

7759663/2023/EMRT-ENES1

2. For EPC contractors only. GUARANTEED TECHNICAL PARTICULARS FOR CIRCUIT BREAKERS		
Sl. No	Description	132 kV SF6 CB
1	a) Maker's name country of manufacture.	CG POWER AND INDUSTRIAL SOLUTIONS LTD.
	b) Manufacturer's type designation.	120-SFM-40AA
2	Applicable Technical Standards	IEC 62271-100
3	a) Rated voltage (kV)	145 KV
	b) Rated Frequency (Hz)	50HZ
4	Number of Poles	3
5	Class (Outdoor/Indoor)	Outdoor
6	Rated normal current:	
	a) Under site conditions (Amps)	Upto 3150A
	b) Rated (Amps)	Upto 3150A
7	Rated short circuit breaking current:	
	a) R.M.S. value of AC. component of rated short circuit current (kA)	40 kA
	b) Percentage DC component	45%
	c) Asymmetrical breaking current (including DC component)	47.4kA
	d) Certificate or report no.	Please refer enclosed type test report.
	e) Oscillogram No.	Please refer enclosed type test report.
8	Rated short circuit making current (kA)	100 kA
9	First Pole to clear factor	1.3
10	Rated transient recovery voltage for terminal faults (kV peak)	249 kVp
11	Rated characteristics for short line faults.	Tested for Test Duty L90 and L75 as per IEC-62271-100.
12	Rated operating sequence .	O-0.3sec-CO-3min-CO
13	Rated duration of short circuit (sec.)	3 sec
14	Rated out of phase breaking current (kA)	10 kA
15	Opening time (ms)	< 30 ms
16	Arcing time (ms)	
	a) At 10% rated breaking current	< 30 ms
	b) At 25% rated breaking current	< 30 ms
	c) At 50% rated breaking current	< 30 ms
	d) At 100% rated breaking current	< 30 ms
	e) Maximum Arcing time at lowest fault currents	< 30 ms
17	Break time (ms)	
	a) At 10% rated breaking current	< 60 ms
	b) At 25% rated breaking current	< 60 ms
	c) At 50% rated breaking current	< 60 ms
	d) At 100% rated breaking current	< 60 ms
	e) Maximum break time at lowest fault current	< 60 ms
18	Closing time (ms)	< 100 ms
19	Maximum Pole discrepancy time:	
	a) Opening (ms)	< 3.3 ms
	b) Closing (ms)	< 5 ms
20	Rated line charging breaking current (kA)	50 A
21	Maximum cable charging current	

7759663/2023/EMRT-ENES1

	a) On supply side	<2.3 p.u
	b) On line side	<2.3 p.u
22	Rated small inductive breaking current (kA)	Not applicable As per IEC 62271-100
23	Max. rise of temperature over ambient temperature for current rating under clause 6.	Within limits of IEC-56 /IEC- 62271 - 100 & IEC-694
24	Interrupting capacity based on duty cycle as per clause 11.	
	a) AC Component (kA)	40 kA
	b) Percentage DC Component	45.00%
25	Latching current (kA)	100 kAp
26	No of breaks in series per pole	Single Break
27	Length of contact travel (mm)	120 mm
28	Total length of break per pole (mm)	90 mm
29	Type of devices, if any, used to obtain uniform voltage distribution between breaks	Not required Since single break design.
30	Recovery voltage distribution between breaks in percent of rated voltage:	
	a) Single line to ground fault	Single break. Hence it is not applicable.
	b) Interruption of short lines	
	c) Switching off an unloaded Transformers	
31	Type of main contact	Multifinger crown
32	Type of arcing-contacts and/or arc control device	TULIP/NOZZLE
33	Material of contacts	
	a) Main	Copper Chromium
	b) Arcing	Copper Tungsten
	c) Auxiliary	Silver plated brass
34	Whether contacts are silver plated	Yes ,main contacts
35	Thickness of silver coating (mm)	25 microns
36	Contact pressure (kg/sq. mm.)	0.3 kg/mm
37	Insulation level of the breaker :	
	a) One-minute power frequency withstand voltage (kV rms)	275 kV rms.
	b) Switching surge withstand test voltage (kV peak)	Not applicable.
	c) Impulse withstand test voltage (kV peak)	650 kVp
	d) Max. dynamic p.f. over voltage withstand (kV peak)	Not applicable
38	Minimum clearance in Air (mm)	
	a) Between Phases (live parts)	Refer enclosed GA drawing
	b) Between live parts and earth	Refer enclosed GA drawing
	c) Centre to centre distance between phases	1700 mm (Refer enclosed GA drawing)
	d) The safety boundaries during a breaking operation for circuit breakers with an external exhaust for ionized gases or flames	N.A.

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

2.For EPC contractors only.

39	Whether the circuit breaker is suitable for fixed trip operation or trip free operation and whether it is provided with a lock-out device preventing closing of the breaker	Trip free, lockout switch provided
40	Method of closing	
	a) Normal	Electrical
	b) Emergency	Electrical
41	Type of closing mechanism	Spring Force
42	a) Normal voltage of closing	220 VDC
	b) Pick up range, (volts)	187 VDC to 242 VDC
43	a) Normal voltage of closing	220 VDC
	b) Pick up range, (volts)	
	i) Power at normal voltage of closing mechanism, (watts)	400 W
	ii) Power at 85% of normal voltage, (watts)	340 Watts at 187 V DC
44	Type of tripping mechanism	Spring
45	Normal voltage of tripping coils, (volts)	220 VDC
46	a) Power at normal voltage for tripping coils, (watts)	2 x 400 W at 220 V DC
	b) Power at 70% normal voltage for tripping coils, (watts)	2 x 280 Watts at 154 V DC
47	Arc duration at 100% (ms) Interruption capacity:	
	a) Opening Arcing time No. of loops and time including resistor current duration (cycle)	< 30 ms
	- Resistor current duration, (cycle)	N.A.
	-Total length of the arc, (mm)	Not measured
	- Max. length of the arc, (mm)	Not measured
	-Total interrupting time measured from instant of trip coil energisation to arc extinction of resistor current (cycles).	< 60 ms
	b) Closing time measured from instant of application of power to closing device up to arcing contacts touching, (cycles).	<7 cycles
48	Critical current (current giving the longest arc when a break takes place) (kA)	Not applicable
49	a) Recovery voltage when circuit breaker tested at 100% rated breaking capacity, (kV inst.)	249 kVp
	b) Rate of rise of re-striking voltage at breaking(kV/Micro. sec.)	
	i) for 30% breaking capacity,	5
	ii) for 100% breaking capacity,	2
	c) Maximum over voltage factor of the circuit breaker when switching off.	Drawing approval subject to valid vendor registration
	i) Unloaded transformers.	< 2.3 p.u.
	ii) Loaded transformer	< 2.3 p.u.
	iii) Open circuited lines	< 2.3 p.u.
50	When switching of synchronous systems:	
	a) Max. current (kA)	7.9 kA
	b) Max. contacts of 1 pole (kV)	Parameters as per IEC-56 /IEC 62271-100

**CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA**

7759663/2023/EEMRT-ENE51	<p>E1 No. of openings the circuit breaker is capable of performing without inspection, replacement of contacts or other main parts.</p>	
	a) at 50% rated current	3000
	b) at 100% rated current	1000
	c) at current corresponding to 50% rated breaking capacity	20
	d) at current corresponding to 100% rated breaking capacity	10
52	a) Weight of complete circuit breaker (kg.)	1450 Kgs. Approx
	b) Impact loading for foundation design, to include dead load plus impact value on opening at maximum interrupting ratings, in terms of equivalent static load, (kg.)	2000 kg/pole Downward, 2000 kg/pole Upward
	c) Overall dimensions:	
	Height (mm)	AS PER GA DRAWING
	Width (mm)	
	Length (mm)	
53	Porcelain:	
	a) Make	MODERN/ABIL/IEC/ARGILON-GERMANY/SARAVANA INSULATORS(SIL)/LIAONING SHUANGLING/FUSHUN HIGH TECH ELECTRIC/ LILING HUAXIN/LILING PUKOU INSULATORS / PRATHAMESH CERAMICS/ M\S LILING THRU M\S DALIAN CERAMIC TECHNIC-CHINA/EQ.
	CHIEF ENGINEER/PROJECTS APTRANSCO/VISVIJAYAWADA	
	b) Type	Hollow porcelain/ Equivalent
	c) Descriptive pamphlet No.	Please refer enclosed GA drg
	d) Weight (kg.)	
	e) Transport dimensions (mm)	
	f) Height above floor required to remove porcelain, (mm)	
	g) Insulation class	
	h) One minute dry power frequency withstand, kV (r.m.s.)	275
	i) 10 seconds wet power frequency withstand, kV (peak)	275
	j) Flash over voltage (kV)	>275 kV
	k) Full wave impulse withstand voltage kV (peak)	650 kV
	l) Switching surge withstand voltage kV (peak)	Not applicable
	m) Corona discharge voltage, (kV r.m.s.)	92 kV
	n) Nature of the dielectric	SF6 Gas
	o) Creepage distance total protected (mm)	Total= 3625mm
	p) Volume of insulating medium per porcelain,	2.5 kg per pole
	q) Permissible safe cantilever loading on installed porcelain (kgm)	Suppot=1580 kg Inteurptter=1520kg
54	Operating mechanism :	

