

TECHNICAL DATA SHEET OF CIRCUIT-BREAKER WITH SPRING MECHANISM

	UNIT	Particulars
Reference of customer Spécification	NIL	
Revision / Date of specification	First issue	
I. DESIGNATION		
Reference standard		GL312F1/4031P IEC 62271-100
Number of poles per circuit-breaker		3
Number of interrupting units per pole		1
Capacitors in parallel with breaking chambers		No
Capacitor value per phase	(pF)	NA
Type of control mechanism		SPRING
Circuit-breaker class		Outdoor
Minimum ambient temperature	TL (°C)	-30
Maximum ambient temperature	TA (°C)	50
Height of support structure	(mm)	2600
Altitude of installation	(m)	1000
Phase spacing (centre to centre)	(mm)	1750
Phase to phase clearance	(mm)	1391
II. RATED CHARACTERISTICS		
Main characteristics		
Rated voltage	Ur (kV)	145
Rated frequency	fr (Hz)	50
Rated continuous current	Ir (A)	3150
Rated peak withstand current	Ip (kA p)	100
Rated short-time withstand current	I _k (kA)	40
Rated duration of short-circuit	tk (s)	3
Rated power frequency withstand voltage during 1 min		
- phase/earth, phase/phase	U _d (kV)	275
- across open contacts	U _d (kV)	275
Rated lightning impulse withstand voltage		
- phase/earth, phase/phase	U _p (kV p)	650
- across open contacts	U _p (kV p)	650
Rated switching impulse withstand voltage		
- phase/earth	U _s (kV p)	NA
- across open contacts	U _s (kV p)	NA
III. BREAKING AND MAKING CHARACTERISTICS		
Rated short-circuit breaking current	I _{sc} (kA)	40
First-pole-to-clear-factor	K _{pp}	1.5
D.C component (% of the A.C component)	dc (%)	43
Peak value of rated short-circuit making current	I _m (kA p)	100
Rated breaking current for short line faults		As per IEC
Rated out-of-phase breaking current	I _d (kA)	10
- Rated voltage range factor	K _{pp}	2.5
- Recovery voltage at power frequency	(kV)	209
Rated line-charging breaking current	I _l (A)	50 (Class C2)
- Rated voltage range factor	kc	1.4
- Single phase test voltage	(kV)	117
IV. OPERATING TIMES		
Rated opening time from opening coil energizing to separation of the main contacts.	t _o (ms)	36 (max)
Rated breaking time from opening coil energizing to arc extinction.	t _b (ms)	60
Rated Closing time from closing coil energizing to contact establishment.	t _c (ms)	72 (max)
Time interval between phases during opening operation	(ms)	2.5
Time interval between phases during closing operation	(ms)	4
Time interval between chambers of one phase during opening operation	(ms)	NA
Time interval between chambers of one phase during closing operation	(ms)	NA




Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
STD/GTP-DWG/Approval No. 214-1-1 Revision No. 0
Prepared & Approved during October - 2011

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V. DESIGN AND CONSTRUCTION		
Operation		
Protection level of spring mechanism cubicle		IP55
Operation		
Rated operating sequence		Three phase
Rated operating sequence without motor supply		O-0.3s-CO-3min-CO
Radio interference level	(μ V)	O - CO
- Rated voltage range factor	f	<1000
- Test voltage	(kV)	1.1
- Test frequency	(MHz)	92
Built-in closing resistors		1
Insulators		
Creepage distance across terminals	(mm)	No
Creepage distance between live parts and earth	(mm)	3625
Colors of insulators		3625
Insulating gas		Brown
% SF6		SF6
Rated guage pressure at 20°C	Mpa(guage)	100
Minimum guage pressure at 20°C	Mpa(guage)	0.64
Relative leakage rate	(% per year)	0.51
Number of densimeters per circuit-breaker		<1
- With pressure reading		1
- Pressure unit		Yes
Safety device with pressure relief disc		MPa (gauge)
		Yes
VI. MECHANICAL DATA		
Horizontal seismic value	(g)	0.3
Vertical seismic value	(g)	0.3
Static terminal loads		
- Horizontal longitudinal strength	(daN)	75
- Horizontal transversal strength	(daN)	125
- Vertical strength	(daN)	100
VII. LOW VOLTAGE SPECIFICATION		
Voltage supplies		
Motor voltage	(V)	230 V ac
Circuit motor protection		MCB
Motor voltage minimum range	%	85
Motor voltage maximum range	%	110
Opening and closing voltage supply	(V)	220 V dc
Control circuits protection		MCB
Opening voltage minimum range	%	70
Opening voltage maximum range	%	110
Closing voltage minimum range	%	85
Closing voltage maximum range	%	110
Lighting circuit voltage	(V)	230 V ac
Heating circuit voltage	(V)	230 V ac
Heating-lighting circuits protection		MCB
Low voltage equipments		
Local electrical control with two push-buttons		Yes
Antipumping relay		Yes
Local-remote selector switch		Yes
Supervision of opening coils		Yes - Sup. relays not provided
Supervision of closing coils		Yes - Sup. relays not provided
Automatic opening when phase discordance through time delay relay		NA
Signalling contacts of springs position		1 NO
Number of available auxiliary NO contacts		10
Number of available auxiliary NC contacts		10
Motors sequence for springs reload		NA
Type of terminals for customer connection		Standard
Type of wiring in electrical cubicle		Standard
Position indicator Open/Closed		Black & White Text
Indicator of spring position		Black & White Text
Padlocking of the doors (padlock not provided)		Yes; Provision only
Earthing pad of the electrical cubicle		Standard

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Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)


