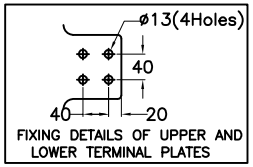
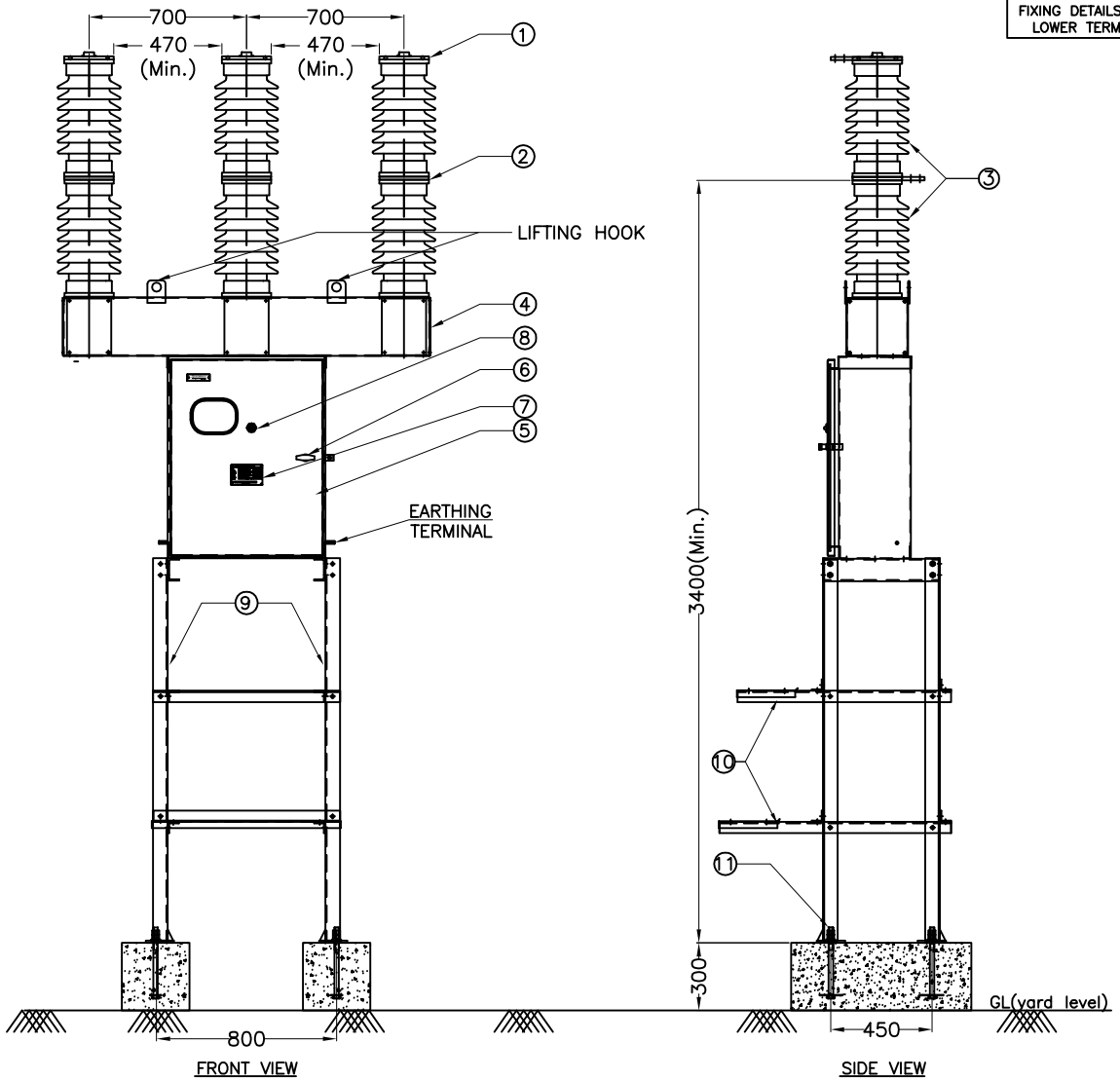
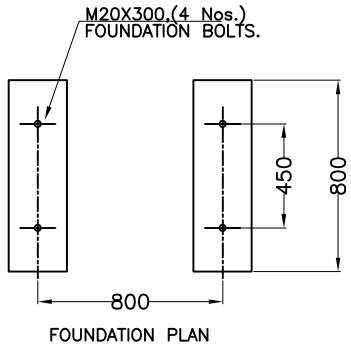
Drawing approval subject to valid vendor registration



FIXING DETAILS OF UPPER AND LOWER TERMINAL PLATES

Item No.	Description	Material & Size	Qty.
1	TOP TERMINAL PAD	AL. ALLOY	3 Nos.
2	BOTTOM TERMINAL PAD	AL. ALLOY	3 Nos.
3	INSULATOR	PORCELAIN	6 Nos.
4	DRIVE CHAMBER	–	1 No.
5	MECHANISM BOX	–	1 No.
6	LOCK HANDLE	CAST IRON	1 No.
7	RATING PLATE	S.S	1 No.
8	EMERGENCY PUSH BUTTON	NYLON	1 No.
9	STAND ANGLE (RH & LH SIDE), (HDG)	65 X 65 mm	4 Nos.
10	PLATFORM (HDG)	M.S PLATE	2 Nos.
11	FOUNDATION BOLT (HDG)	M20X300	4 Nos.





FOUNDATION PLAN

PODIUM SURYACHANDRAM
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Date: 2021.06.15 16:07:49 +05'30'
Chief Engineer
Power Systems, Planning & Design
APTransco

TOLERANCE:±5%
MINOR CHANGES CAN BE DONE WITHOUT NOTICE FOR FEASIBILITY.
ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE SPECIFIED.

REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE:
GENERAL ARRANGEMENT OF 36kV,26.3kA,1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624 | Rev.: | Sheet: 1 OF 12

460770/2021/EEMRT-ENE51

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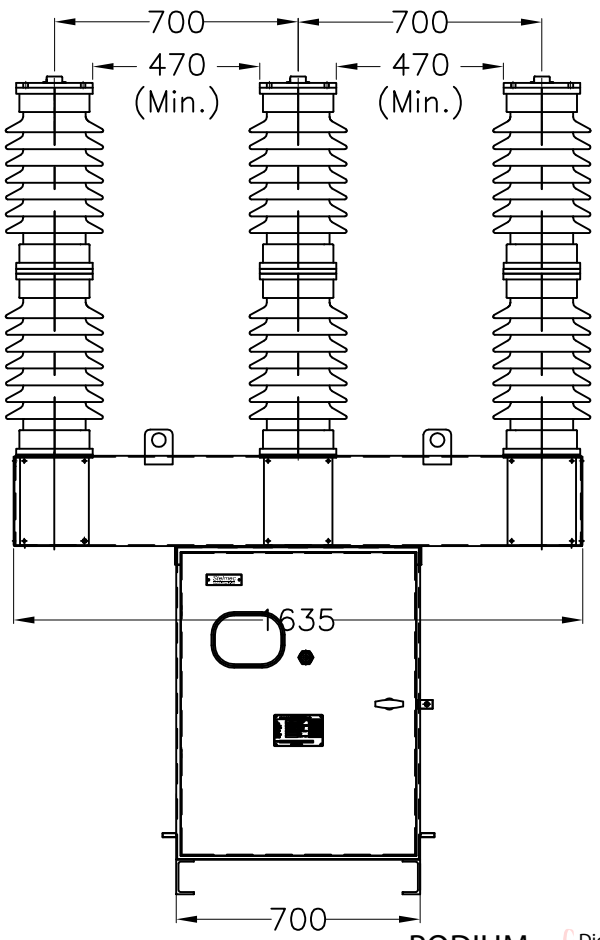
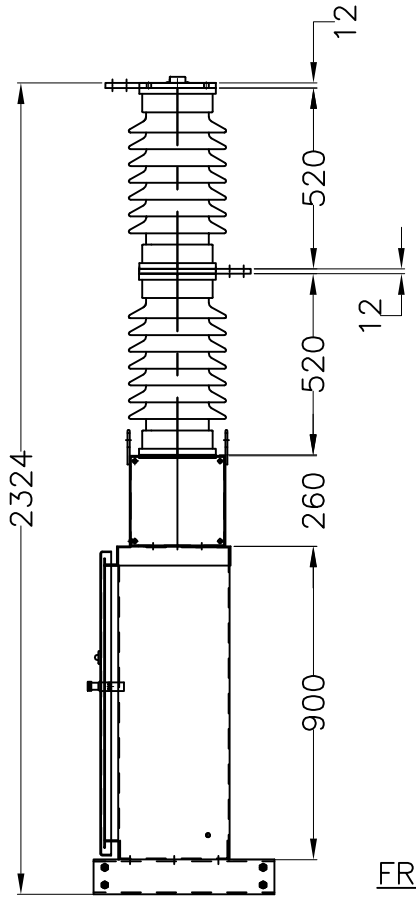
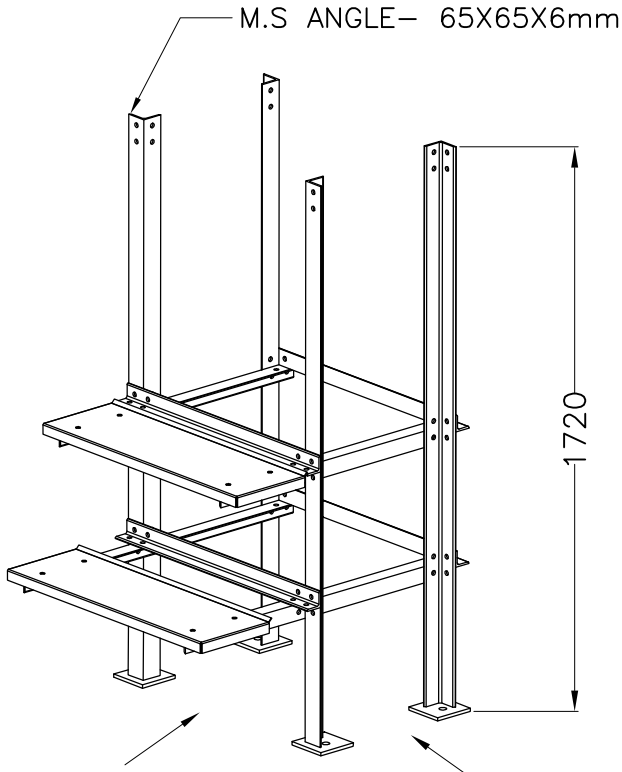