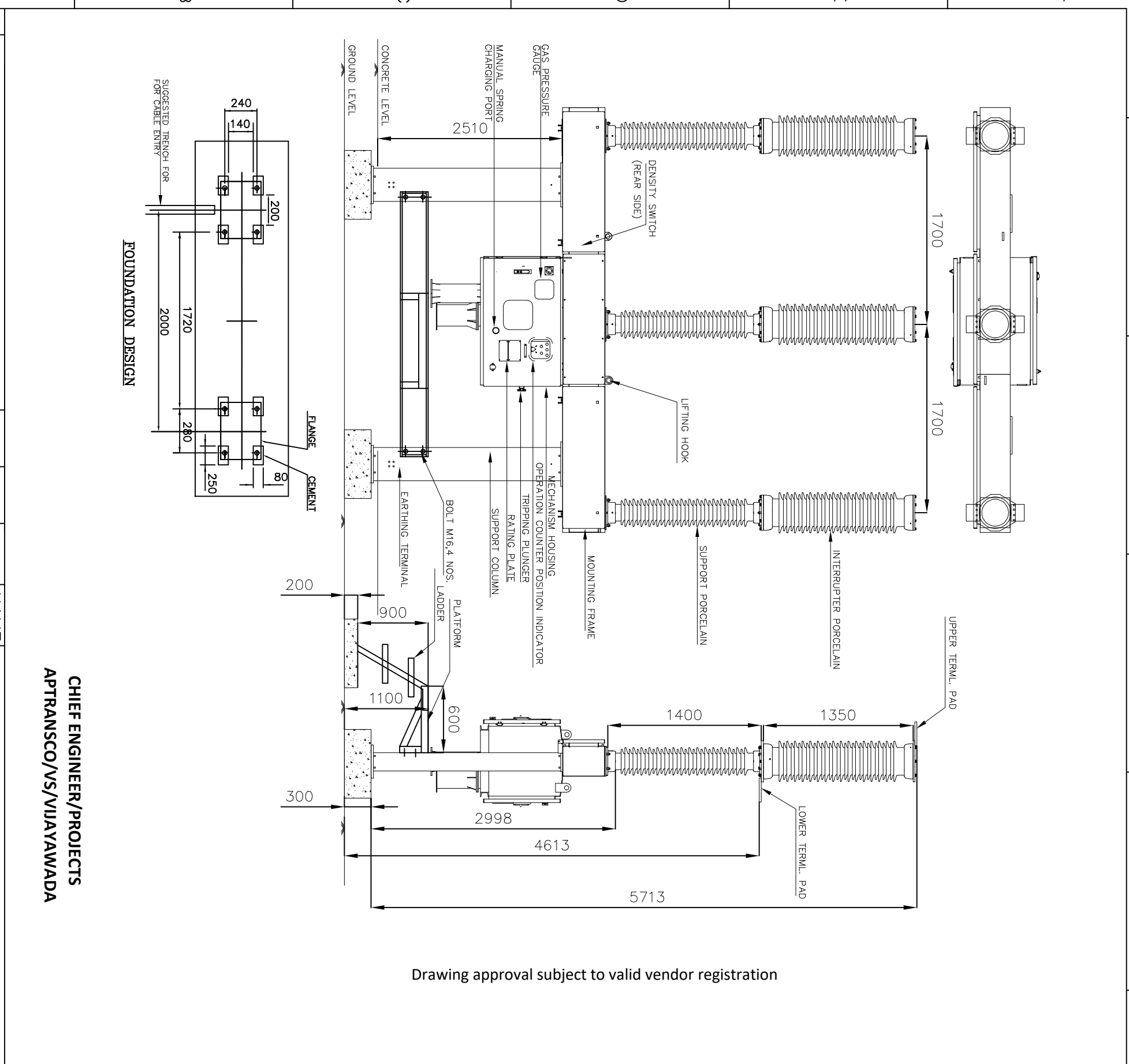
7759663/2023/EE/RT-ENE51

	iii) kg/sq.cm. for auto re-closure duty	
	j) Time of air compressor to charge the reservoirs:	
	i) From atmospheric to pressure indicated in (g) above, (minutes)	
	ii) From pressure indicated in (g) above to that in (h) above (minutes)	
56	Rated pressure of SF ₆ gas in the circuit breaker (kg/sq.cm)	6 kg/cm ² (g) at 20 ⁰ C
57	Rated pressure of SF ₆ gas in the gas cylinders (kg./sq.cm.)	Approx 20 Kg/cm ²
58	Quantity of SF ₆ gas required per single pole unit (kg.) (3 pole unit for 145kV)	2.5 kg/pole
59	Quantity of SF ₆ gas per cylinder (kg.)	9 kg
60	Weight of empty cylinder (kg.)	20kg
61	Quantity of absorbent required per pole (kg.)	300 gms
62	Recommended interval for renewal of absorbent in case of outdoor circuit breakers operating in tropical conditions.	ONLY WHEN INTRRUPTER IS OPENED FOR CONTACT INSPECTION
63	Chemical composition of absorbent	Activated alumina Na2OAl2O3SiO2.
64	Quantity of absorbent covered in the scope of supply (including spare quantity) (kg.)	As filled in the interrupter
65	Limits of gas pressure for pressure operation of circuit breaker (kg./sq.cm.)	5.0 to 6.0 kg/cm ² at 20 deg.C
66	Pressure and temperature at which the temperature compensated gas pressure switch	
	a) alarm (kg./sq.cm., ° C)	5.5 +/-0.3 kg/cm ² at 20 deg.C
	b) Cut off (kg/sq.cm. ° C)	5.0 +/-0.3 kg/cm ² at 20 deg.C
67	Name of SF6 supplier and country of origin	Allied Signals/Ashahi/Glass/IOL/Eqvt & USA Japan
68	Quantity of SF6 gas supplied for	
	a) Actual use in breakers (kg.)	7.5 kg
	b) As spare (kg.)	1.5 kg
69	Chemical composition of gas:	
	a) Qty. of air by weight (ppm)	As per IEC-376
	b)Qty. of H2O by weight (ppm)	
	c)Qty. of CF4 by weight (ppm)	
	d) Qty. of free acid by weight (ppm)	
70	No. of auxiliary contacts provided	
	a) Those close when breaker is closed.	10 NC (Spare)
	b) Those open when breaker is closed.	10 NO (Spare)
	c) Those adjustable with respect to the position of main contacts.	Nil
	d) Continuous rating of contacts.	20 Amp
	e) Breaking capacity of contacts.	2 Amp
71	Whether the equipment covered by this Bid have been fully type tested and if so, whether the copies of the type test cert. enclosed to the bid offer.	Yes,Type Test Report Enclosed

**CHIEF ENGINEER/PROJECTS
APTRANSCO/VISVIJAYAWADA**

IF IN DOUBT ASK!

NO	REVISION	2	NAME	DATE	DATE:26.04.23	ALL DIMENSIONS ARE IN mm
1						
2						
3						
4						
5						



Drawing approval subject to valid vendor registration

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

NOTE :- CLEAN BOTH CONNECTING SURFACES OF TERMINAL PADS AND TERMINAL FLANGE WITH SAND PAPER AND COAT SUPPLIED COMPOUND BEFORE CONNECTING.

DETAIL OF UPPER AND LOWER TERMINAL PADS
Terminal pad dimensions: 150 mm width, 44.5 mm height, 140 mm diameter. 4. Ø14 HOLES. MATERIAL: ALUMINIUM ALLOY.

DETAIL OF FOUNDATION BOLT
8-M24 FOUNDATION BOLTS. SUPPORT STRUCTURE. Dimensions: 400 mm width, 50 mm height, 250 mm diameter.

NOTE :-

- 1) TOTAL WEIGHT:-1450 Kg.(APPROX.)
- 2) TOTAL GAS WEIGHT :-7.5 Kg. (APPROX.)
- 3) MAXIMUM SHOCK LOAD DURING OPERATION :-2000 Kg.
- 4) FINISH :- ALL EXPOSED FERROUS PARTS ARE PAINTED WITH SHADE 631 of IS 5 : EXCEPT SUPPORT COLUMN
- 5) CREEPAGE DISTANCE 3625 mm,
- 6) HARDWARES EXPOSED TO ATMOSPHERE ARE H.D.G./S.S./DACRO.
- 7) OVERALL TOLERANCE ON DIMENSIONS IS 2%.
- 8) MAKE OF INSULATORS: ABIL/JSI/IEC/MODERN/RAVIKIRAN/ CJI/SARVANA/LILING HUAXIN/EQ.
- 9) RATED OPERATING DUTY- 0-0.3SEC-CO-3MIN-CO.