STD/GTP-DWG/Approval No. 214-1-2 Revision No. 0


Prepared & Approved during October - 2011


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SL NO	DRAWING NO	SHT.NO	TITLE	REV 0		REV 1		REV 2	
				DATE	DETAILS	DATE	DETAILS	DATE	DETAILS
1	4211700012ED312P01	1 of 7	CONTENTS OF ELECTRICAL DRAWINGS	07.01.2011	ORIGINAL ISSUE				
2	4211700012ED312P01	2 of 7	GÉNÉRAL NOTES	07.01.2011	ORIGINAL ISSUE				
3	4211700012ED312P01	3 of 7	LEGEND	07.01.2011	ORIGINAL ISSUE				
4	4211700012ED312P01	4 of 7	CLOSING & TRIP SYSTEM 1	07.01.2011	ORIGINAL ISSUE				
5	4211700012ED312P01	5 of 7	TRIP SYSTEM 2	07.01.2011	ORIGINAL ISSUE				
6	4211700012ED312P01	6 of 7	AC CIRCUITS, REMOTE ALARMS & SPARE AUX. CONTACTS	07.01.2011	ORIGINAL ISSUE				
7	4211700012ED312P01	7 of 7	TERMINAL BLOCK DETAILS	07.01.2011	ORIGINAL ISSUE				

	Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
	STD/GTP-DWG/Approval No. <u>214-2-1</u> Revision No. <u>0</u>
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	STD/GTP-DWG/Approval No. <u>214-2-1</u> Revision No. <u>0</u>
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 T&D - Chénél India	A3	CIRCUIT BREAKER TYPE : GL312P (145kV)	VERSION 1
	SCALE -/-	CONTENTS OF ELECTRICAL DRAWINGS	REVISION 0
MODIFICATION DATE: 07.01.2011 NAME: KRP		4211700012ED312P01	
APPROVED DATE: 07.01.2011 NAME: VG			PAGE 1 / 7

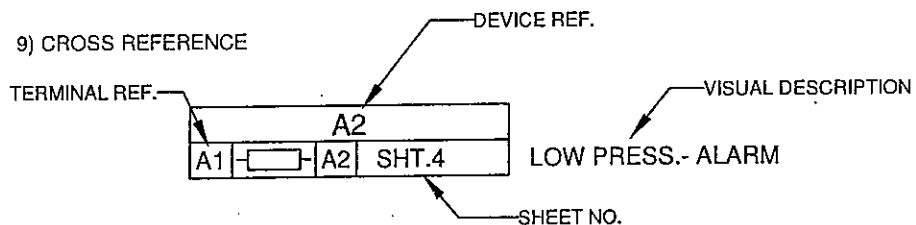
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NOTES :

- 1) SCHEME SHOWS BREAKER TRIPPED, WITHOUT SF6 GAS PRESSURE AND CLOSING SPRING CHARGED
- 2) CONTACTORS SHOWN IN DE-ENERGISED CONDITION
- 3) PANEL WIRED WITH FRLS COPPER WIRE SIZE 2.5 Sq.mm
- 4) COLOUR OF WIRES: BLACK - AC CIRCUIT, GREY - DC CIRCUIT, GREEN - EARTH.
- 5) CONTINUOUS POWER USED FOR SUPERVISION OF COILS SHOULD NOT EXCEED 4 WATT
- 6) ALL TERMINALS USED IN MECHANISM CUBICLE ARE OF STUD TYPE PHOENIX MAKE TYPE OTTA 2.5
- 7) LOCATION REFERENCE
 - ⊙ — MULTICORE TERMINAL
 - DM — DENSIMETER
- 8) GAS PRESSURE

SF6 PRESSURE MPa (ABSOLUTE) AT 20°C	
FILLING	0.74
ALARM (P1)	0.64
LOCKOUT (P2)	0.61



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	STD/GTP-DWG/Approval No. 2149-2	Revision No. 0
	Prepared & Approved during October - 2011	

GENERAL NOTES		T&D Chennai India	4211700.012ED312P01	REV 0	VER 1	PAGE 2 7
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SPECIFICATION SHEET FOR MECHANISM CUBICLE


TAG	DESCRIPTION	SPECIFICATION	MAKE
43A	LOCAL-REMOTE SELECTOR SWITCH	25 AMP, 4 POLE, ROTARY CAM	KAYCEE/SALZER/SWITRON
A2	CONTACTOR - LOW SF6 PRESS. ALARM	2NO+2NC 220V DC	SIEMENS/SCHNEIDER/L&T/C&SCL
A3	CONTACTOR - LOW SF6 PRESS. LOCKOUT	2NO+2NC 220V DC ADD ON BLOCK 2NO+2NC	SIEMENS/SCHNEIDER/L&T/C&SCL
A4	CONTACTOR - LOW SF6 PRESS. LOCKOUT	2NO+2NC 220V DC ADD ON BLOCK 1NO+1NC	SIEMENS/SCHNEIDER/L&T/C&SCL
A5	CONTACTOR - DC SUPPLY 1 SUPERVISION	2NO+2NC 220V DC ADD ON BLOCK 1NO+1NC	SIEMENS/SCHNEIDER/L&T/C&SCL
A6	CONTACTOR - DC SUPPLY 2 SUPERVISION	2NO+2NC 220V DC	SIEMENS/SCHNEIDER/L&T/C&SCL
A7	CONTACTOR - AC SUPPLY SUPERVISION	2NO+2NC 230V AC	SIEMENS/SCHNEIDER/L&T/C&SCL
C	CAPACITOR	1000 MICRO FARAD, 450V CAPACITOR	REPUTED
D	DIODE	6A, 600PIV DIODE	REPUTED
DL	LAMP	25W, 220V DC TYPE : CANDLE	PHILIPS/OSRAM/WIPRO/CG
DS	DOOR SWITCH	2A	SURAJ/EQUIVALENT
H	HEATER	60W, 230V AC	APT/SOFIA/SURIA/KK/CONTACT/ EQUIVALENT
IL	LAMP	11W, 230V AC TYPE : CFL	PHILIPS/OSRAM/WIPRO/CG
IL1	INDICATION LAMP - CB CLOSED	LED RED COLOR 220V DC	TEKNIC/SCHNEIDER/SIEMENS/DAV/ VAISHNOV/BINAY/EQUIVALENT
IL2	INDICATION LAMP - CB OPEN	LED GREEN COLOR 220V DC	TEKNIC/SCHNEIDER/SIEMENS/DAV/ VAISHNOV/BINAY/EQUIVALENT
IL3	INDICATION LAMP - SPRING CHARGED	LED AMBER COLOR 220V DC	TEKNIC/SCHNEIDER/SIEMENS/DAV/ VAISHNOV/BINAY/EQUIVALENT
MCB1	MCB - CL SUPPLY	AC 6A DP	SIEMENS/SCHNEIDER/L&T/C&SCL/ HAVELLS/LEGRAND
MCB2	MCB - MOTOR SUPPLY	AC 6A DP CURVE C	SIEMENS/SCHNEIDER/L&T/C&SCL/ HAVELLS/LEGRAND
MCB3	MCB - DC SUPPLY 1 ON/OFF	DC 6A DP	SIEMENS/SCHNEIDER/L&T/C&SCL/ HAVELLS/LEGRAND
MCB4	MCB - DC SUPPLY 2 ON/OFF	DC 6A DP	SIEMENS/SCHNEIDER/L&T/C&SCL/ HAVELLS/LEGRAND
PBS3	PUSH BUTTON - CAPACITOR DISCHARGING	COLOR - BLUE (WITH 1NO+1NC)	TEKNIC/SCHNEIDER/SIEMENS/DAV/ VAISHNOV/ESSEN
Rc	RESISTOR	500 OHM, 20W RESISTOR	PEC/JAYKAY/GALAXY/REPUTED
Rd	RESISTOR	500 OHM, 25W RESISTOR	PEC/JAYKAY/GALAXY/REPUTED
S	SOCKET	6PIN, 5/15AMP	OSWAL/ANCHOR/EQUIVALENT
TB1	TERMINAL BLOCK	TYPE : OTTA 2.5, STUD TYPE	ELMEX/CONNECTWELL
TB2	TERMINAL BLOCK	TYPE : OTTA 2.5, STUD TYPE	ELMEX/CONNECTWELL
TH	THERMOSTAT	30deg. TO 80deg. C	APT/GRISHEGO
TNC	TRIP-NEUTRAL-CLOSE SWITCH	25 AMP, 4 POLE, ROTARY CAM	KAYCEE/SALZER/SWITRON
94	CONTACTOR - ANTI PUMPING	2NO+2NC 220V DC	SIEMENS/SCHNEIDER/L&T/C&SCL