FRONT VIEW



SIDE VIEW



FRONT VIEW

RH SIDE VIEW

SELF SUPPORT STRUCTURE

PODIUM SURYACHANDRAM

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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE NTS		

TITLE :
SHIPMENT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
33/VCB/D1624		2 OF 12

460770/2021/EEMRT-ENE51

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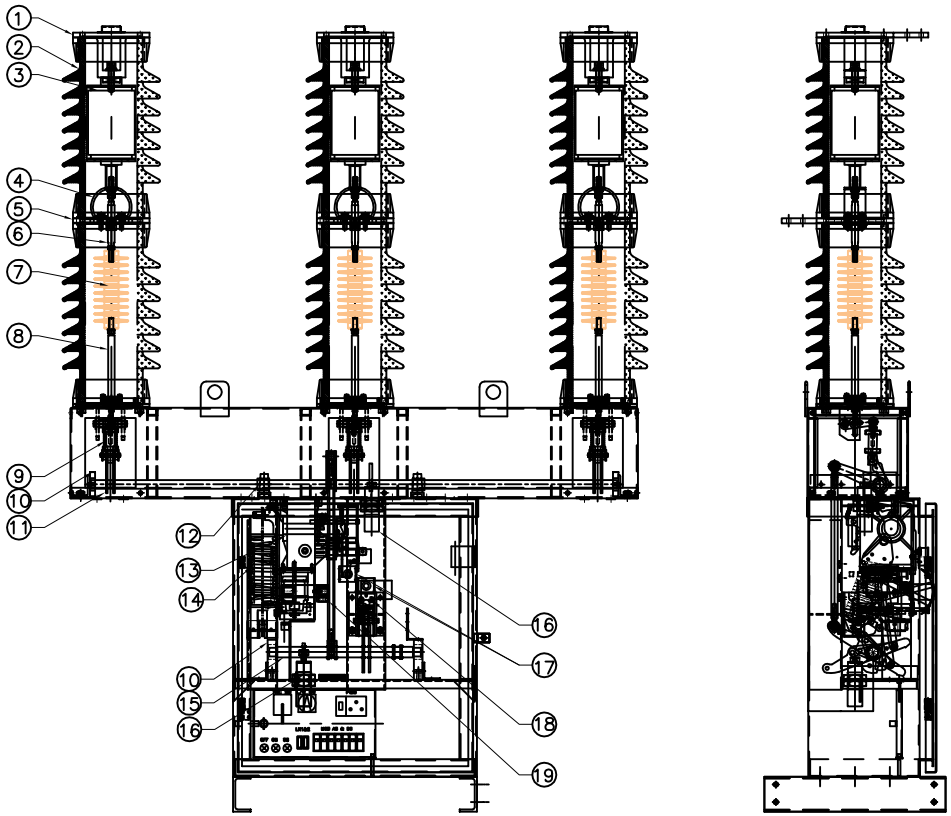

FRONT VIEW

SIDE VIEW

ITEM	NAME
19	ASSY.OF COUPLING ROD
18	TRIPPING ASSY BRACKET
17	CLOSING -1 No. & TRIPPING COIL-2 Nos.
16	DASH POT
15	W.A. OF OPERATING SHAFT
14	ASSY OF CLOSING SPRING
13	GEAR BOX.
12	BEARING BLOCK
11	W.A. OF DRIVING SHAFT
10	BEARING BLOCK
09	CONTACT LOADING SPRING
08	DI CONNECTING ROD
07	DRIVE INSULATOR
06	V.I CONNECTING ROD
05	LOWER TERMINAL
04	SHUNT
03	VACUUM INTERRUPTER
02	36kV PORCELAIN BUSHING
01	UPPER TERMINAL

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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE :
SECTIONAL DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624 | Rev.: | Sheet: 3 OF 12

4609770/2021/EEMRT-ENE51

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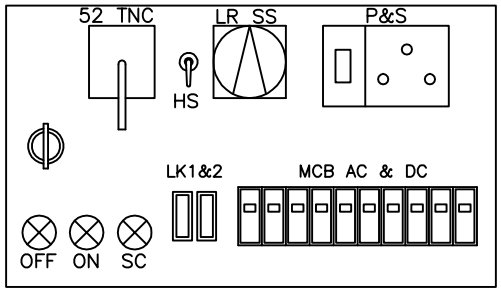
BREAKER CONTROL DOOR



TECHNICAL DATA	
RATED VOLTAGE	36kV
RATED CURRENT	1600A
S.T.C.	26.3kA / 3Sec.
BIL	70kVrms/170KVp
FREQUENCY	50 Hz
RATED BREAKING CAPACITY	26.3kA rms
RATED MAKING CAPACITY	65.75kAp
RATED OPERATING DUTIES	O−0.3Sec.−CO−3Min.−CO
MECHANISM TYPE	MOTOR WOUND SPRING OPERATED
MOTOR VOLTAGE	230 V AC
CLOSING COIL VOLTAGE	220V DC
TRIP COIL VOLTAGE	220V DC

NOTES:

1. PAINT SHADE:
   EXTERNAL & INTERNAL – LIGHT GREY SHADE NO.631 AS PER IS:5
2. DEGREE OF PROTECTION – IP55
3. AN ILLUMINATING LAMP WITH DOOR OPERATED SWITCH SHALL BE PROVIDED.
4. HEATER WITH THERMOSTAT SHALL BE PROVIDED IN THE MECHANISM BOX.
5. MOUNTING STRUCTURE HOT DIP GALVANISED.

LEGENDS	
52 TNC	BREAKER CONTROL SWITCH
LR SS	LOCAL REMOTE SELECTOR SWITCH
HS	HEATER SWITCH
P&S	PLUG & SOCKET
MCB	MINIATURE CIRCUIT BREAKER
ON	CIRCUIT BREAKER ON INDICATION (RED)
OFF	CIRCUIT BREAKER OFF INDICATION (GREEN)
SC	SPRING CHARGED INDICATION (BLUE)
LK1&2	CTD ISOLATION LINK

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THE ORIENTATION & LAYOUT OF THE DOOR MAY CHANGE DURING MANUFACTURING

REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE : INSTRUMENT DOOR & TECHNICAL DETAILS OF 36kV,26.3kA,1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624 | Rev.: | Sheet: 4 OF 12