TITLE: GENERAL ARRANGEMENT

THIRD ANGLE PROJECTION

FOR: 145KV, 40 KA, SP-SP
GCB TYPE: 120-SFM-40AA

DRG.NO:CG-145AA-25MM-GA

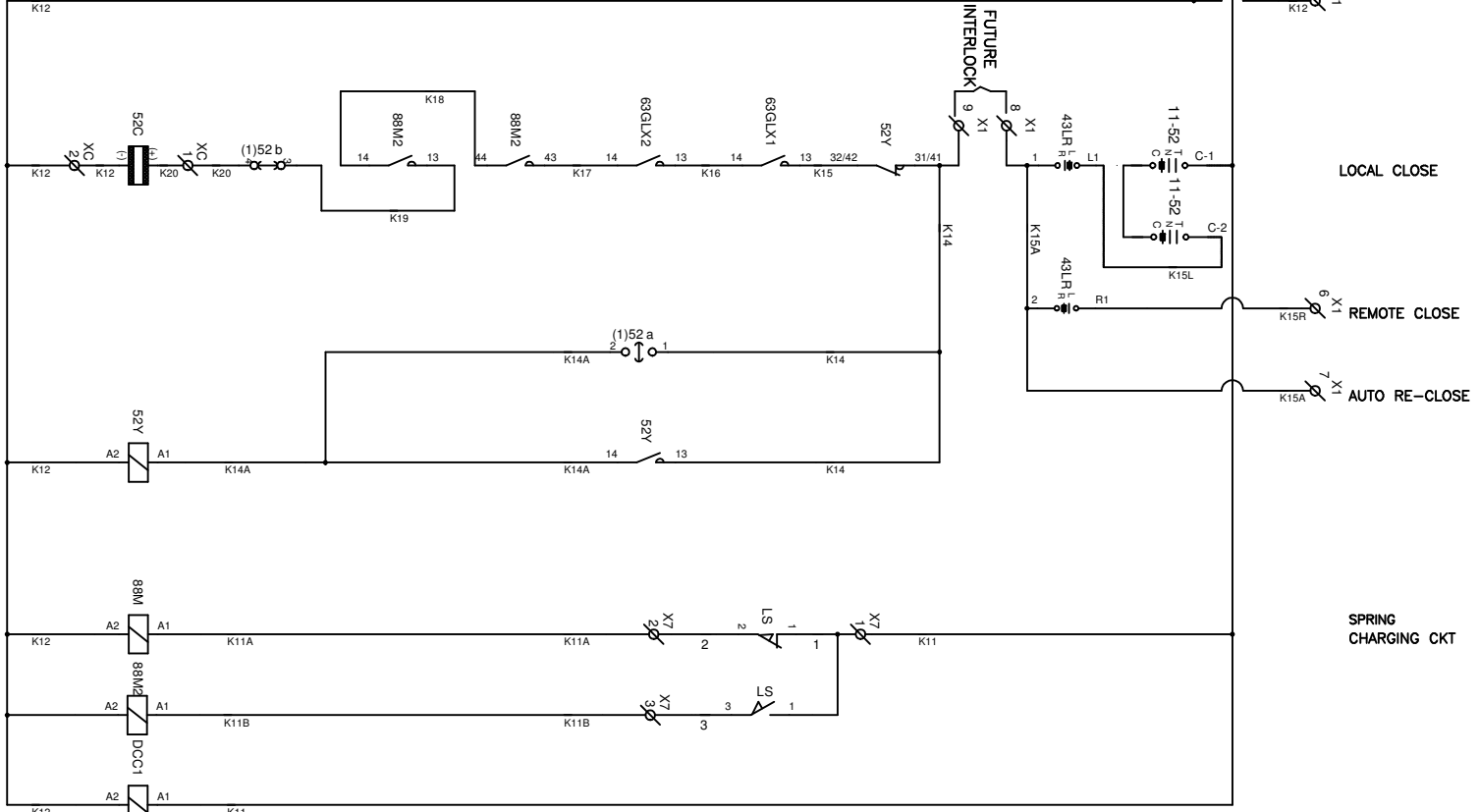


CG Power and Industrial Solutions Limited
SWITCHGEAR DIVISION SJ,AMBAD, NASHIK

NO	REVISION	2	NAME	DATE	DATE:26.04.23	ALL DIMENSIONS ARE IN mm
1						
2						
3						
4						
5						
NAME		DATE		TITLE: SCHEMATIC DIAGRAM		
CUSTOMER		DATE		THIRD ANGLE PROJECTION		
APPROVAL		DATE		FOR: 145KV, 40 KA, SP-SP		
DRAWN		DATE		GCB TYPE: 120-SFM-40AA		
CHECKED		DATE		DRG.NO:CG-145AA-25MM-SCH		
APPROVED		DATE		CG Power and Industrial Solutions Limited		
SCALE		DATE		SWITCHGEAR DIVISION, S.A.MBAD, NASHIK		
REVISION		DATE		1 / 4 R0		

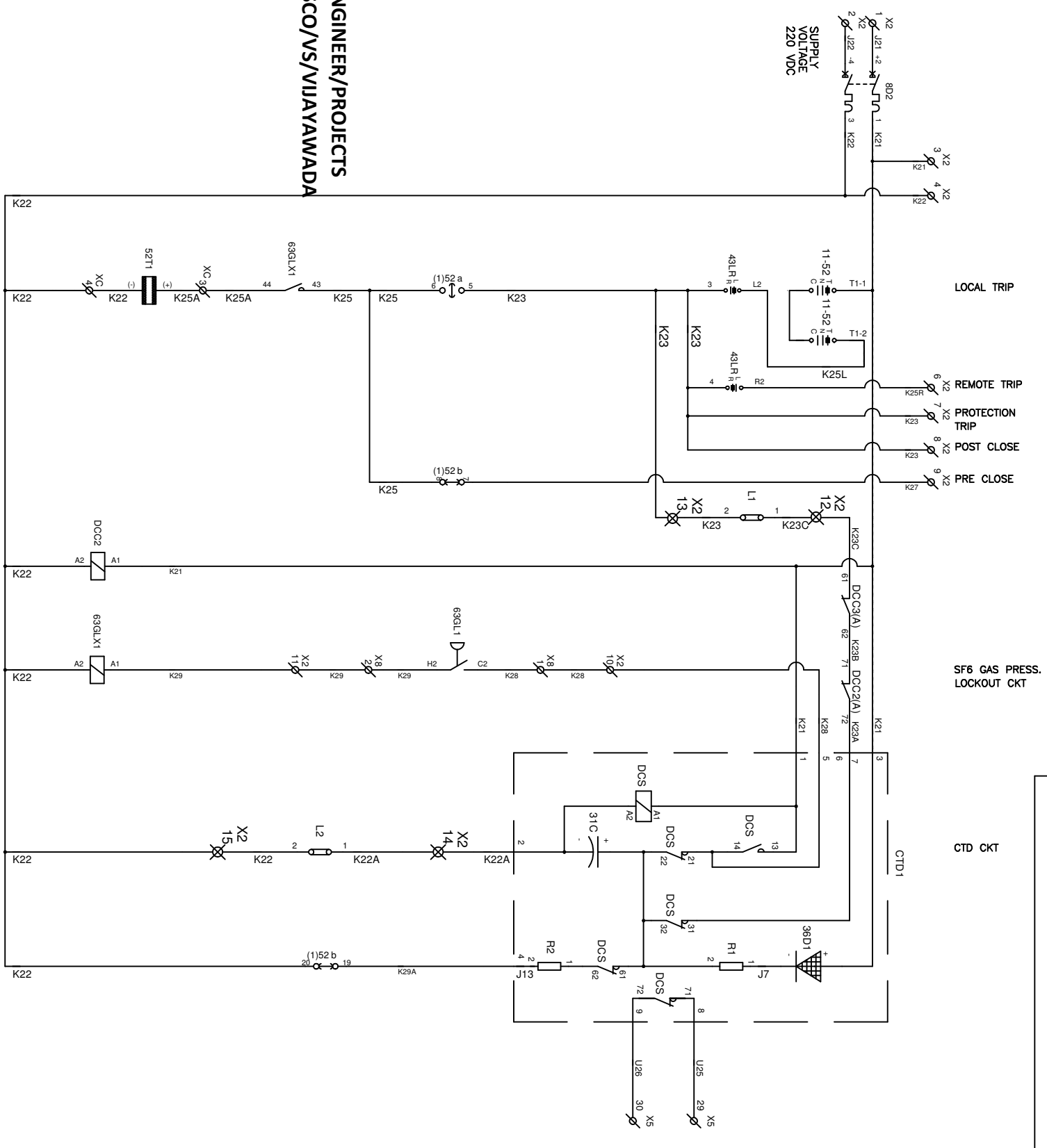
REMOVE THE SHORTING TO BYPASS THE CTD FROM CIRCUIT.