SPECIFICATION SHEET FOR MECHANISM CUBICLE

TAG	DESCRIPTION	SPECIFICATION	MAKE
52CC	CLOSING COIL	345W, 220V DC, 4W CONTINUOUS	AREVA
52TC1	TRIPPING COIL 1	345W, 220V DC, 4W CONTINUOUS	AREVA
52TC2	TRIPPING COIL 2	345W, 220V DC, 4W CONTINUOUS	AREVA
DM	DENSITY MONITOR	3NC	WIKA
LS	LIMIT SWITCH	CONTACTS : 4NO+4NC, 15AMP	AREVA
M	MOTOR	230V AC	WUXI-SAHAT/GRSCHOOPP
S1	AUXILIARY SWITCH	CONTACTS : 4NO+4NC, 15AMP	AREVA
S2	AUXILIARY SWITCH	CONTACTS : 4NO+4NC, 15AMP	AREVA
S3	AUXILIARY SWITCH	CONTACTS : 4NO+4NC, 15AMP	AREVA
S4	AUXILIARY SWITCH	CONTACTS : 4NO+4NC, 15AMP	AREVA

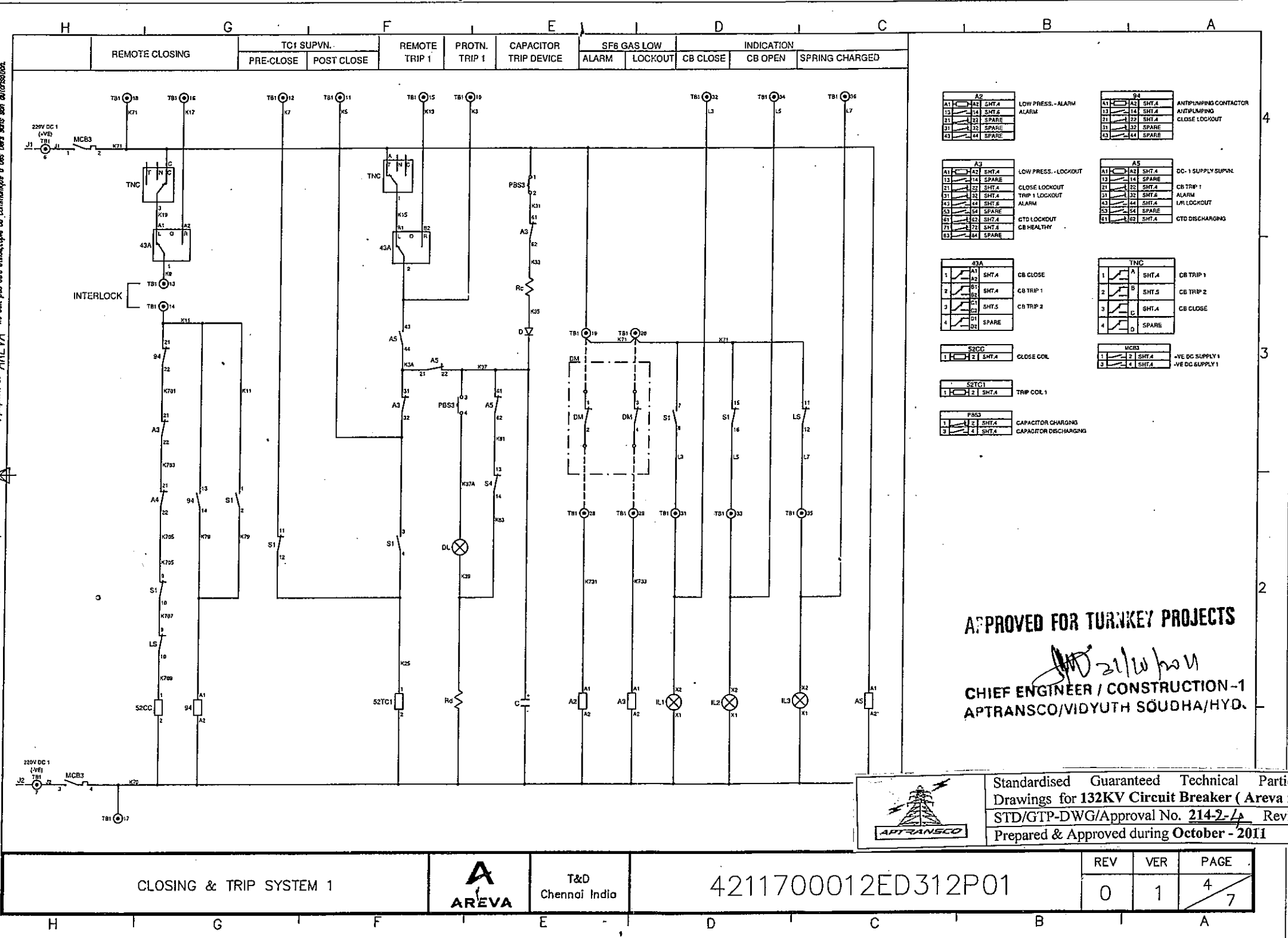
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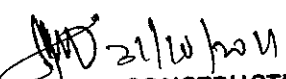
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	STD/GTP-DWG/Approval No. 2142-3 Revision No. 0	
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LEGEND	 T&D Chennai India	4211700012ED312P01	<table border="1"> <tr> <th>REV</th> <th>VER</th> <th>PAGE</th> </tr> <tr> <td>0</td> <td>1</td> <td>3/7</td> </tr> </table>	REV	VER	PAGE	0	1	3/7
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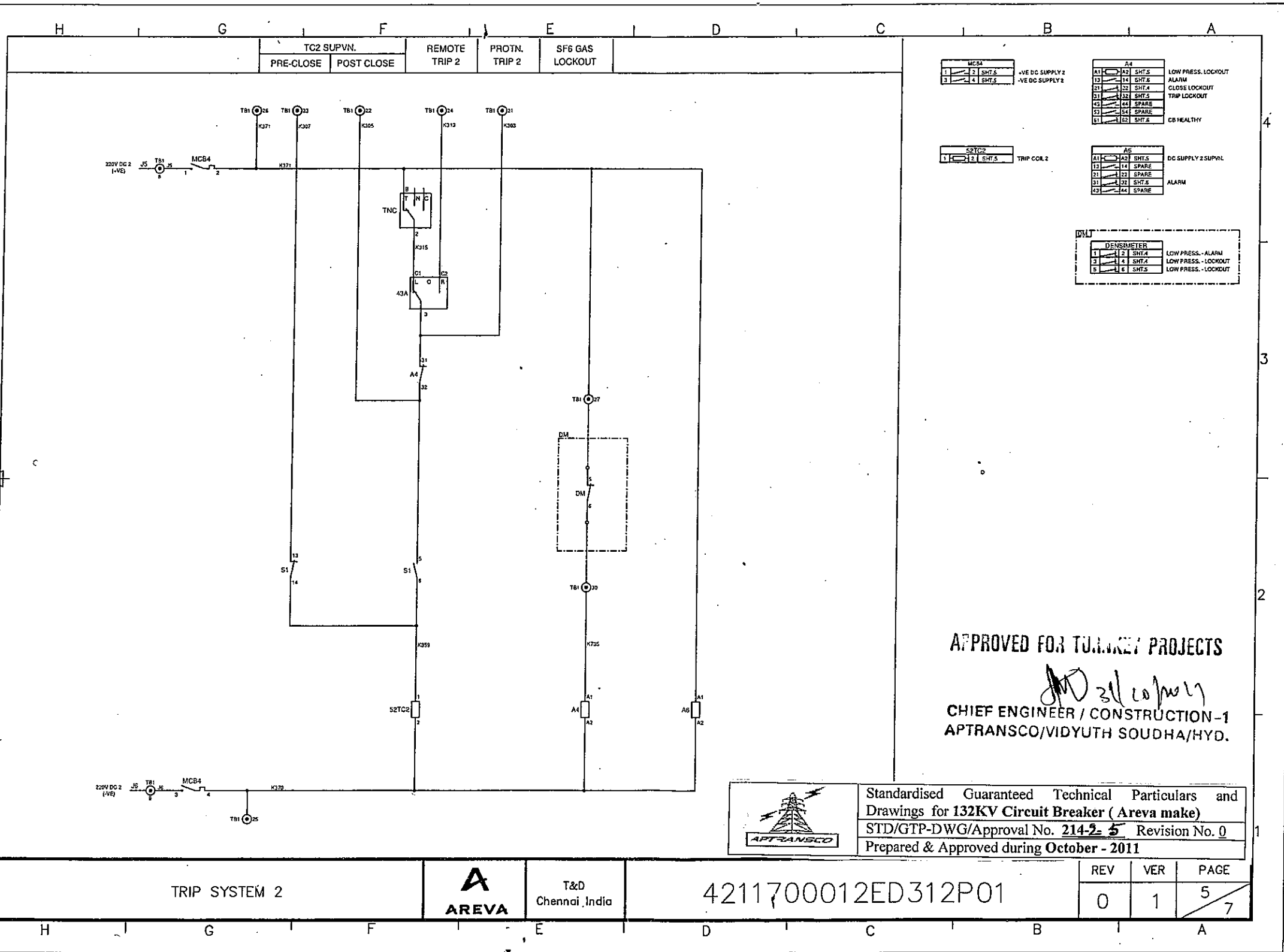