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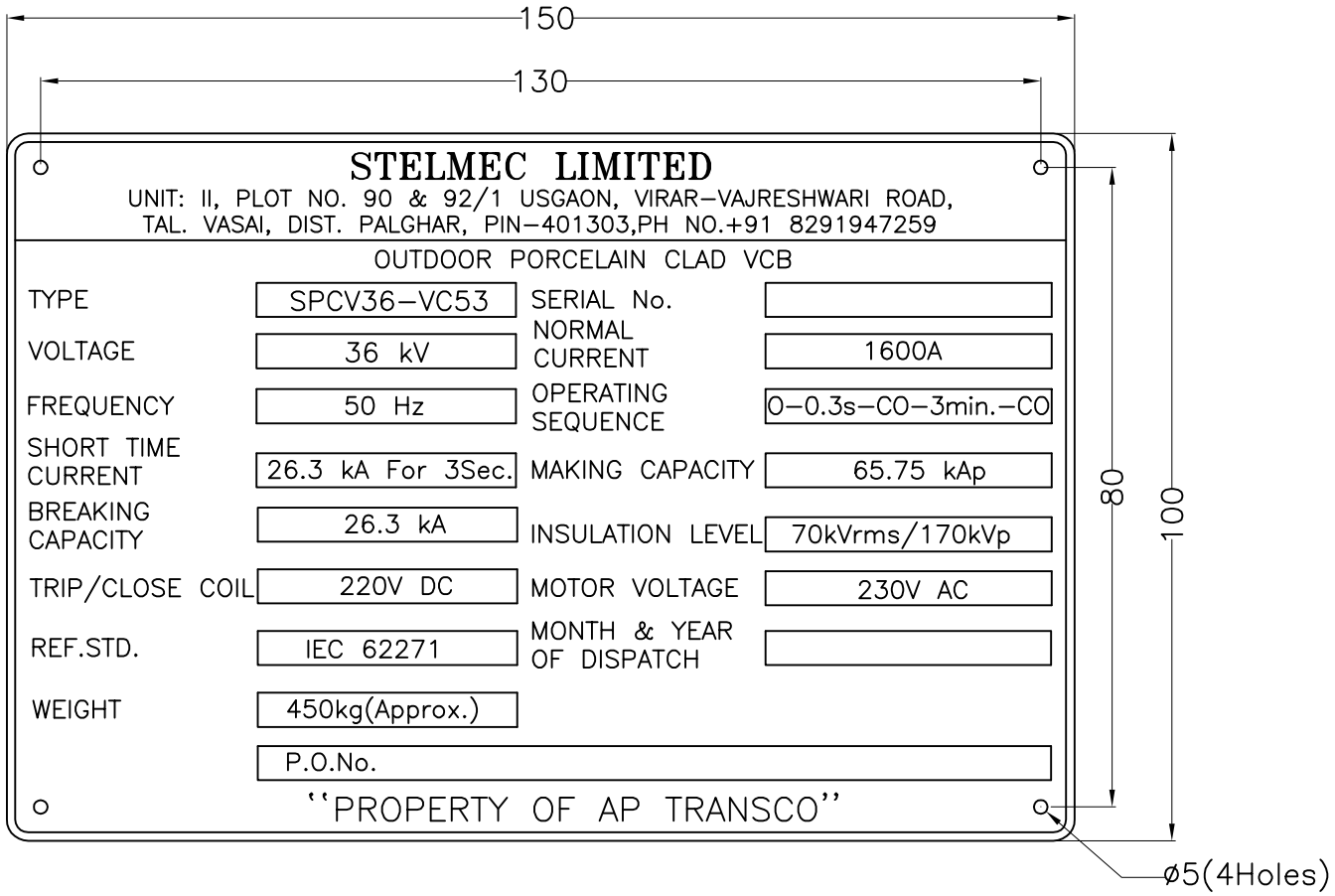

Size	: As Per Drawing
Thick	: 1mm
Material	: S.S
Letter Color	: Black (Etching)
Letter Size	: As Per Drawing

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TOLERANCE:±5%
MINOR CHANGES CAN BE DONE WITHOUT NOTICE FOR FEASIBILITY.
ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE SPECIFIED.

REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE : RATING PLATE OF 36kV,26.3kA,1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
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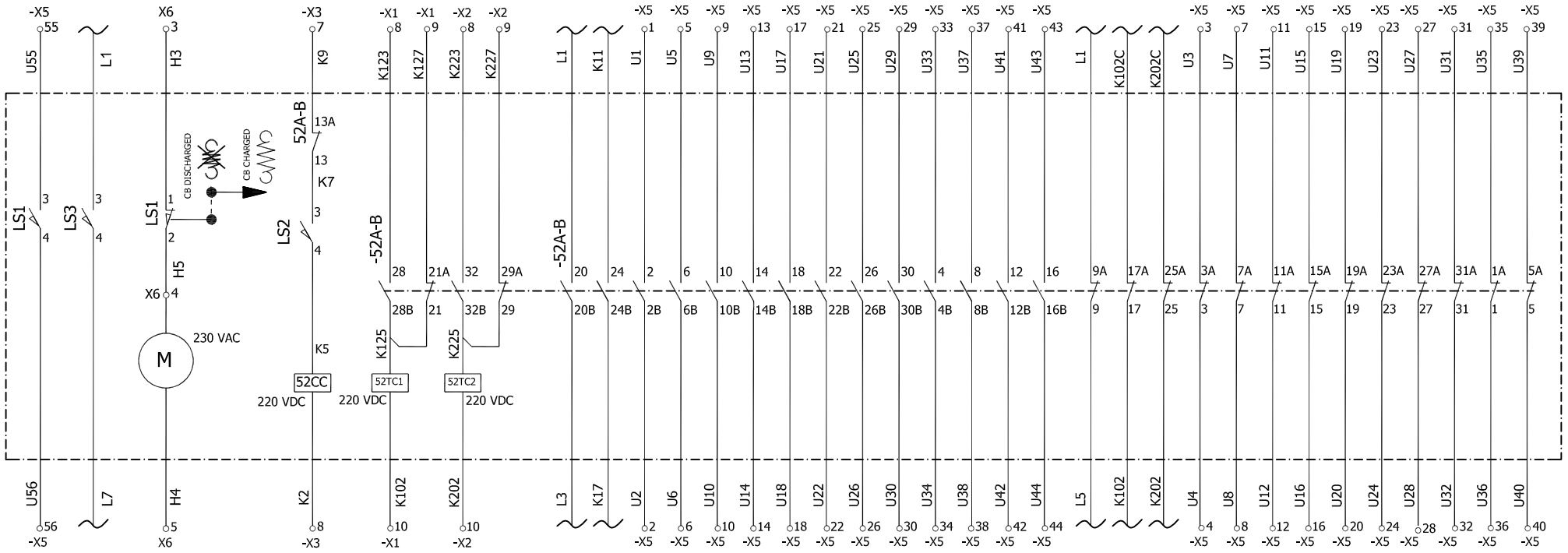

DESIGNAT.	DESCRIPTION
-M	MOTOR FOR THE CLOSING SPRING CHARGING
-LS1, LS2	LIMIT SWITCH OF THE SPRING CHARGING MOTOR
-52CC	CLOSE COIL
-52TC1	TRIP COIL-1
-52TC2	TRIP COIL-2
-52A-B	BREAKER AUXILIARY SWITCH

NOTE: GROUP MARKER TERMINAL BLOCK SHALL BE PROVIDED FOR EACH GROUP OF TERMINAL BLOCKS

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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE : AUX.SWITCH,LS & MOTOR CONTACT DETAILS DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED. MUMBAI

JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624 | Rev.: | Sheet: 6 OF 12

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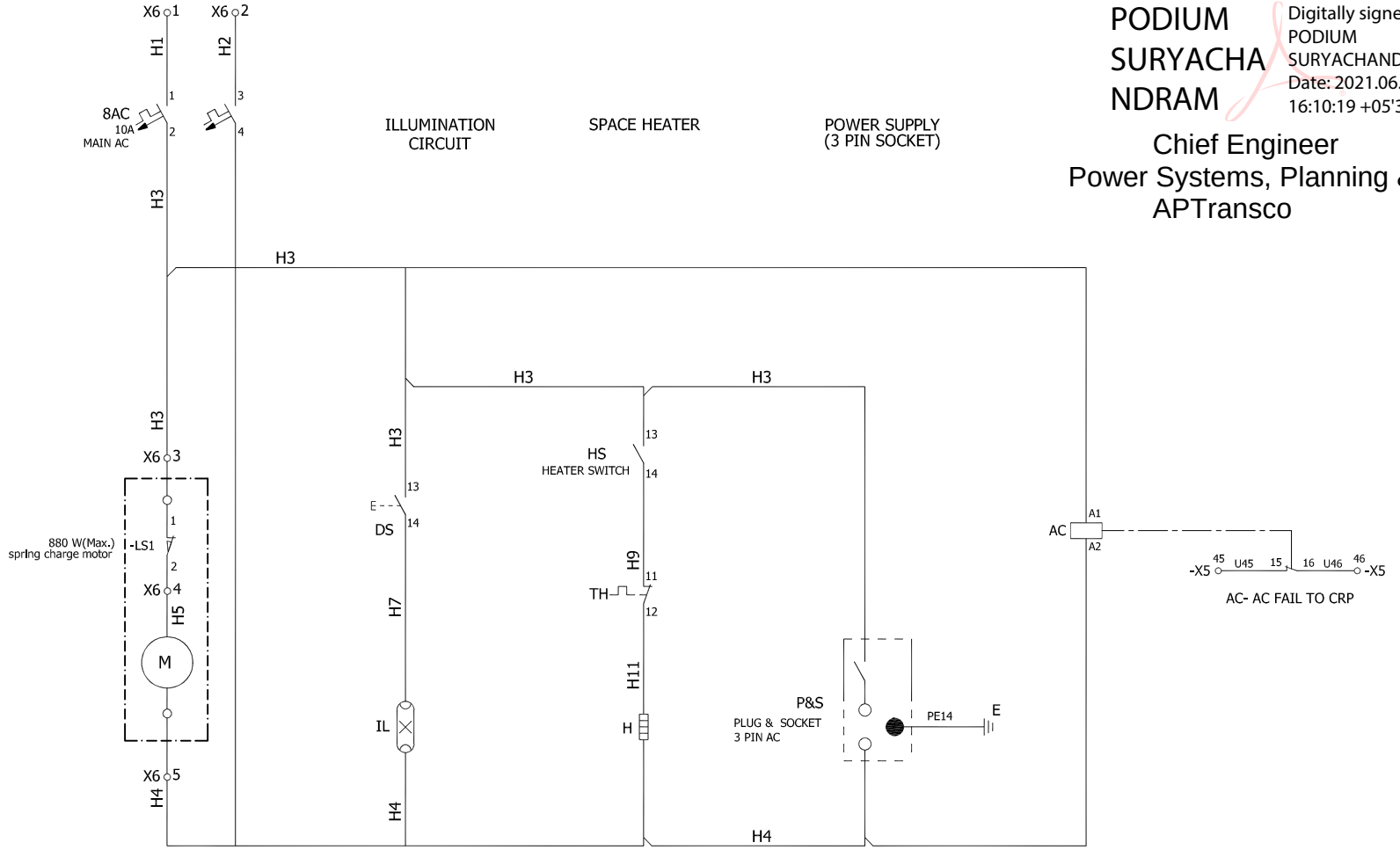
SPRING CHARGING CIRCUIT