CLOSING CIRCUIT



CHIEF ENGINEER/PROJECTS
APTRANSCO/VIS/VIJAYAWADA

TRIP CIRCUIT-1



CTD COMPONENT
CAPACITOR : 350 VDC , 1000MFD
RESISTOR (R1,R2): 300 OHM, 30W
DIODE : 20A

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
2. For EPC contractors only.

1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/VT/LA/Breaker's requirement and compatibility.

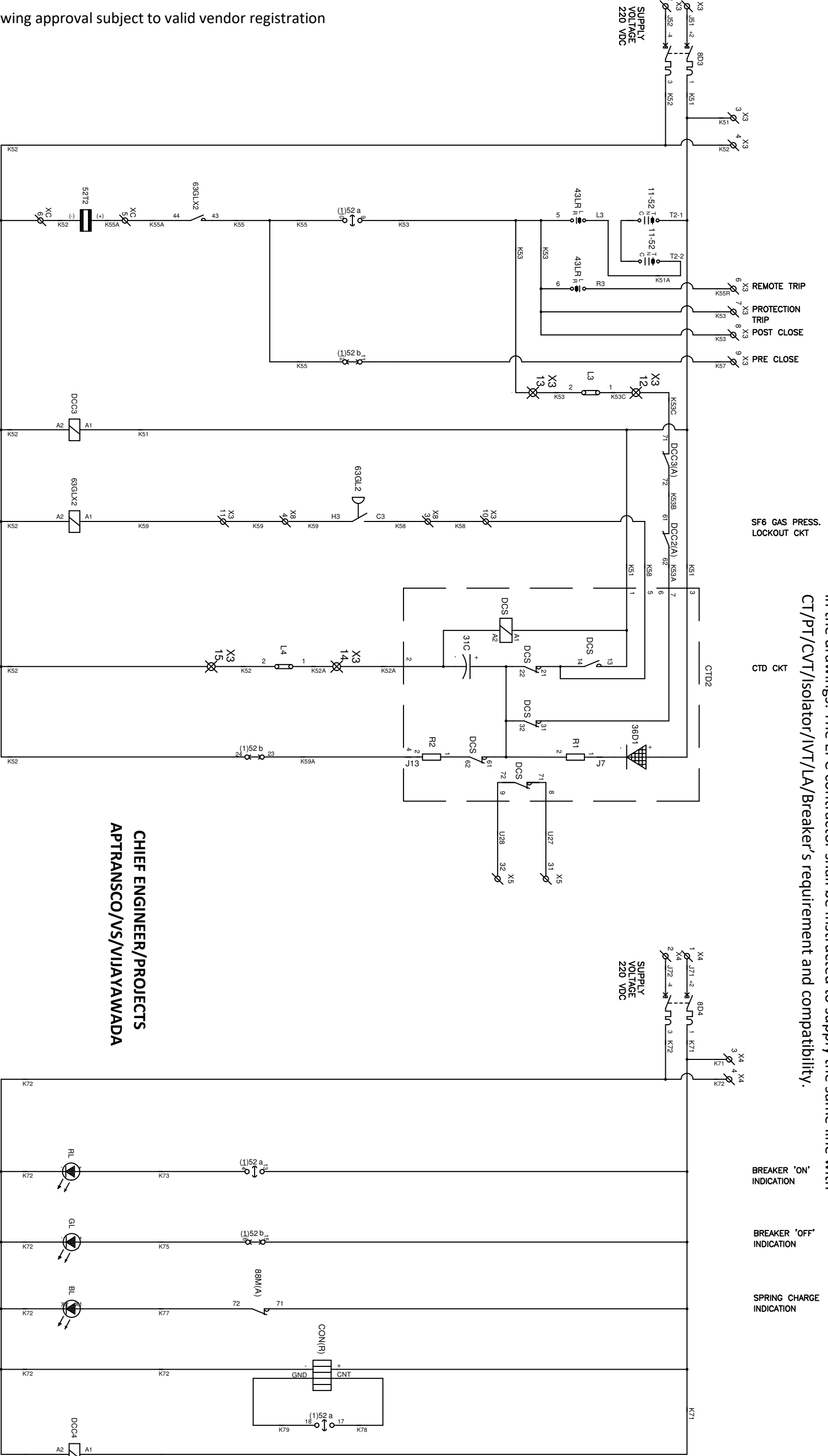
CTD COMPONENT
CAPACITOR : 350 VDC , 1000MFD
RESISTOR(R1,R2) : 300 OHM, 30W
DIODE : 20A

Drawing approval subject to valid vendor registration

REMOVE THE SHORTING TO BYPASS THE CTD FROM CIRCUIT.

TRIP CIRCUIT-2

INDICATION CIRCUIT



CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

TITLE: SCHEMATIC DIAGRAM

THIRD ANGLE PROJECTION

5	NAME	CUSTOMER: APTRANSCO
4	DRN	RAS
3	CHD	NSR
2	APPD	GNP
1	SCALE:	N.T.S.

FOR: 145KV, 40 KA, SP-SP

CG Power and Industrial Solutions Limited
SWITCHGEAR DIVISION SS,AMBAD, NASHIK

4	STD APPROVAL	25MM/KV CREEPAGE
---	--------------	------------------

GCB TYPE: 120-SFM-40AA

DRG.NO.:CG-145AA-25MM-SCH

3	NAME	DATE	DATE: 26.04.23	ALL DIMENSIONS ARE IN mm
---	------	------	----------------	--------------------------

DRG.NO.:CG-145AA-25MM-SCH

2 / 4 RO

2	REVISION	2	NAME	DATE	DATE: 26.04.23	ALL DIMENSIONS ARE IN mm
---	----------	---	------	------	----------------	--------------------------

DRG.NO.:CG-145AA-25MM-SCH

2 / 4 RO

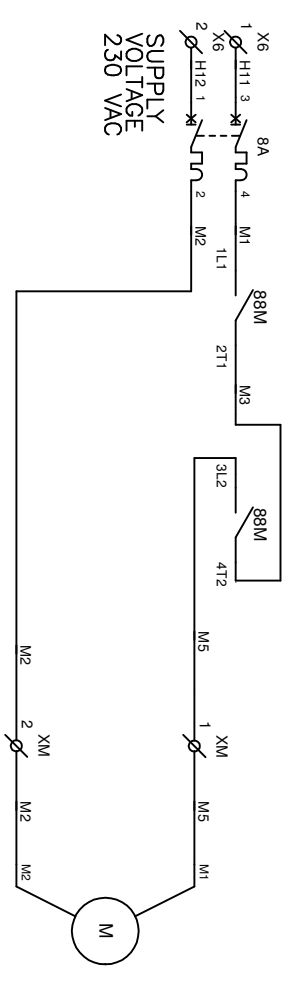
1	NO	REVISION	2	NAME	DATE	DATE: 26.04.23	ALL DIMENSIONS ARE IN mm
---	----	----------	---	------	------	----------------	--------------------------

DRG.NO.:CG-145AA-25MM-SCH

2 / 4 RO

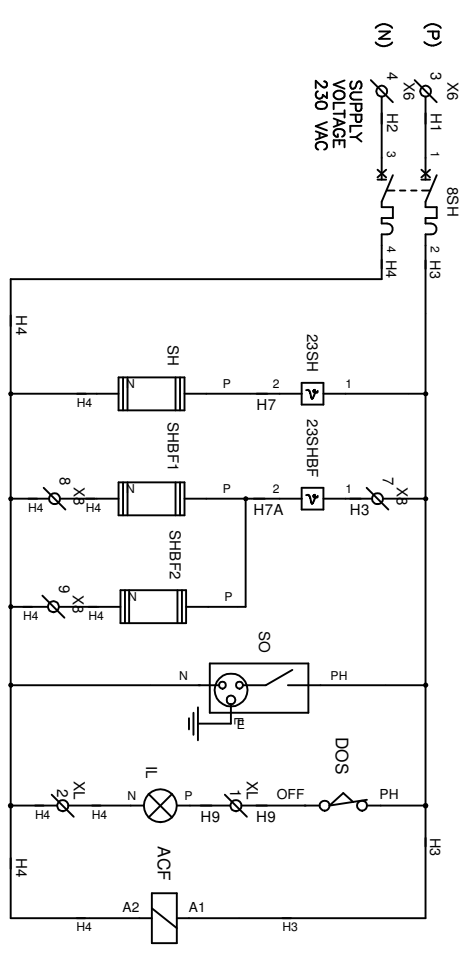
IF IN DOUBT ASK!

