220 VDC	CLOSING COIL 220 VDC
## Sr.Nos.	
### MONTH& YEAR TO BE INCORPORATED IN WHICH JOB IS DESPATCHED	
RATING PLATE DETAILS FOR 38KV OUTDOOR PCVCB	
NAME DATE W.O.NO. PV7518A	
DHL 18.06.23	
APRIS 18.06.23	
SHEET 2 OF 2	
THIRD ANGLE PROJECTION	
ALL DIMENSIONS ARE IN MM	
SCALE: NTS	
Dwg. No. PV7518AGB	
REV. 0	

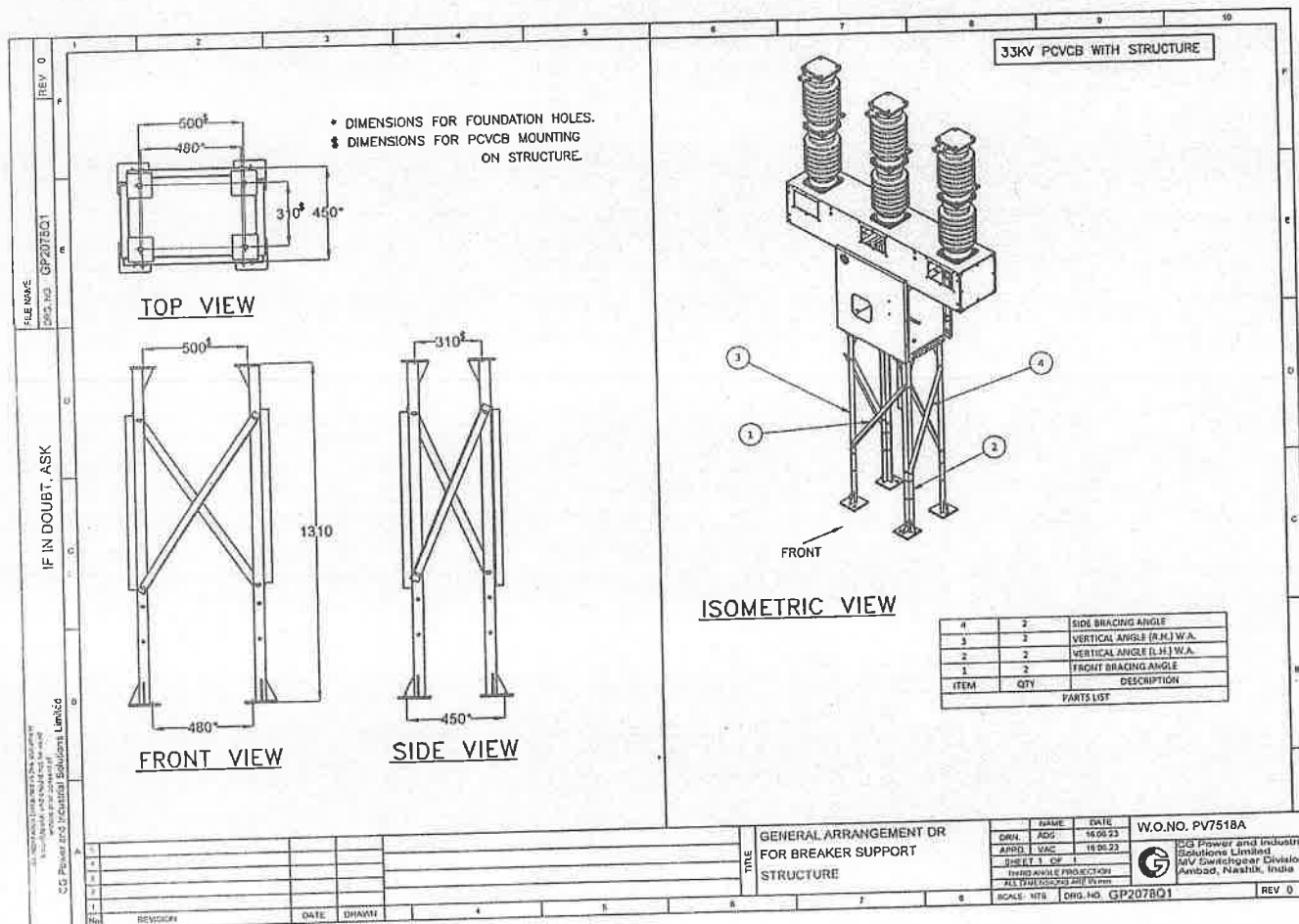
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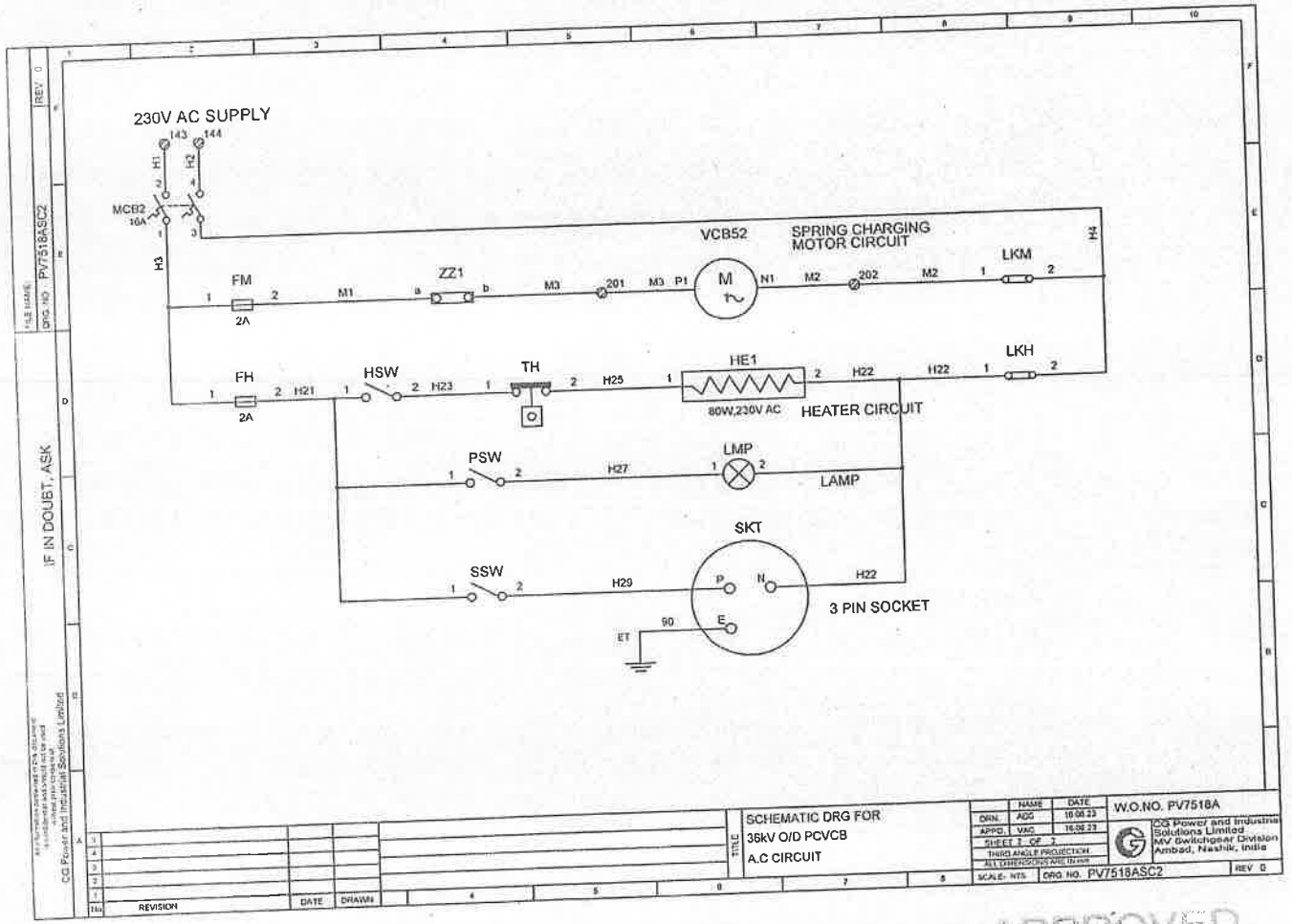
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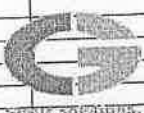
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Vidyut Bhawan, Patna-800021