SPRING CHARGE MOTOR SUPPLY
230 VAC



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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

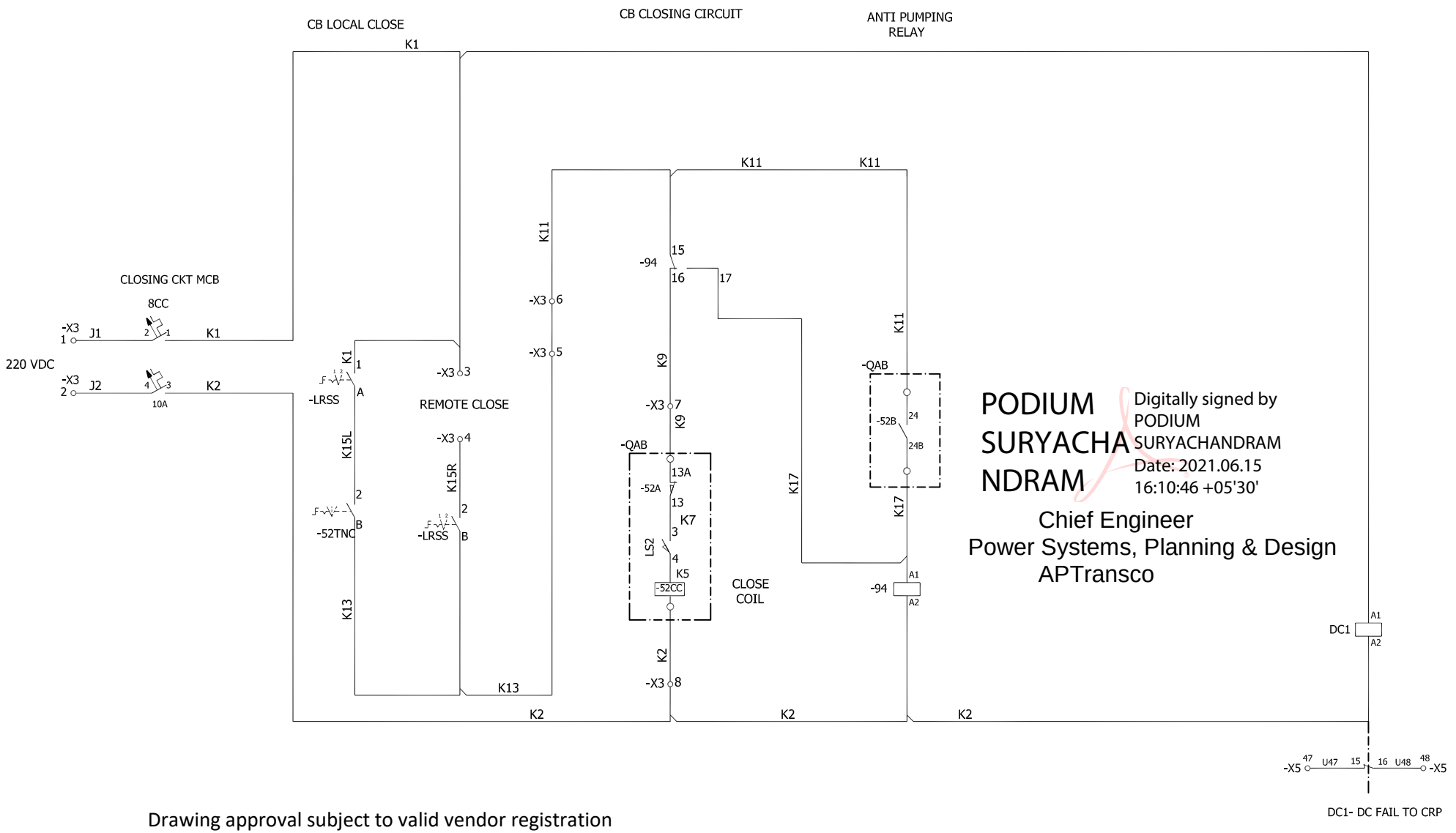
TITLE :
AC CIRCUIT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
33/VCB/ D1624		7 OF 12

460977O/2021/EEMRT-ENE51



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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE :
CLOSING CIRCUIT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

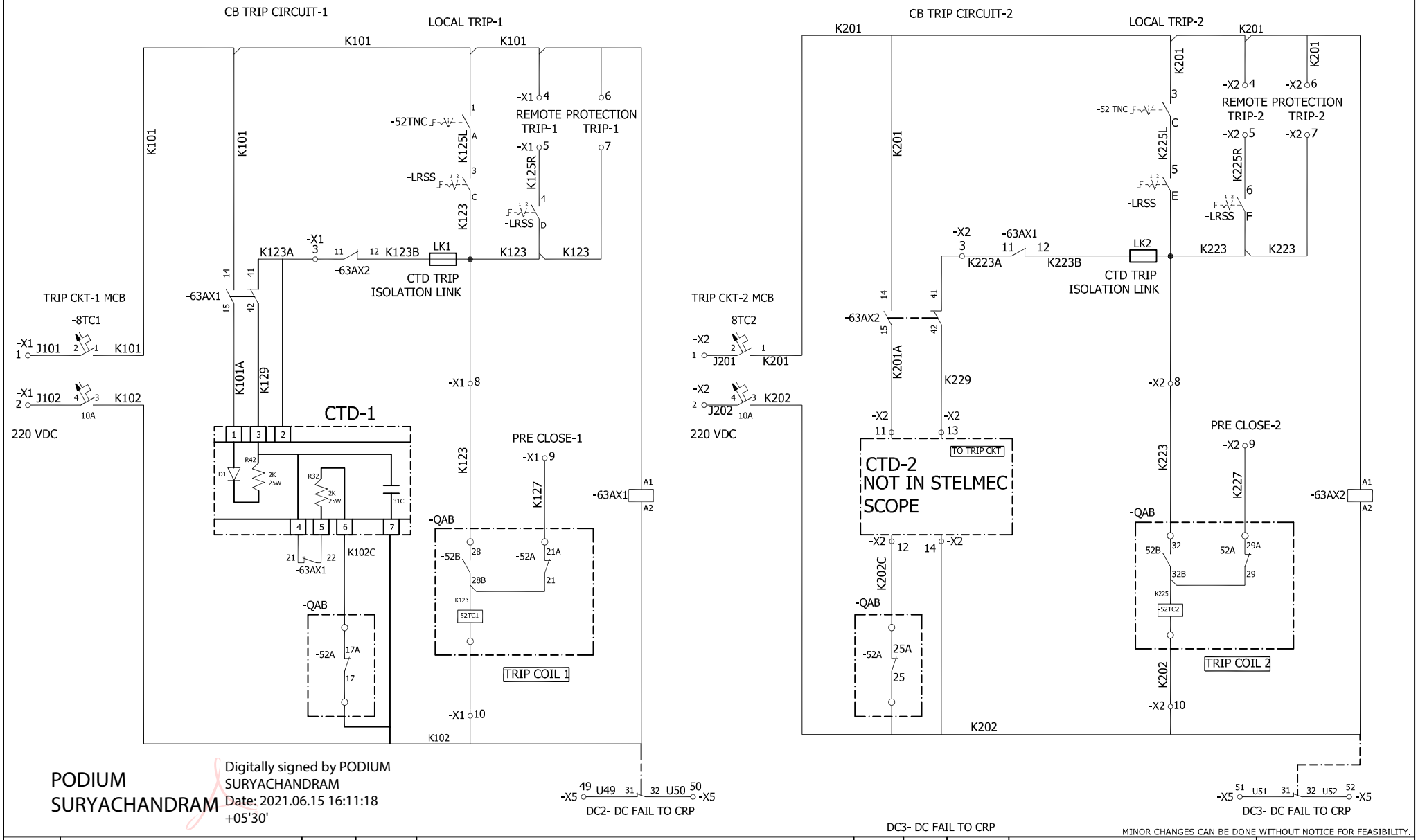
JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624