SPRING CHARGING MOTOR CIRCUIT

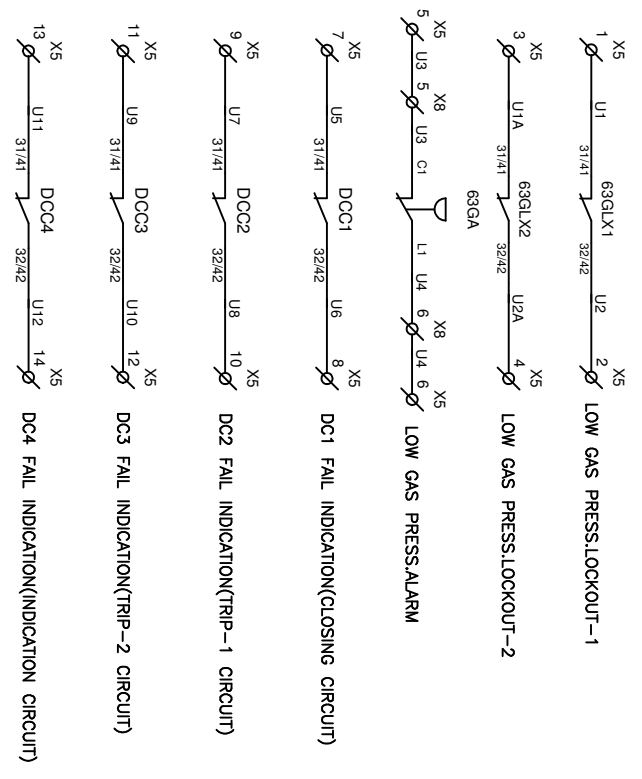


NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
2. For EPC contractors only.

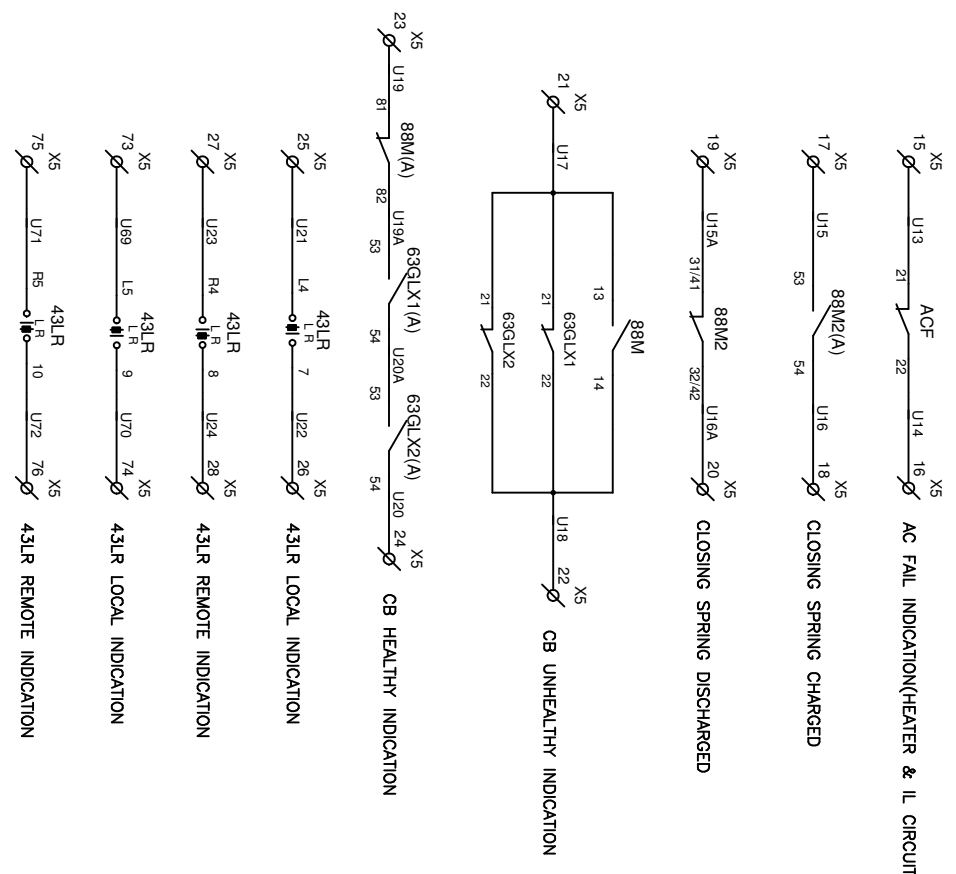
LAMP AND HEATER CONTROL CIRCUIT



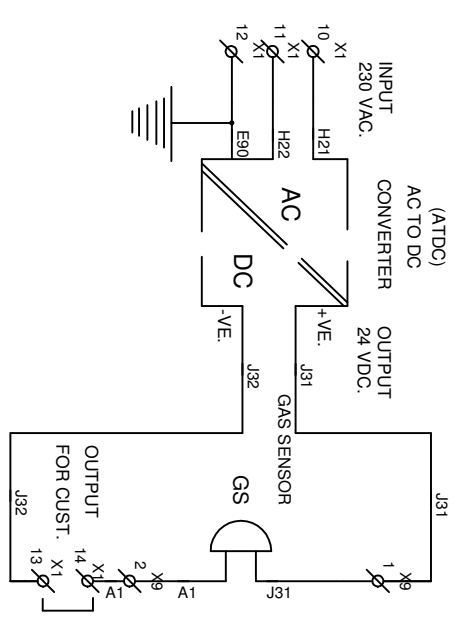
ALARM/INDICATION CONTACTS



ALARM/INDICATION CONTACTS



SENSOR CIRCUIT



NOTE: 1) BILL OF MATERIAL AS PER DRG. NO. CG-145AA-25MM-BOM
2) TERMS. SHOWN 'Ø' ARE WIRED UPTO TERMINAL BLOCKS
3) THIS DIAGRAM IS SHOWN IN THE FOLLOWING CONDITIONS.
a) GCB OPEN
b) SFE GAS PRESSURE IS ZERO
c) 43LR SWITCH IS IN REMOTE POSITION
d) CONTROL & AUXILIARY SUPPLY IS NOT APPLIED
e) CLOSING SPRING IS DISCHARGED
4) ON FAILURE OF SUPPLY TO MOTOR, ONE OPEN-CLOSE OPERATION IS POSSIBLE.

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIAVAVAWADA

NO	REVISION	2	NAME	DATE	DATE: 26.04.23	ALL DIMENSIONS ARE IN mm	DRG.NO:CG-145AA-25MM-SCH
1							
2							
3							
4							
5							

5			NAME	CUSTOMER: APTRANSCO	TITLE: SCHEMATIC DIAGRAM	THIRD ANGLE PROJECTION
4			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
3			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
2			APPD	GNP	GCB TYPE: 120-SFM-40AA	
1			SCALE:	N.T.S.		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN	RAS	STD APPROVAL 25MM/KV CREEPAGE	
4			CHD	NSR	FOR: 145KV, 40 KA, SP-SP	
3			APPD	GNP	GCB TYPE: 120-SFM-40AA	
2			SCALE:	N.T.S.		
1			DATE:	26.04.23		

5			DRN
---	--	--	-----

IF IN DOUBT ASK!



MADE IN INDIA

GAS CIRCUIT BREAKER

TYPE 120-SFM-40AA	STD. IEC62271-100		
RATED VOLTAGE	145 kV	RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE	650 kVp
RATED FREQUENCY	50 Hz	RATED NORMAL CURRENT	3150 A
RATED SHORT-CIRCUIT BREAKING	40 KA	FIRST POLE TO CLEAR FACTOR	1.5
RATED SF6 GAS PRESSURE 6.0 kg/cm ² -g(AT 20°C)	RAT.OPR.SEQ. 0-0.3SEC-CO-3MIN-CO	TOTAL WEIGHT 1450Kg	GAS WEIGHT 7.5Kg
RATED OUT OF PHASE BREAKING CURRENT 10 KA	MINIMUM CREEPAGE DISTANCE:25 mm/kV	RATED SHORT TIME CURRENT 40 KA FOR 3 SECONDS	POWER FREQUENCY WITHSTAND VOLTAGE : 275 KV(rms)
		SF6 LOW PRESSURE 5.5 kg/cm ² -g(AT 20°C)	SF6 LOCKOUT PRESSURE 5.0 kg/cm ² -g(AT 20°C)

SR. NO. : **

Drawing approval subject to valid vendor registration

NOTES: -

- MATERIAL : STAINLESS STEEL 0.5THK/TRAFOLITE
- *YEAR OF MFG. : CURRENT YEAR
- *' SERIAL NO - AS APPLICABLE
- '**' - PUT CURRENT YEAR
- *** PO NO.& DATE : AS PER CONTRACT REVIEW
- ### LETTER NO. TO BE ADDED AFTER APPROVAL BY APTRANSCO.