07 SEP 2023

 BIHAR STATE POWER TRANSMISSION COMPANY LIMITED Patna, Bihar-800021		B-SHEET FOR W.O.NO. PV7518A	REV'0'
		B'SHEET.NO.: PB7518A	
		BOARD NO.: 36kV O/D PCVCB	
		TOTAL QTY.: 9	No.
		PREPARED BY: ADS	
		APPROVED BY: VAC	
		DATE: 16.06.23	
IT	DESCRIPTION	PCVCB	TOTAL
1	BASIC UNIT 33kV/1600A/25kA SP.CH.MOTOR:230V AC,AUX.SUPPLY: 220VDC	1	9
2	ANTI PUMPING DEVICE AUX.SUPPLY: 220VDC.	1	9
3	TNC SWITCH W/O BELL ALARM CONTACT TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:1N/O IN EACH POSITION	1	9
4	LOCAL/REMOTE SELECTOR SWITCH TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:2N/O IN EACH POSITION	1	9
5	ON-OFF TOGGLE SWITCH FOR HEATER & SOCKET RATING: 6A,230V AC	2	18
6	DOOR OPERATED SWITCH RATING : 2A,230V AC	1	9
7	SPACE HEATER RATING : 80W,230V AC	1	9
8	3PIN SOCKET RATING : 5A,230V AC	1	9
9	PANEL LAMP RATING : 5W,230V AC	1	9
10	HOLDER FOR PANEL LAMP	1	9
11	THERMOSTAT-RIGID PROBE TYPE RATING : 230V AC	1	9
12	MCB A)MCB1- 2POLE , 16A, 220V DC SUPPLY B)MCB2- 2POLE ,16A , 230V AC SUPPLY ADD ON BLOCK FOR MCB2	1 1	9 9
13	AUXILIARY SWITCH CONTACTS:12NO+12NC	1	9

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07 SEP 2023

159 ✓

BILL OF MATERIAL			
		W.O.NO.: PV7518A_SPARES	
		B'SHEET.NO.: PB7518A_SPARES	
		QTY.: 1	NOS.
		PREPARED BY: ADS	
		APPROVED BY: VAC	
		DATE: 16.06.23	
SPARES			
IT	DESCRIPTION		TOTAL
1	TRIPPING COIL ASSLY. CONTROL VOLTAGE: 220V DC		1
2	CLOSING COIL ASSLY. CONTROL VOLTAGE: 220V DC		1
3	TNC SWITCH W/O BELL ALARM CONTACT TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:1N/O IN EACH POSITION		1
4	LOCAL/REMOTE SELECTOR SWITCH TYPE - NON-LOCKABLE MAKE - SALZER/SHIRKE/EQUIV. CONTACTS:2N/O IN EACH POSITION		1
5	AUXILIARY SWITCH CONTACTS:12NO+12NC		1

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