Rev.:

Sheet: 8 OF 12

460977O/2021/EEMRT-ENE51



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Power Systems, Planning & Design			
APTransco			
REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE NTS		

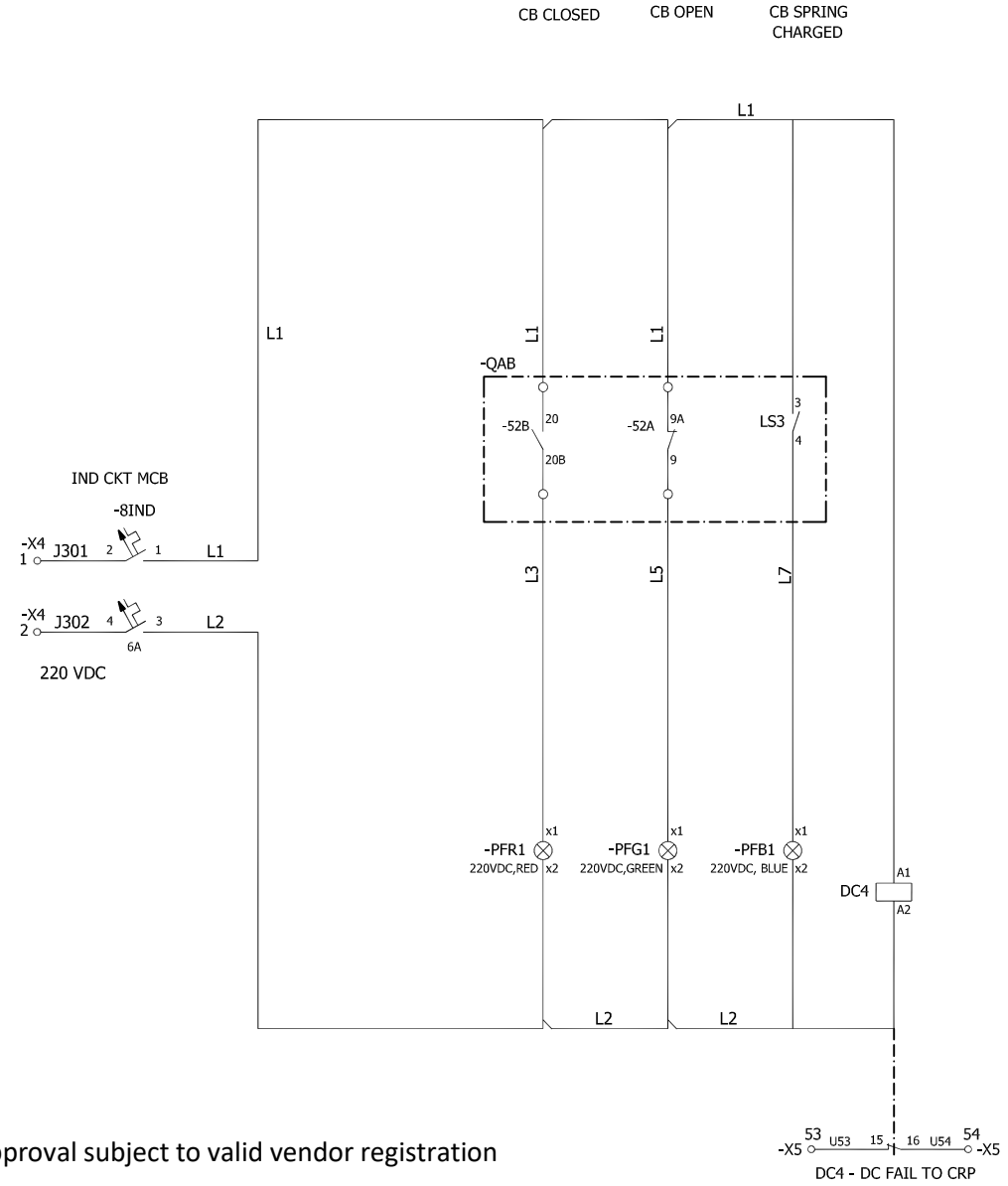
TITLE : TRIPPING CIRCUIT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED. MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
33/VCB/D1624		9 OF 12

4609770/2021/EEMRT-ENE51



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Power Systems, Planning & Design
APTransco

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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

TITLE : INDICATION CIRCUIT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED. MUMBAI

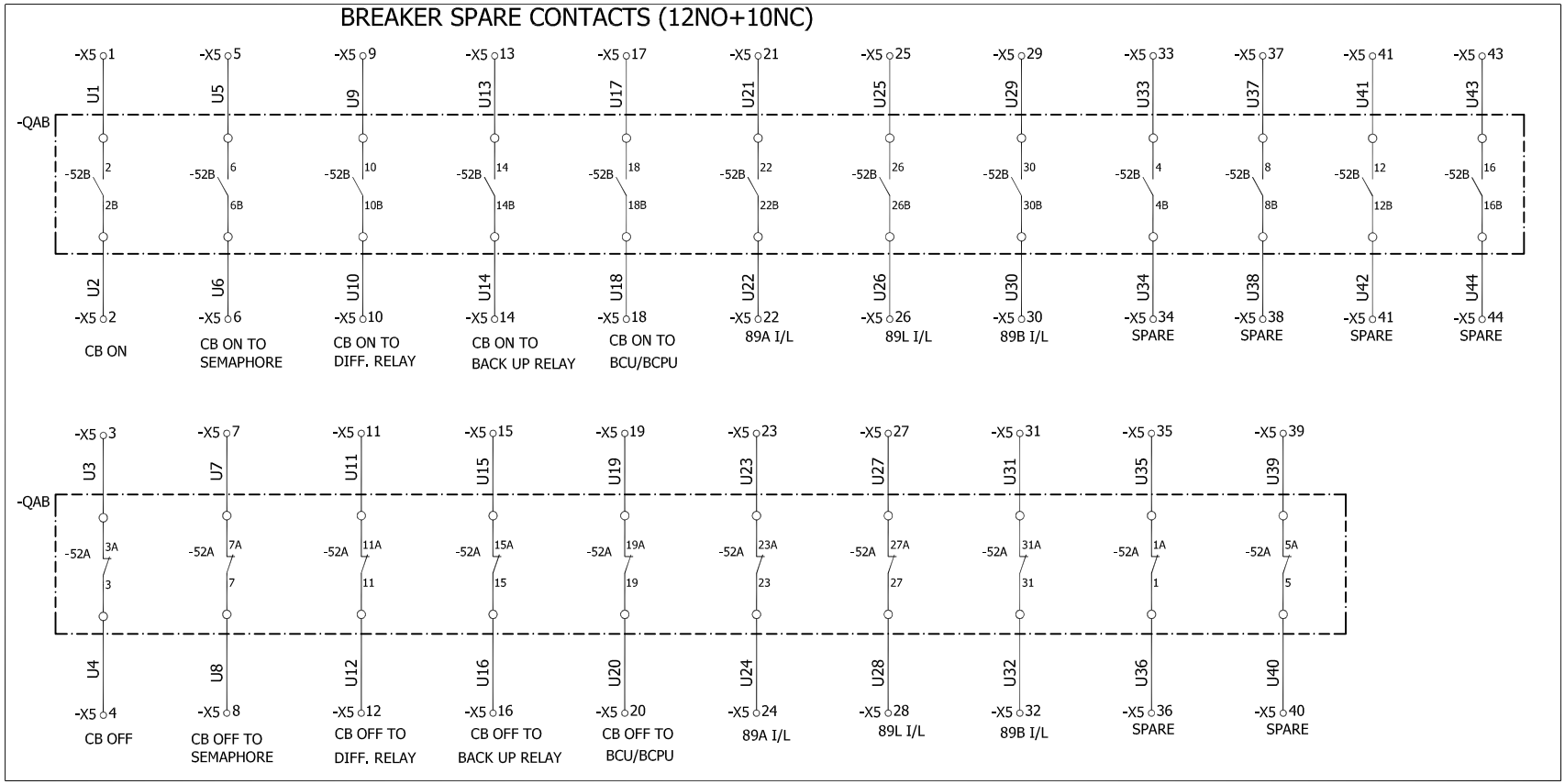
JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624

Rev.:

Sheet: 10 OF 12

460770/2021/EEMRT-ENE51



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Power Systems, Planning & Design
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CUSTOMER: APTRANSCO