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

2.For EPC contractors only.

1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/VT/LA/Breaker's requirement and compatibility.

CHIEF ENGINEER/PROJECTS
APTTRANSCO/VS/VIAVAVAWADA

RATED COIL VOLTAGE -TRIPPING 220 VDC	RATED COIL VOLTAGE -CLOSING 220 VDC
MOTOR VOLTAGE 230V AC	AUX CIRCUIT VOLTAGE -1Ø,230V AC,50HZ.
YEAR OF MFG. : **	WO. NO : XXXXXX
CUSTOMER: APTTRANSCO	
PO NO.& DATE : ***	
APTTRANSCO APP. DRG. LETTER NO : ###	

NO	REVISION	2	NAME	DATE	DATE:26.04.23	ALL DIMENSIONS ARE IN mm	DRG.NO:CG-145AA-25MM-RP	1	1	RO
1										
2										
3										
4										
5										

TITLE: RATING PLATE

FOR: 145KV, 40 KA, SP-SP

GCB TYPE: 120-SFM-40AA

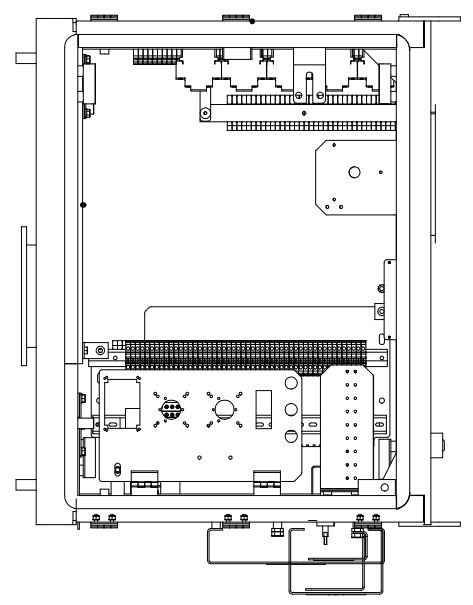
THIRD ANGLE PROJECTION

CG Power and Industrial Solutions Limited
SWITCHEAR DIVISION S3,AMBAD, NASHIK

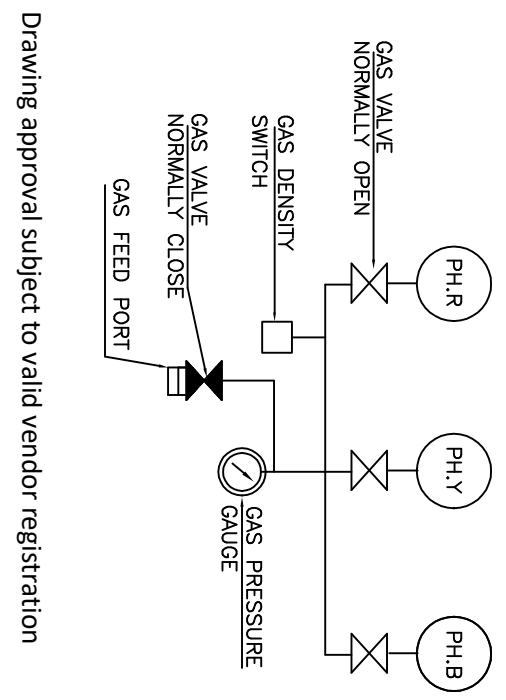
IF IN DOUBT ASK!

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
 2. For EPC contractors only.

1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.
 2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/IV/LA/Breaker's requirement and compatibility.

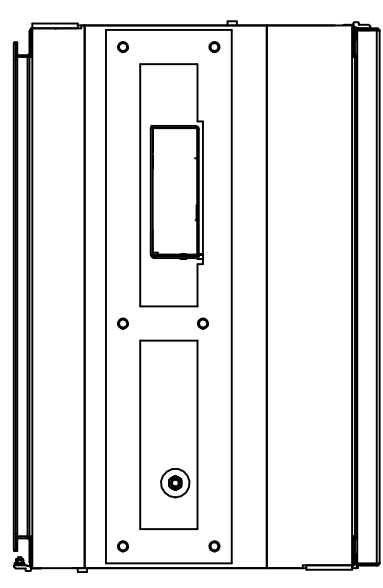


FRONT VIEW(WITHOUT DOOR)

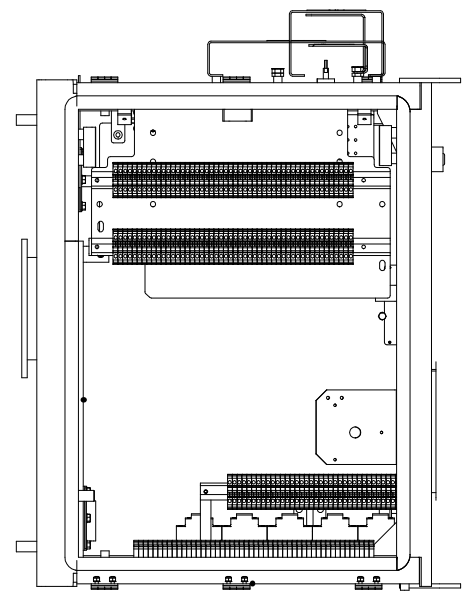


SINGLE LINE DIAGRAM FOR GAS SYSTEM

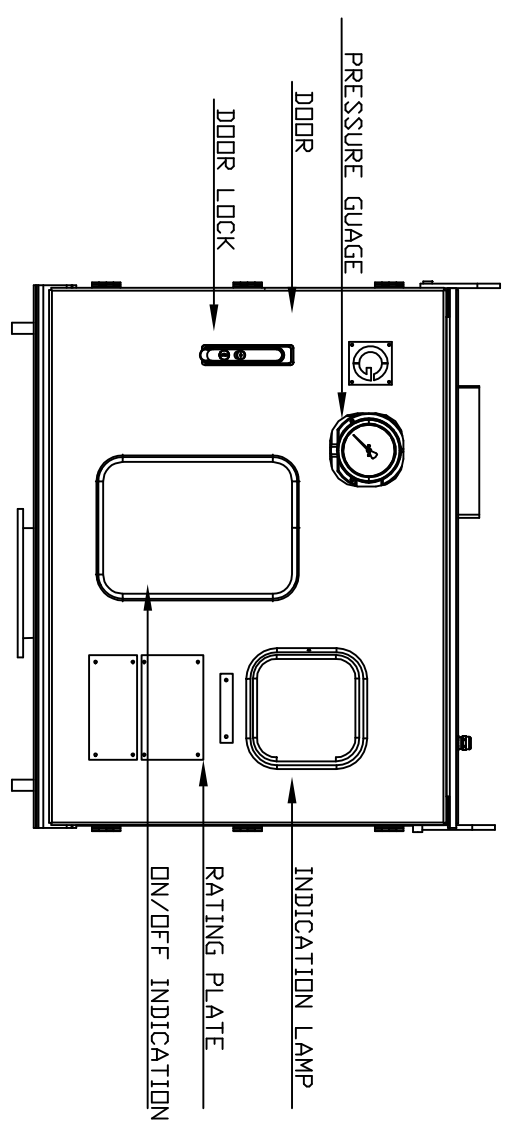
Drawing approval subject to valid vendor registration



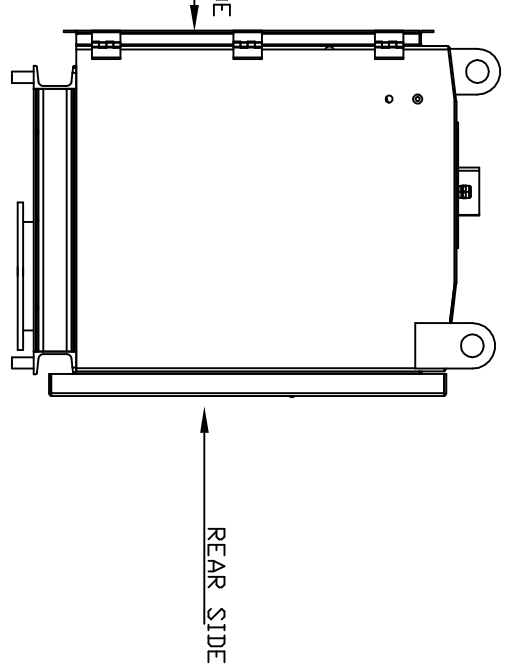
TOP VIEW



REAR VIEW(WITHOUT DOOR)



FRONT VIEW



SIDE VIEW

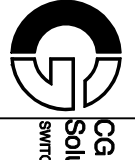
- NOTES:-
1. THICKNESS OF SHEET: 3 mm
 2. FINISHING SHADE 631 OF IS:5.
 3. DEGREE OF PROTECTION:- IP55
 4. THE COMPONENT LAYOUT SHOWN ON THE DRAWING IS FOR INDICATION PURPOSE MAY SLIGHTLY ALTER AT MANUFACTURING STAGE DEPENDING ON OPERATIONAL REQUIREMENT OR DUE CHANGE IN THE COMPONENT MAKE
 5. 2 SEPARATE TRIP COILS WITH 2 SEPARATE PLUNGERS ARE PROVIDED.