A2 A1 -> A2 SHT.A B1 -> B2 SHT.B C1 -> C2 SPARE D1 -> D2 SPARE E1 -> E2 SPARE		LOW PRESS. - ALARM ALARM	94 A1 -> A2 SHT.A B1 -> B2 SHT.A C1 -> C2 SHT.A D1 -> D2 SPARE E1 -> E2 SPARE		ANTIPLANNING CONTACTOR ANTIPLANNING CONTACTOR CLOSE LOCKOUT
A2 A1 -> A2 SHT.A B1 -> B2 SPARE C1 -> C2 SHT.A D1 -> D2 SHT.A E1 -> E2 SHT.A F1 -> F2 SHT.A G1 -> G2 SPARE H1 -> H2 SPARE		LOW PRESS. - LOCKOUT CLOSE LOCKOUT TRIP 1 LOCKOUT ALARM CTD LOCKOUT CB HEALTHY	AS A1 -> A2 SHT.A B1 -> B2 SPARE C1 -> C2 SHT.A D1 -> D2 SHT.A E1 -> E2 SHT.A F1 -> F2 SHT.A		DC-1 SUPPLY SUPRN CB TRIP 1 ALARM L/R LOCKOUT CTD DISCHARGING
43A 1 -> A1 SHT.A 2 -> B1 SHT.A 3 -> C1 SHT.S 4 -> D1 SPARE		CB CLOSE CB TRIP 1 CB TRIP 2	TNC 1 -> A SHT.A 2 -> B SHT.S 3 -> C SHT.A 4 -> D SPARE		CB TRIP 1 CB TRIP 2 CB CLOSE
S2CC 1 -> A1 SHT.A 2 -> B1 SHT.A		CLOSE COL	UCB3 1 -> A SHT.A 2 -> B SHT.A 3 -> C SHT.A		-VE DC SUPPLY 1 -VE DC SUPPLY 1
S2TC1 1 -> A1 SHT.A 2 -> B1 SHT.A		TRIP COL 1			
PMS 1 -> A SHT.A 2 -> B SHT.A 3 -> C SHT.A		CAPACITOR CHARGING CAPACITOR DISCHARGING			

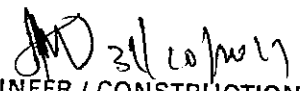
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 STD/GTP-DWG/Approval No. 214-2-1/ Revision No. 0
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MCS1		-VE DC SUPPLY 2		A4		LOW PRESS. LOCKOUT
1	2	1	2	A1	A2	ALARM
3	4	1	2	A3	A4	CLOSE LOCKOUT
		1	2	A5	A6	TRIP LOCKOUT
		1	2	A7	A8	TRIP LOCKOUT
		1	2	A9	A10	CB HEALTHY
		1	2	A11	A12	
		1	2	A13	A14	
		1	2	A15	A16	
		1	2	A17	A18	
		1	2	A19	A20	
		1	2	A21	A22	
		1	2	A23	A24	
		1	2	A25	A26	
		1	2	A27	A28	
		1	2	A29	A30	
		1	2	A31	A32	
		1	2	A33	A34	
		1	2	A35	A36	
		1	2	A37	A38	
		1	2	A39	A40	
		1	2	A41	A42	
		1	2	A43	A44	
		1	2	A45	A46	
		1	2	A47	A48	
		1	2	A49	A50	
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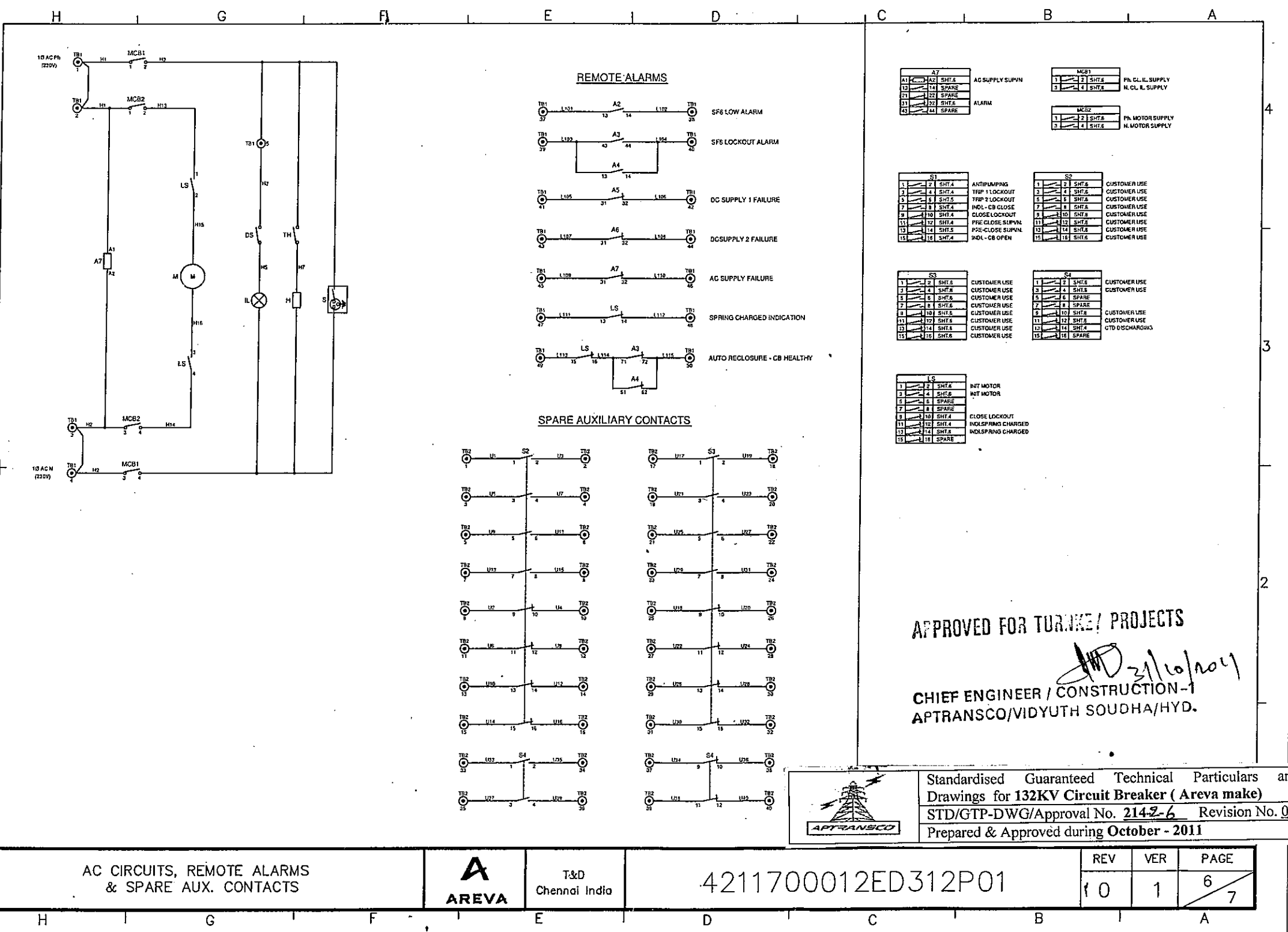
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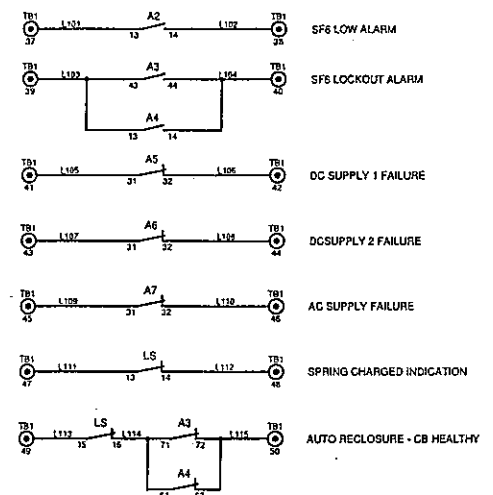
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 Prepared & Approved during October - 2011