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REV.NO.	DESCRIPTION	INITIALS	DATE

DRN	SSG	16.03.21	
CKD	VS	16.03.21	
APRD	BSK	16.03.21	
SCALE	NTS		

TITLE :
AUX.SWITCH LS & LRSS SPARE CONTACT CIRCUIT DRAWING OF 36kV,26.3kA, 1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO. 33/VCB/D1624 | Rev.: | Sheet: 11 OF 12

460770/2021/EEMRT-ENE51

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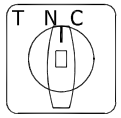
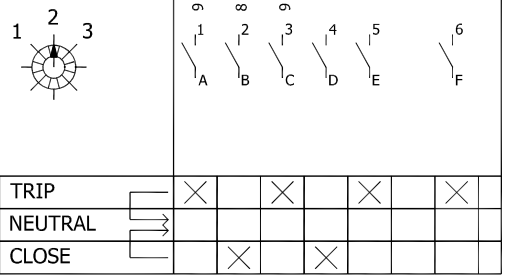
TRIP-NEUTRAL-CLOSE SELECTOR SWITCH



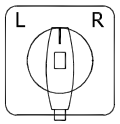
SPRING-RETURN HANDLE
PISTOL GRIP

-52TNC
TNC SELECTOR SWITCH



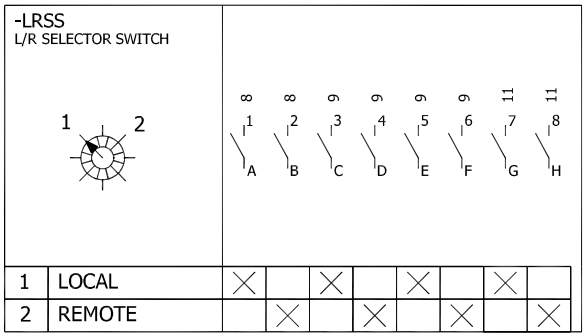
1	TRIP	X		X		X		X	
2	NEUTRAL								
3	CLOSE		X		X				

LOCAL/REMOTE SELECTOR SWITCH



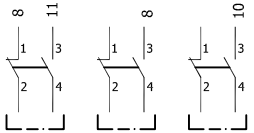
WING TYPE LOCKABLE

-LRSS
L/R SELECTOR SWITCH



1	LOCAL	X		X		X		X	
2	REMOTE		X		X		X		X

LIMIT SWITCH CONTACT FOR
SPRING CHARGED MOTOR



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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE	NTS	

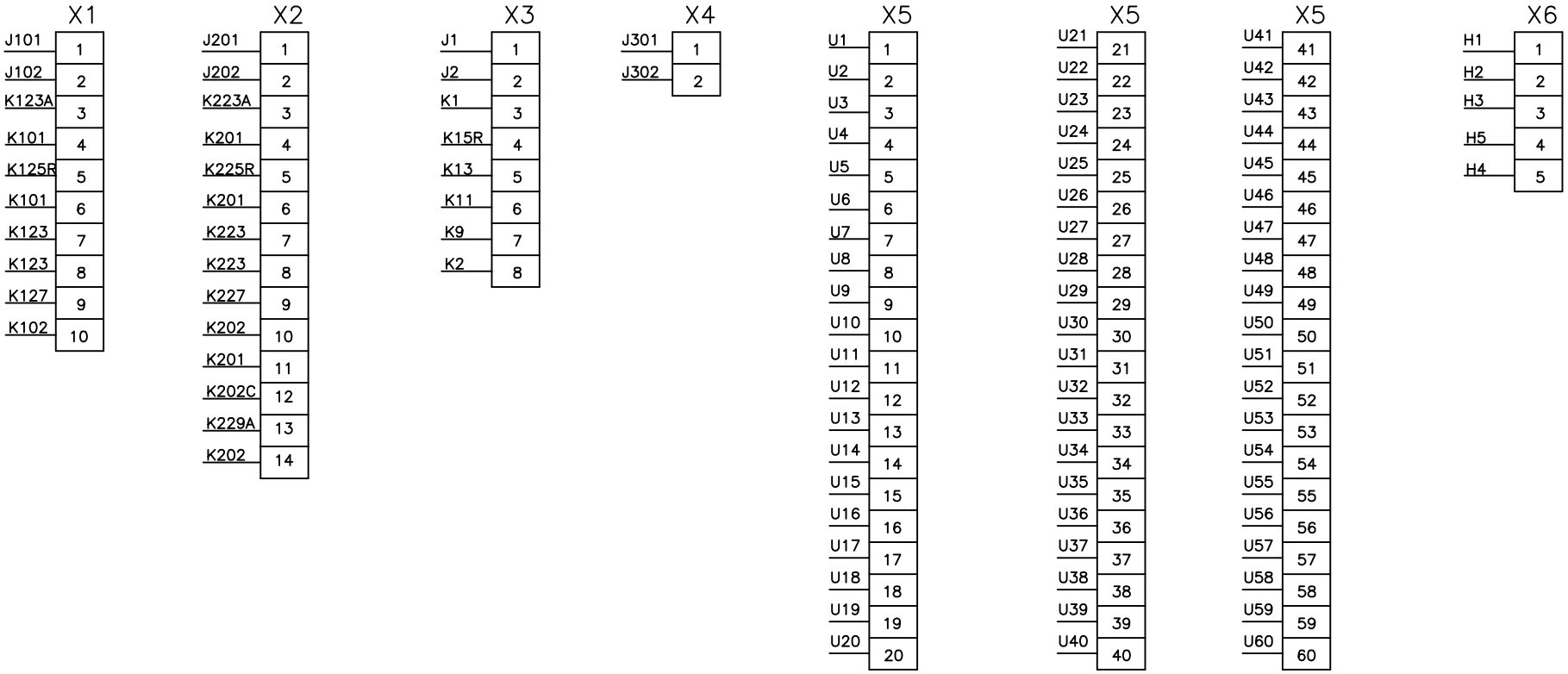
TITLE :
LRSS,TNC & LS CONTACT DETAILS
DRAWING OF 36kV,26.3kA,
1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
33/VCB/D1624		12 OF 12

460770/2021/EEMRT-ENE51



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Power Systems, Planning & Design
APTransco

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REV.NO.	DESCRIPTION	INITIALS	DATE

CUSTOMER: APTRANSCO

DRN	SSG	16.03.21
CKD	VS	16.03.21
APRD	BSK	16.03.21
SCALE NTS		

TITLE :
TERMINAL DETAILS DRAWING OF 36kV,26.3kA,1600A,50Hz OUTDOOR PCVCB

STELMEC LIMITED.
MUMBAI

JOB REF NO.: 1624

DRG. NO.	Rev.:	Sheet:
33/VCB/D1624TB		1 OF 1

4609770/2021/EEMRT-ENE51

stelmec beyond boundaries	CUSTOMER: AP TRANSCO **BILL OF MATERIALS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB WITHOUT CT STRUCTURE**

DEVICE. NO.	DESCRIPTION	QTY.	Make
52	36kV, 26.3KA,1600A Porcelain Clad Vacuum circuit breaker (with Stelmec Interrupters)with spring charged stored energy mechanism having following accessories: a) Spring charging motor 230V AC, 880W(Max) - 1 No. b) Trip coil suitable for 220V DC, 300W(Max) - 2 Nos. c) Closing coil suitable for 220V DC, 300W(Max)-1 No. d) Aux. Switch Contacts – 16 NO + 16 NC e) Accessories: ❖ Mechanical Close & Trip push buttons. ❖ Manual spring charging device ❖ Mechanical operation counter ❖ Mechanical ON-OFF indicator ❖ Mechanical Spring charged indicator f) Foundation bolt - 4 Nos.	1 No.	Stelmec
52C/S	Non discrepancy type C.B. Control switch with Pistol grip handle, spring return to neutral 3 position (4 Trip +2 Close), 25A, 220V DC	1 No.	Kaycee/ Recom / Switron/ Select
43 L/R	Local / Remote selector switch, Stay Put, Non-Lockable type, 25A, 220V DC Contacts – 4 Local + 4 Remote	1 No.	Kaycee/ Recom / Switron/ Select
TC	Terminal connectors suitable for suitable for **TWIN MOOSE ACSR** conductor	6 Nos.	Exalt Engineering/ Ramelex/ Equivalent
94	Solid state Anti pumping Device suitable for 220V DC	1 No.	Stelmec/Selec/ EAPL/ Inventa/Fenixtroniks
IL	Cubical illuminating Lamp with holder and protective cage LED Lamp, 230V AC.	1 Set.	Philips/Crompton/Bajaj/ Anchor/ Surya/ Wipro
DS	Door Limit switch	1 No.	Suraj/Kaycee/ Select
MCB	2 Pole, 10A, DC MCB for Closing & Tripping Circuit 2 Pole, 6A, DC MCB for Indication Circuit 2 Pole, 10A, AC MCB for AC Circuit	3 Nos. 1 No. 1 No.	C&S/Siemens/Legrand /L&T/Indoasian/Hager
LK1 & LK2	Fuse Base With Link	2 Nos.	R.B.C.O/DAV/Deepl
H	Space heater 80W, 230 V AC	1 No.	Girish /APT
TH	Thermostat (range 30° – 85° C)	1 No.	Girish /APT
HS	Toggle switch for heater ON-OFF	1 No.	Kaycee/Select/Recom
P/P	3 pin socket with ON/OFF switch (5/15A)	1 Set.	Anchor/Leader/ Maru
ON OFF SC	Indicating LEDs 220V DC		C&S/Vaishno/ Seco DAV/L&T/Select /Fenixtroniks
	Breaker 'ON' indication (Red)	1 No.	
	Breaker 'OFF' indication (Green)	1 No.	
	Spring Charged Indication (Blue)	1 No.	