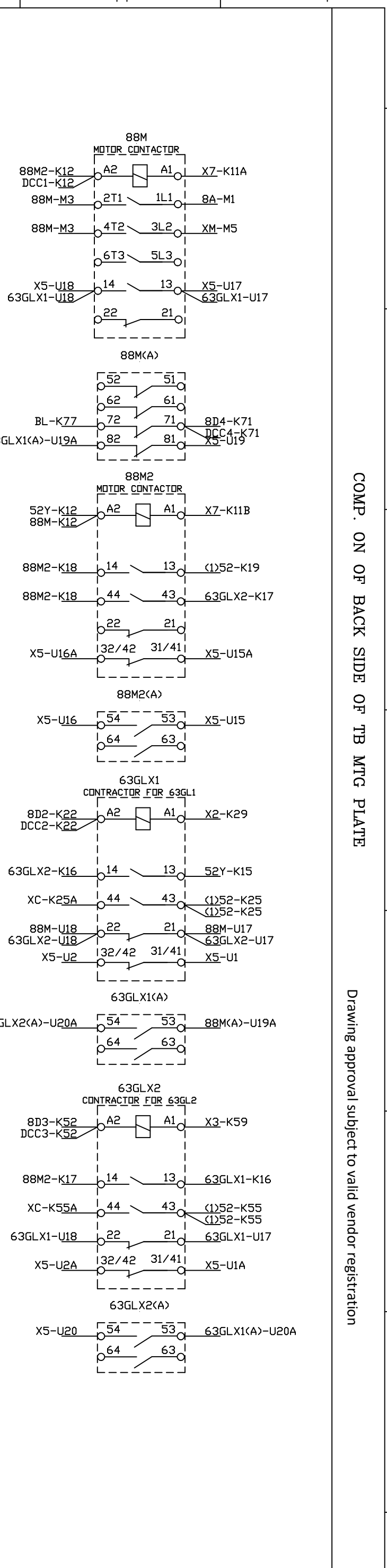
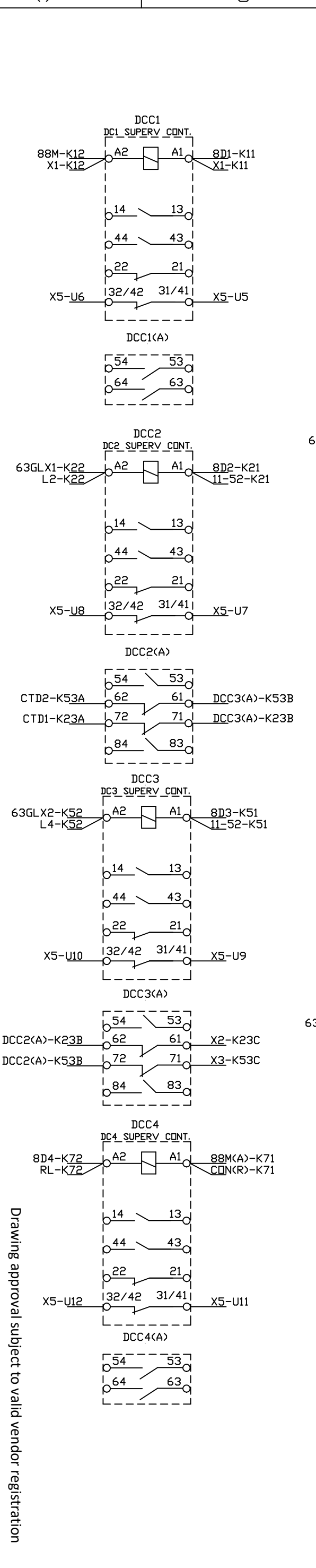
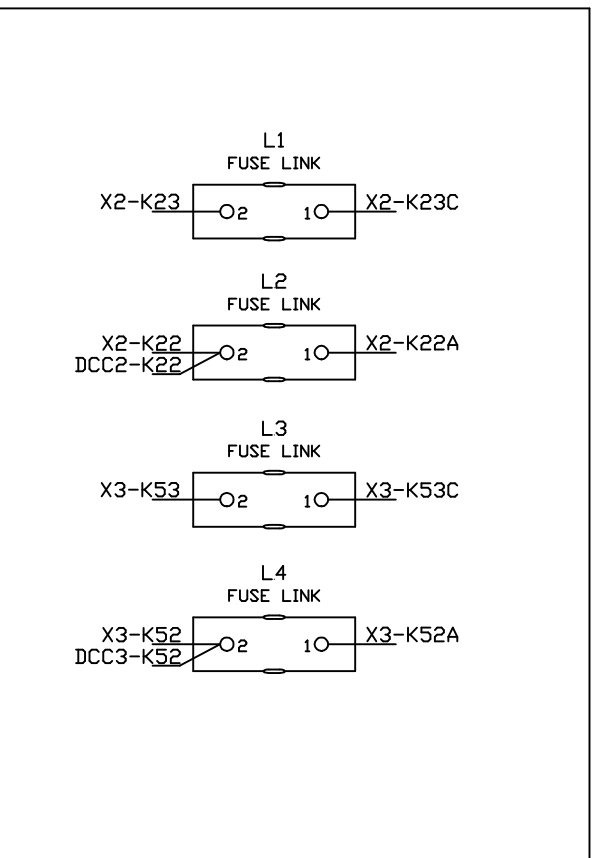
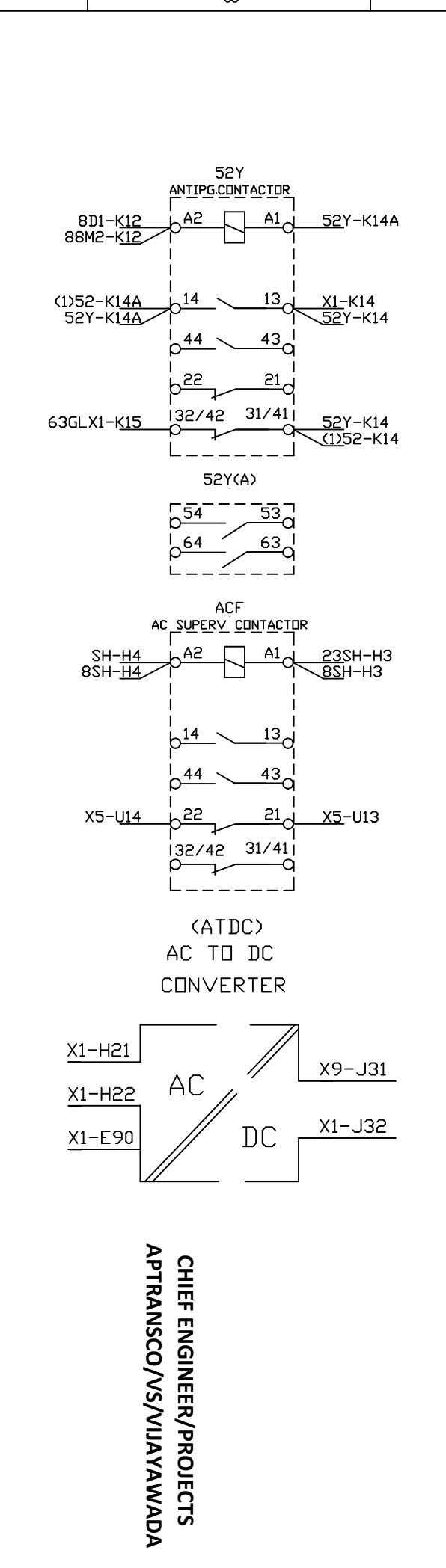
CHIEF ENGINEER/PROJECTS
 APTRANSCO/VS/VIJAYAWADA

5	NO	REVISION	2	NAME	DATE	DATE: 26.04.23	ALL DIMENSIONS ARE IN mm	TITLE: MECH. HOUSING ASSY	THIRD ANGLE PROJECTION
4				DRN	RAS		STD APPROVAL 25MM/KV CREEPAGE		
3				CHD	NSR			FOR: 145KV, 40 KA, SP-SP	
2				APPD	GNP			GCB TYPE: 120-SFM-40AA	
1				SCALE:	N.T.S.				



IF IN DOUBT ASK!