TRIP SYSTEM 2		 T&D Chennai, India	4211700012ED312P01	REV	VER	PAGE
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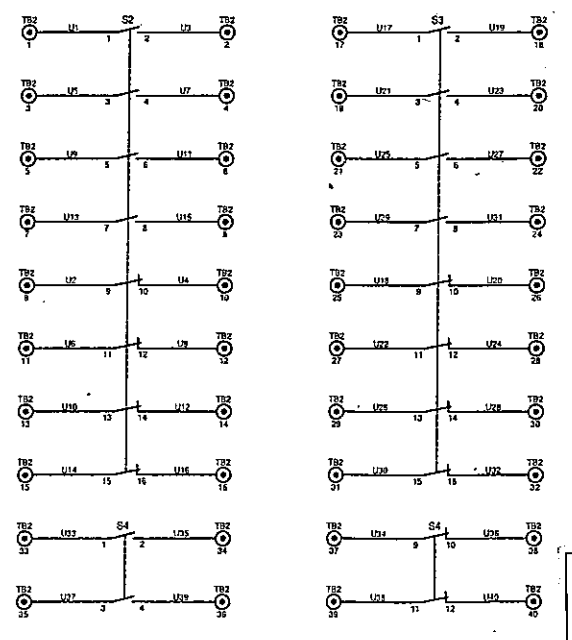
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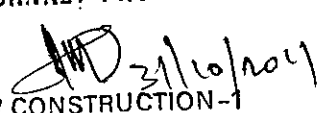
REMOTE-ALARMS





SPARE AUXILIARY CONTACTS



A7 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		AC SUPPLY SUPPLY 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	
A2 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		ALARM 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	
S1 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		ANTIPUMPING 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	
S3 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		CUSTOMER USE 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	
S4 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		CUSTOMER USE 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	
LS 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6		INT MOTOR 1 - 2 SH1.6 3 - 4 SH1.6 5 - 6 SH1.6 7 - 8 SH1.6 9 - 10 SH1.6 11 - 12 SH1.6 13 - 14 SH1.6 15 - 16 SH1.6	

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSKO/VIDYUTH SOUDHA/HYD.


Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
 STD/GTP-DWG/Approval No. **2142-6** Revision No. **0**
 Prepared & Approved during **October - 2011**

AC CIRCUITS, REMOTE ALARMS & SPARE AUX. CONTACTS			T&D Chennai India	4211700012ED312P01	<table border="1"> <tr> <th>REV</th> <th>VER</th> <th>PAGE</th> </tr> <tr> <td>10</td> <td>1</td> <td>6</td> </tr> <tr> <td></td> <td></td> <td>7</td> </tr> </table>	REV	VER	PAGE	10	1	6			7
REV	VER	PAGE												
10	1	6												
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H | G | F | E | D | C | B | A

CUSTOMER INTERFACING

MECHANISM PANEL

CUSTOMER INTERFACING

MECHANISM PANEL

	No.	FERRULE	CROSS REF.
CB HEALTHY	50	L115	SHT.6
SPRING CHARGED INDICATION	49	L113	SHT.6
	48	L112	SHT.6
	47	L111	SHT.6
AC SUPPLY FAILURE	46	L110	SHT.6
	45	L109	SHT.6
DC SUPPLY 2 FAILURE	44	L108	SHT.6
	43	L107	SHT.6
DC SUPPLY 1 FAILURE	42	L106	SHT.6
	41	L105	SHT.6
SF6 LOCKOUT ALARM	40	L104	SHT.6
	39	L103	SHT.6
SF6 LOW ALARM	38	L102	SHT.6
	37	L101	SHT.6
SPRING CHARGED INDICATION	36	L7	SHT.4
	35	L7	SHT.4
CB OPEN INDICATION	34	L5	SHT.4
	33	L5	SHT.4
CB CLOSE INDICATION	32	L3	SHT.4
	31	L3	SHT.4
DC 2 -VE TO REMOTE PANEL	30	K735	SHT.5
DC 2 -VE TO REMOTE PANEL	29	K733	SHT.4
REMOTE TRIP 2	28	K731	SHT.4
TC2 SUPVN PRE-CLOSE	27	K371	SHT.5
TC2 SUPVN POST-CLOSE	26	K371	SHT.5
PROTECTION TRIP 2	25	K370	SHT.5
	24	K313	SHT.5
	23	K307	SHT.5
	22	K305	SHT.5
	21	K303	SHT.5
DC 1 +VE TO REMOTE PANEL	20	K71	SHT.4
DC 1 -VE TO REMOTE PANEL	19	K71	SHT.4
REMOTE CLOSE	18	K70	SHT.4
REMOTE TRIP 1	17	K17	SHT.4
	16	K13	SHT.4
	15	K11	SHT.4
INTERLOCK	14	K9	SHT.4
TC1 SUPVN PRE-CLOSE	13	K7	SHT.4
TC1 SUPVN POST-CLOSE	12	K5	SHT.4
PROTECTION TRIP 1	11	K3	SHT.4
	10	J6	SHT.5
DC SUPPLY 2	9	J5	SHT.5
	8	J2	SHT.4
DC SUPPLY 1	7	J1	SHT.4
	6	H3	SHT.6
	5	H2	SHT.6
	4	H2	SHT.6
	3	H1	SHT.6
AC SUPPLY	2	H1	SHT.6
	1	H1	SHT.6