				Document No.33/PCVCB/B1624		
				Made	JS	16.03.21
				Chkd.	VS	16.03.21
				Appd.	BSK	16.03.21
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stelmec beyond boundaries	CUSTOMER: AP TRANSCO **BILL OF MATERIALS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB WITHOUT CT STRUCTURE**		
DEVICE. NO.	DESCRIPTION	QTY.	Make
63AX1,2	**Aux. Contactor** for **Operating CTD** & **DC Supply supervision** Contact : 3NC+1NO, Aux. voltage 220V DC	2 Nos.	C&S/Siemens/ Schneider/L&T
DC1,2	**Aux. Relay** for **DC supply supervision** (Closing & indication circuit) Contact : 1 NC, Aux. voltage 220V DC	2 No.	Selec/Paramount/EAPL
ACS	Aux. Relay for AC circuit Supervision Contact : 1 NC, Aux. voltage 230V AC	1 No.	Selec/Paramount/EAPL
CTD	Capacitor Trip Device Input voltage 220V DC , Output voltage 220V DC	1 No.	Gogate/SECO/Stelmec
TB	Control Terminal Block Non-Disconnecting type	As per Req.	STH4 (Connectwell) / KABTM4 (elmex)

Notes: -

1. The control cubicle will be fabricated sheet steel : Thickness of cabinet 3mm
Thickness of door 2.0mm
2. Painting: External & Internal: Colour – Light Grey as per Shade No.631 of IS: 5.
3. Degree of Protection for all enclosure: IP 55
4. Removable gland plate shall be provided.
5. Wiring shall be done with flexible 1100 V grade, PVC insulated, switch board wires with 2.5 sq mm stranded copper conductor.
6. Schematic wiring diagram (Closing/Tripping & AC Ckt) on metal plate shall be affixed on VCB.
7. VCB shall have 2Nos. Row of Terminal Block & Wires shall be routed through PVC Trough.

Drawing approval subject to valid vendor registration

				Document No.33/PCVCB/B1624		
				Made	JS	16.03.21
				Chkd.	VS	16.03.21
				Appd.	BSK	16.03.21
Rev. No.	Date	Revision	Initials	Sheet 2 OF 2		Rev.0

Stelmec beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
1	Manufacturer's/Suppliers name address and country	Stelmec Limited, Mumbai, India
2	Manufacturer's type Designation	SPCV36-VC53
3	Governing Standards	IS:13118 (1991) & IEC 62271-100
4	Rated Voltage/Maximum	33/ 36 KV
5	Rated frequency (HZ)	50 Hz
6	Number of poles	3
7	Outdoor/Indoor	Outdoor
8	Rated Normal Current	(A)
	a) Under site conditions	1600A
	b) Under normal conditions as per IS/IEC	1600A
9	Rated short circuit breaking current	-
	a) RMS value of S.C. component	26.3 kA
	b) Percentage D.C. component (%)	40%
	c) Asymmetrical breaking current	30.21kA
	d) Is it possible to increase the rupturing capacity at a later date.	Yes
10	Short time current rating for 1 sec.	26.3kA
11	Rated operating duty cycle	O-0.3Sec-CO-3Min-CO
12	Rated short circuit making current	65.75 kA Peak
13	First pole to clear factor	1.5
14	Rated characteristics for short time faults and rated breaking capacity	26.3kA
15	Rated line charging current breaking capacity and corresponding over voltage recorded during test	NA
16	Rated out of phase breaking current and corresponding transient recovery voltage	6.80kA rms & 68 kVp
17	Rated small inductive breaking current with corresponding switching over voltage	2.48 kA rms & 72 kVp
18	Limit of switching over voltage for switching of 50 MVAR, 63 MVAR shunt reactors	NA
19	Capacity for Interrupting Transformer in rush current	20kA
20	Rated of cable charging breaking current and over voltages recorded during test	52 A rms & 47.1 kVp
21	Rated (single) capacitor bank breaking current and corresponding overvoltages recorded during test.	404 A rms & 48.4 kVp
22	Data on restriking voltage for 100% 60% 30% 10% terminal faults	100% / 60% / 30% / 10%
	a) Amplitude factor	1.54 / 1.65 / 1.74 / 1.8
	b) Phase factor	1.5 / 1.5 / 1.5 / 1.5
	c) Rate of rise of restriking voltage	1.19 / 1.91 / 3.33 / 3.45
	d) Transient recovery voltage	67.9 / 72.7 / 76.7 / 79.4
23 a)	Is circuit breaker restrike free under all conditions of operation	C2 class
b)	Means adopted if any to check the voltage rise check the voltage rise	NA
24	Max. arcing time under any duty condition with limiting conditions of voltage and pressure	20 ms (max)
25	Maximum total break time under any duty condition for any current upto rated breaking current with limiting conditions of voltage and pressure	$\leq$ 60 ms

Siemens beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
26	Maximum closing time	70ms max at 100% rated voltage
27	Minimum opening time under any duty condition with limiting voltage and pressure	<60 ms at 100% rated voltage
28	Maximum close open time under any condition with limiting voltage and pressure	Max 80 ms at 100% rated voltage rated
29	Minimum reclosing time at rated interrupting capacity from the instant of trip coil energisation	<300 ms
30	Minimum dead time for	-
	a) Three phase reclosing	<300 ms
	b) One phase reclosing	-
	c) Limits of adjustment of dead time for three phase Reclosing.	-
31	Difference in the instants of closing opening of contacts at rated voltage and pressure	-
	a) Within a pole	<=2 ms
	b) Between poles	<=2 ms
32	Type of device, if any, used to obtain uniform voltage distribution between contacts.	-
33	Maximum temperature rise for	-
	a) Main contacts over ambient temperature at site	40 degree C max
	b) Terminals to be connected to the external conductors	45 degree C max
34	One minute power frequency withstand test voltage for complete circuit breaker	-
	a) Between line terminal and ground objects with circuit breakers contacts closed	70 kV rms
	b) Between terminals with breaker contacts open	70kV rms
35	1.2/50 microsecond lightning impulse withstand test voltage for complete circuit breaker	-
	a) Between line terminal and ground with circuit breaker contacts closed	170kVp
	b) Across terminals with circuit breaker contacts open	170kVp
	One terminal lightning impulse	-
	Opposite terminal power frequency	-
36	250/2500 microsecond switching surge withstand voltage	NA
	I) Between line terminal and ground with circuit breaker contacts closed	NA
	II) Between terminals with breaker contacts open One terminal switching impulse Opposite terminal power frequency	NA
37A	Corona extinction voltage	NA
37B	Corona inception voltage	NA
38	i) Radio interference voltage at	NA
	a) 0.5 MHz	NA
	b) 1.0 MHz	NA
	c) 1.5 MHz	NA
	d) 2.0 MHz	NA
	ii) Partial discharge level	NA
39	Whether the circuit breaker is fixed trip or trip free	Trip free