NO	1	2	3	4	5	6	7	8
REVISION								
NAME								
DATE								
NAME								
CUSTOMER	APTRANSKO							
STD APPROVAL	25MM/KV CREEPAGE							
DRN								
RAS								
CHD								
NSR								
APPD								
GNP								
SCALE	N.T.S.							
DATE	22.05.23							
ALL DIMENSIONS	ARE IN mm							
TITLE	WIRING DIAGRAM							
FOR	145KV, 40 KA, SP-SP							
GCB TYPE	120-SFM-40AA							
DRG.NO.	CG-145AA-25MM-WIR							
THIRD ANGLE PROJECTION	 CG Power and Industrial Solutions Limited SWITCHGEAR DIVISION, S.A.M.BAD, NASHIK							



COMP. ON OF BACK SIDE OF TB MTG PLATE
 Drawing approval subject to valid vendor registration

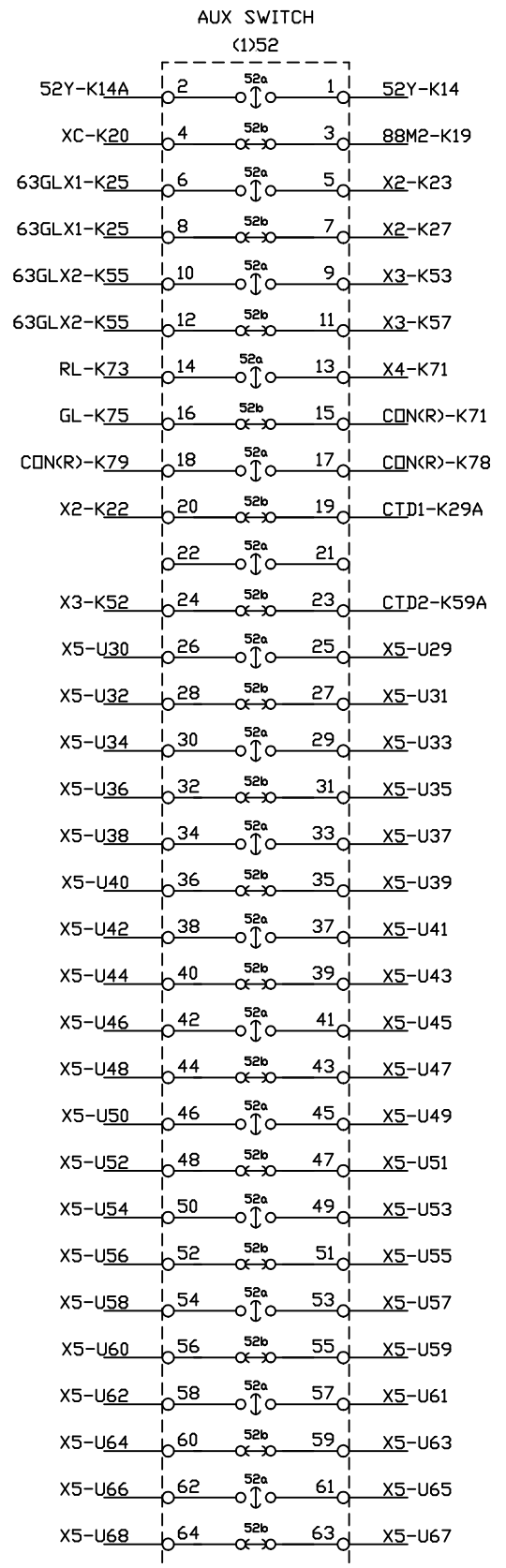
Drawing approval subject to valid vendor registration

IF IN DOUBT ASK!

DRG.NO.:CG-145AA-25MM-WIR

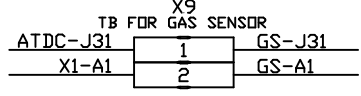
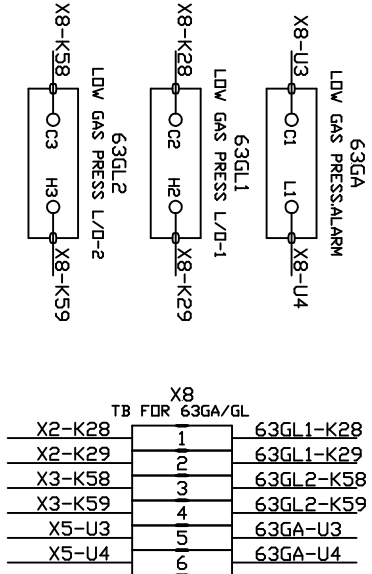
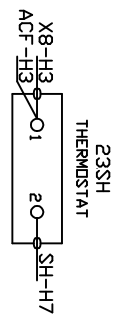
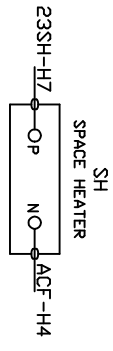
3 / 3

RO

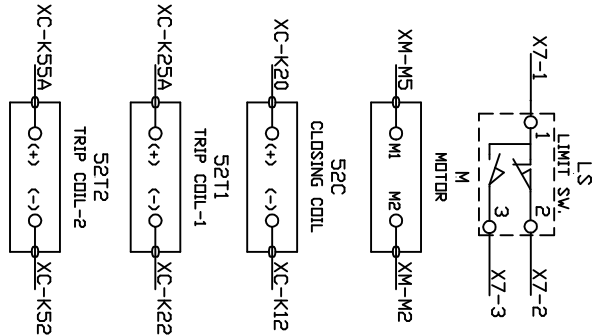


COMP. ON R.H. SIDE SH.OF MECH. HSG

COMP. ON L.H. SIDE SH.OF MECH. HSG

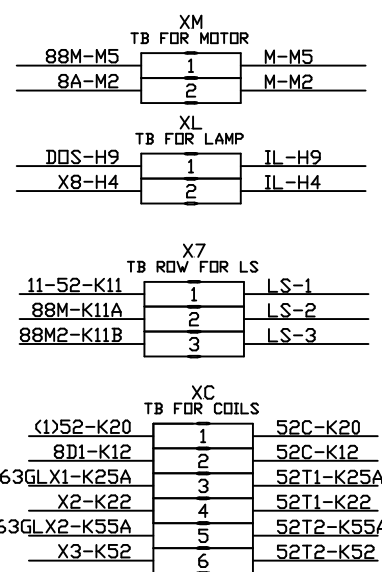


COMP. ON UPPER SIDE SH.OF MECH. HSG

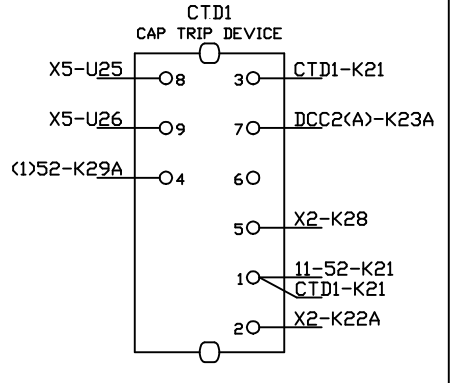


COMPONENTS ON MECH. FRAME

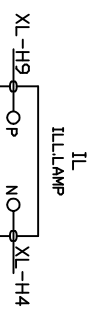
Drawing approval subject to valid vendor registration



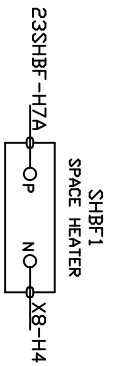
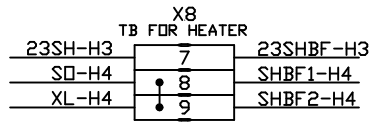
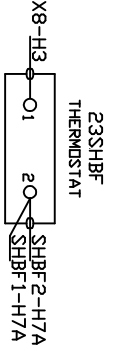
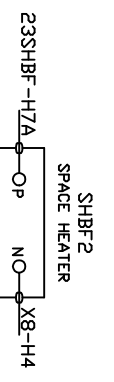
ITEMS ON L.H. SIDE OF MECH. HSG.



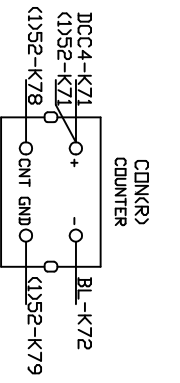
ITEMS ON BASE OF MECH. HSG. (L.H. SIDE)



ITEMS ON MTG.PLAATE IN BASE FRAME



Drawing approval subject to valid vendor registration



CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

TITLE: WIRING DIAGRAM

THIRD ANGLE PROJECTION

5	NO	REVISION	1	NAME	DATE	SCALE: N.T.S.	ALL DIMENSIONS ARE IN mm
4	3	2	1	DRN	RAS	CHD	NSR
3	2	1	1	APPD	GNP		
2	1	1	1				
1	1	1	1				