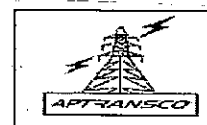
DENSIMETER

	No.	FERRULE	CROSS REF.
	50		SPARE
	49		SPARE
	48		SPARE
	47		SPARE
	46		SPARE
	45		SPARE
	44		SPARE
	43		SPARE
	42		SPARE
	41		SPARE
	40	U40	SHT.6
	39	U38	SHT.6
	38	U36	SHT.6
	37	U34	SHT.6
	36	U33	SHT.6
	35	U37	SHT.6
	34	U35	SHT.6
	33	U33	SHT.6
	32	U32	SHT.6
	31	U30	SHT.6
	30	U28	SHT.6
	29	U26	SHT.6
	28	U24	SHT.6
	27	U22	SHT.6
	26	U20	SHT.6
	25	U18	SHT.6
	24	U31	SHT.6
	23	U29	SHT.6
	22	U27	SHT.6
	21	U25	SHT.6
	20	U23	SHT.6
	19	U21	SHT.6
	18	U19	SHT.6
	17	U17	SHT.6
	16	U16	SHT.6
	15	U14	SHT.6
	14	U12	SHT.6
	13	U10	SHT.6
	12	U8	SHT.6
	11	U6	SHT.6
	10	U4	SHT.6
	9	U2	SHT.6
	8	U15	SHT.6
	7	U13	SHT.6
	6	U11	SHT.6
	5	U9	SHT.6
	4	U7	SHT.6
	3	U5	SHT.6
	2	U3	SHT.6
	1	U1	SHT.6

10NO+10NC AUXILIARY CONTACTS

APPROVED FOR TURNKEY PROJECTS

Signature 21/10/2011
 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD.

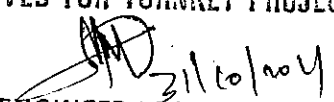


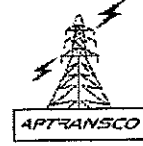
Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
 STD/GTP-DWG/Approval No. 2142-7 Revision No. 0
 Prepared & Approved during October - 2011



H G F E D C B A	TERMINAL BLOCK DETAILS	 T&D Chennai India	4211700012ED312P01	REV	VER	PAGE
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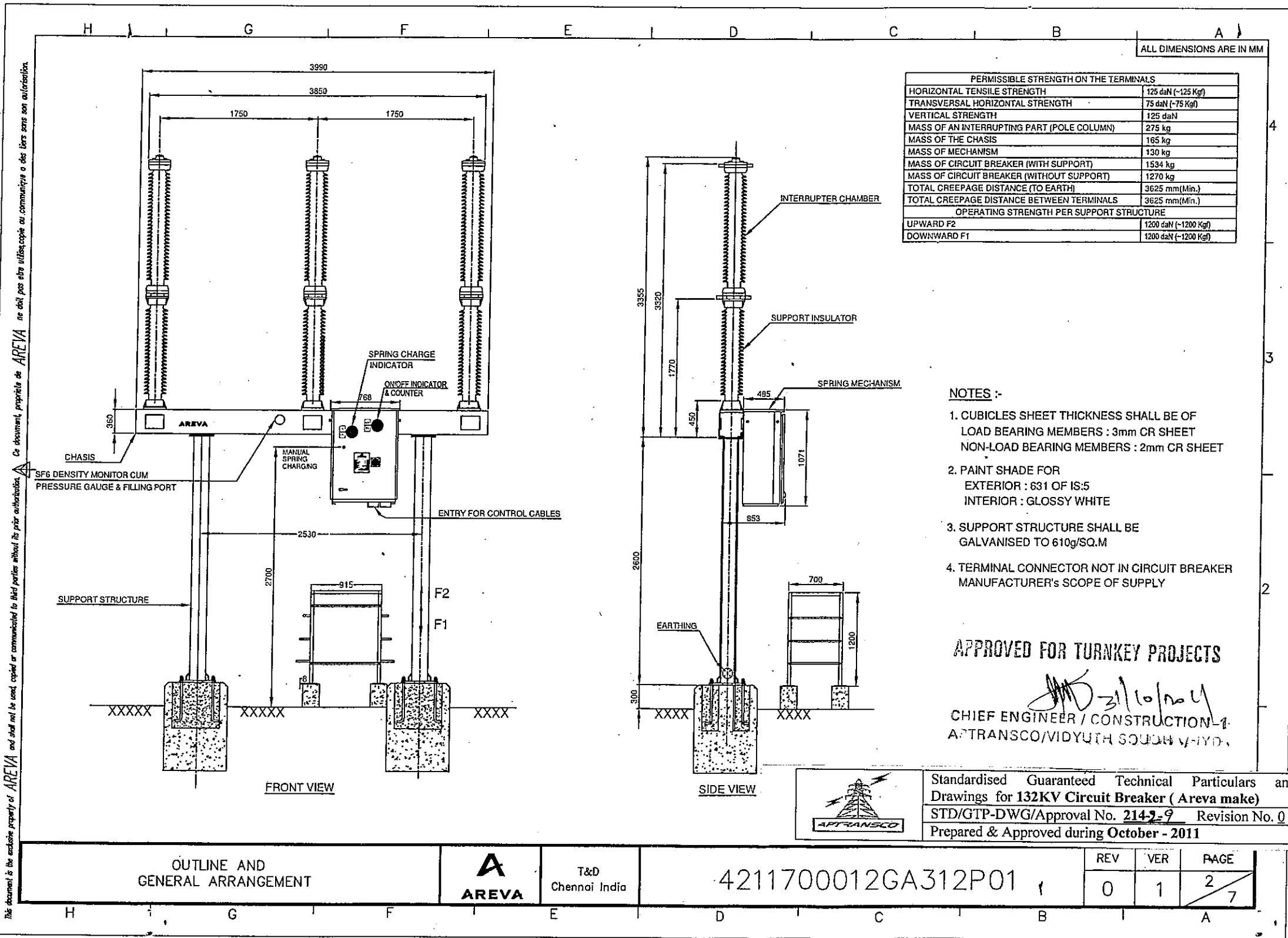
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SL NO	DRAWING NO	SHT.NO	TITLE	REV 0		REV 1		REV 2	
				DATE	DETAILS	DATE	DETAILS	DATE	DETAILS
1	4211700012GA312P01	1 of 7	CONTENTS OF GENERAL ARRANGEMENT	07.01.2011	ORIGINAL ISSUE				
2	4211700012GA312P01	2 of 7	OUTLINE AND GENERAL ARRANGEMENT	07.01.2011	ORIGINAL ISSUE				
3	4211700012GA312P01	3 of 7	FOUNDATION PLAN	07.01.2011	ORIGINAL ISSUE				
4	4211700012GA312P01	4 of 7	SUPPORT STRUCTURE	07.01.2011	ORIGINAL ISSUE				
5	4211700012GA312P01	5 of 7	MECHANISM CUBICLE	07.01.2011	ORIGINAL ISSUE				
6	4211700012GA312P01	6 of 7	EQUIPMENT LAYOUT OF MECHANISM CUBICLE	07.01.2011	ORIGINAL ISSUE				
7	4211700012GA312P01	7 of 7	PLATFORM ASSEMBLY	07.01.2011	ORIGINAL ISSUE				