Siemens beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
40	a)Rated voltage of closing coils	220V DC
	b)Range of pick up value	85% of Rated Voltage
41	Trip coil	-
	a) Rated voltage of tripping coil	220V DC
	b) Range of pick up value	70% of Rated Voltage
42	Normal power consumption at rated voltage for	300 watt (Max)
43	Number of trip coils	2
44	Type of main contact	AMF
45	Whether arcing contact provided	No
46	Material of	-
	a) Main contact	Cu-Cr Alloy
	b) Arcing contact	NA
	c) Whether contacts silver plated	Yes
	d) Minimum thickness of silver plating	<10 micron
	e) Contact pressure of main contact	230±50 N
47	Number of auxiliary contacts per pole provided for Purchaser's use.	
	a) NO	12NO (for Simultaneous 3 Pole)
	b) NC	10NC (for Simultaneous 3 Pole)
48	Rated voltage of auxiliary contacts.	250 V AC/DC
49	Current capacity of auxiliary contacts	-
	a) Continuous	10A for 220 V DC
	b) Breaking	2.5 for resistive load ,2A for inductive load 220 V DC
	c) Time constant	-
50	Whether auxiliary contacts silver plated.	Yes
51	Quantity of SF6 gas required for each pole of circuit breaker	NA For PCVCB
52	a) Guaranteed maximum leakage rate of SF6 gas per year	NA For PCVCB
	b) SF6 density monitor provided	NA For PCVCB
53	Limits of pressure of SF6 gas at which breaker operate correctly	NA For PCVCB
54	Number of operations after which SF6 gas replacement is necessary	NA For PCVCB
	a) At full rapturing capacity	NA For PCVCB
	b) At 50% of rated rupturing capacity	NA For PCVCB
	c) At 10% of rated rupturing capacity	NA For PCVCB
	d) At rated current	NA For PCVCB
55	Details of Interrupter	NA For PCVCB
	i) No of chambers	NA For PCVCB
	ii) Function of each chamber	NA For PCVCB
56	Material of contacts	NA For PCVCB
	a) Arcing contacts (Main & Auxiliary)	NA For PCVCB
	Material of Tips	NA For PCVCB
	Ratio of Material (if more than one)	NA For PCVCB
	Production technique	NA For PCVCB
	b) Nozzle	NA For PCVCB
	Material	NA For PCVCB

Siemens beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
	Colour	NA For PCVCB
	Filled/unfilled	NA For PCVCB
	rate of acceleration	NA For PCVCB
57	Number of operations after which main and auxiliary contacts replacement is necessary.	
	a) At full rupturing capacity	100 nos
	b) At 50% of rated rupturing capacity	200 nos
	c) At 10% of rated rupturing capacity	500 nos
	d) At rated current	20,000 nos
58	Number of operations at rated current after which routine inspection/maintenance of breaker is necessary.	100 nos
59	Number of operations at full rupturing capacity after which routine inspection/maintenance of circuit breaker is necessary.	NA
60	Parameters of SF6 gas required for initial filling and satisfactory operation	NA For PCVCB
	a) Governing standard	NA For PCVCB
	b) Density	NA For PCVCB
	c) Dielectric strength	NA For PCVCB
	d) Acidity	NA For PCVCB
	e) Water content	NA For PCVCB
	f) Oil content	NA For PCVCB
	g) Condensation temperature	NA For PCVCB
	h) Resistivity	NA For PCVCB
	i) size of SF6 Gas Cylinder	NA For PCVCB
60	Support insulation column/units	-
	a) Manufacturers name, address & country	Jaipur Glass/CJI
	b) Make and type	Hollow Insulator
	c) Numbers per pole	2 nos
	d) Weight	25 kg approx/unit
	e) Material its composition and effect of SF6 Gas degradation of the material	Porcelain
	f) Transport dimensions	Dia 280 x 520(L) mm
	g) One minute power frequency withstand/flashover voltage	70 kV / 210 kV
	h) Lightning impulse withstand/flash over voltage.	170 kV / 210 kV
	i) Switching impulse withstand flashover voltage	210 kV
	j) Corona extinction and inception voltage	NA
	k) Creepage distance	900 mm
	i) Permissible safe cantilever strength	600 kg for 1 min as per IS 2099
62	Type of operating mechanism for	
	a) Closing	Motor/ Manual spring charge shunt operating
	b) Opening	Motor/ Manual spring charge shunt operating
63	No. of trouble free operations for virtually maintenance free operation of Circuit Breaker.	10,000
64	Rated pressure and limits of pressure of operating	NA

Siemens beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
	mechanism in case of pneumatic and hydraulic mechanism	
65	Pneumatic operating mechanism	NA For PCVCB
	a) Rated operating pressure	NA For PCVCB
	b) Range of pressure for	NA For PCVCB
	i) Closing	NA For PCVCB
	ii) Opening	NA For PCVCB
	c) Air consumption at rated pressure for	NA For PCVCB
	i) Closing	NA For PCVCB
	ii) Opening	NA For PCVCB
	iii) Close-open	NA For PCVCB
	d) Number and capacity of local air receiver	NA For PCVCB
	e) Time required for filling the air receiver to its rated pressure from atmospheric pressure	NA For PCVCB
	f) Design pressure of air receiver	NA For PCVCB
	g) Number of closing opening operations possible without charging the air receiver	NA For PCVCB
	h) Arrangement provided for preventing the operation of breaker with insufficient air pressure.	NA For PCVCB
	I)Compressor	NA For PCVCB
	i) Make and type	NA For PCVCB
	ii) Number of compression stages	NA For PCVCB
	iii) Compression pressure	NA For PCVCB
	iv) Whether compressor is provided with its own filter. If so give type and make	NA For PCVCB
	v) Effectively delivered air in litres per hr. at atmospheric pressure.	NA For PCVCB
	j) Compressed air piping	NA For PCVCB
	a) Material	NA For PCVCB
	b) Inner & outer diameter	NA For PCVCB
	c) Working pressure	NA For PCVCB
66	Spring charged mechanism	-
	a) Name of manufacturer	Sunkid
	b) Rating of motor	V-220-240 AC/DC 50Hz Pi-880Watt(Max)
	c) Time required for charging the closing spring	<30 sec
	d) Number of Co-operations possible after failure of auxiliary supply	-
	e) Whether indication for spring charged condition provided in central control cabinet.	Yes
67	Hydraulic Operating Mechanism	NA For PCVCB
	a) Rated pressure of oil in operating cylinder	NA For PCVCB
	b) Limits of operating pressure	NA For PCVCB
	c) Specification of oil and quantity required per breaker	NA For PCVCB
	d) Number of CO operations possible after loss of hydraulic pressure.	NA For PCVCB
	e) Details of arrangement to prevent change of position of breaker in the event of loss of hydraulic pressure.	NA For PCVCB
	f) Details of monitoring arrangement for hydraulic pressure	NA For PCVCB

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Sr. no.	Particulars	33 KV
	g) Details of hand pump set provided for emergency operation.	NA For PCVCB
68	Control Cabinet	
	a) Manufacturer's name	Stelmec Limited
	b) Thickness of sheet steel	
		Thickness of cabinet 3mm
		Thickness of door 2.0mm
	c) Degree of protection provided and test certificated enclosed.	IP55
	d) Colour of finish paint	
	i) Outside	Light Grey as per Shade No.631 of IS: 5
	ii) inside	Light Grey as per Shade No.631 of IS: 5
	e) Control wiring	-
	i) Rated voltage	1100V Grade
	ii) Size	2.5Sq.mm
	f) Terminal Block	-
	I) Make	Connectwell/Elmex/Pheonix
	ii) Current rating	45A
	g) Locking Mechanism	-
	h) Illuminating lamp	230V AC LED Lamp
	i) Whether all cabling for wiring out contacts to control cabinet included in scope of supply.	-
69	Terminal clamps and connectors	
	a) Manufacturer's name	Exalt Engineering/Ramelex
	b) Applicable standard	IS5561-1970
	c) Material	Aluminium
	i) Clamp body	Al-4600 as per IS 617 /LM6
	ii) Bolts and nuts	Steel
	iii) Spring washer	Steel
	iv) Liner if any	-
	d) Rated current	1600A
	e) i) Rated terminal load	-
	ii) Factor of safety	-
	f) Radio interference voltage	-
	g) Corona extinction voltage	-
	h) Maximum allowable span for aluminum tube of 114.2mm outer diameter and 97.18mm inside diameter on equipment terminal pad with rated fault current and 7m, 4.5m phase-to-phase spacing for 420kV, 245kV breakers respectively.	-
70	Overall dimensions	-
	a) height	2324mm ± 5%
	b) width	525mm ± 5% (Depth)
	c) length	1635mm + 5%
71	Clearances	-
	a) Between poles	470 mm (Min.)
	b) Between live part and earth	3700 mm(Max) including Plinth(300mm)
72	Weight of	-
	i) Each pole	60 kg Approx

Siemens beyond boundaries	**CUSTOMER:** APTRANSCO GUARANTEED TECHNICAL PARTICULARS FOR 36KV, 26.3KA, 1600A, OUTDOOR PCVCB **WITHOUT CT STRUCTURE**

Sr. no.	Particulars	33 KV
	ii) Complete breaker	450 kg approx including structure
73	Noise level	
	a) at base	<145 dbA
	b) at 50 mtrs. and 100 mtrs. Distance from base	<145 dbA
74	Enclosures	-
	Whether the following are enclosed:	-
	i) Type test reports for main equipment and auxiliaries	Yes
	ii) Drawings as per Section General	Yes
	iii) Technical literature for Circuit Breakers, SF6 Gas, support insulators and operating mechanism.	Yes

NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS.

1) Minimum 300mm plinth shall be maintained for Circuit Breakers in the substation during foundation works to ensure safe live to ground clearances as per IE rules.

2) Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with breaker requirement and compatibility.

FOR EPC CONTRACTS ONLY

PODIUM SURYACHANDRAM

Digitally signed by PODIUM SURYACHANDRAM
Date: 2021.06.15 16:14:27 +05'30'

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