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	Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
	STD/GTP-DWG/ApprovalNo. <u>214-2-8</u> Revision No. <u>0</u>
	Prepared & Approved during October - 2011

 T&D Chennai India	A3	CIRCUIT BREAKER TYPE : GL312P (145kv)	VERSION 1
	SCALE -/-		CONTENTS OF GENERAL ARRANGEMENT
MODIFICATION DATE: 07.01.2011 NAME: KRP	PAGE 1/7	4211700012GA312P01	REVISION 0



ALL DIMENSIONS ARE IN MM

PERMISSIBLE STRENGTH ON THE TERMINALS	
HORIZONTAL TENSILE STRENGTH	125 daN (~125 Kg)
TRANSVERSAL HORIZONTAL STRENGTH	75 daN (~75 Kg)
VERTICAL STRENGTH	125 daN
MASS OF AN INTERRUPTING PART (POLE COLUMN)	275 kg
MASS OF THE CHASSIS	165 kg
MASS OF MECHANISM	130 kg
MASS OF CIRCUIT BREAKER (WITH SUPPORT)	1534 kg
MASS OF CIRCUIT BREAKER (WITHOUT SUPPORT)	1270 kg
TOTAL CREEPAGE DISTANCE (TO EARTH)	3625 mm (Min.)
TOTAL CREEPAGE DISTANCE BETWEEN TERMINALS	3625 mm (Min.)
OPERATING STRENGTH PER SUPPORT STRUCTURE	
UPWARD F2	1200 daN (~1200 Kg)
DOWNWARD F1	1200 daN (~1200 Kg)

NOTES :-

- CUBICLES SHEET THICKNESS SHALL BE OF LOAD BEARING MEMBERS : 3mm CR SHEET
NON-LOAD BEARING MEMBERS : 2mm CR SHEET
- PAINT SHADE FOR
EXTERIOR : 631 OF IS:5
INTERIOR : GLOSSY WHITE
- SUPPORT STRUCTURE SHALL BE GALVANISED TO 610g/SQ.M
- TERMINAL CONNECTOR NOT IN CIRCUIT BREAKER MANUFACTURER'S SCOPE OF SUPPLY

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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SODH V-HD.



Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
STD/GTP-DWG/Approval No. 2142-9 Revision No. 0
Prepared & Approved during October - 2011

OUTLINE AND GENERAL ARRANGEMENT



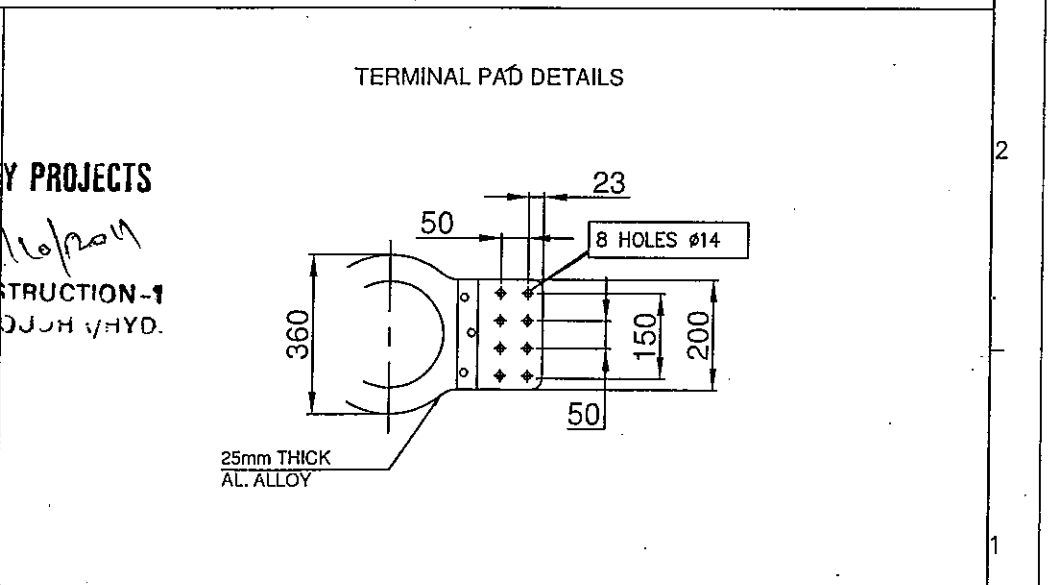
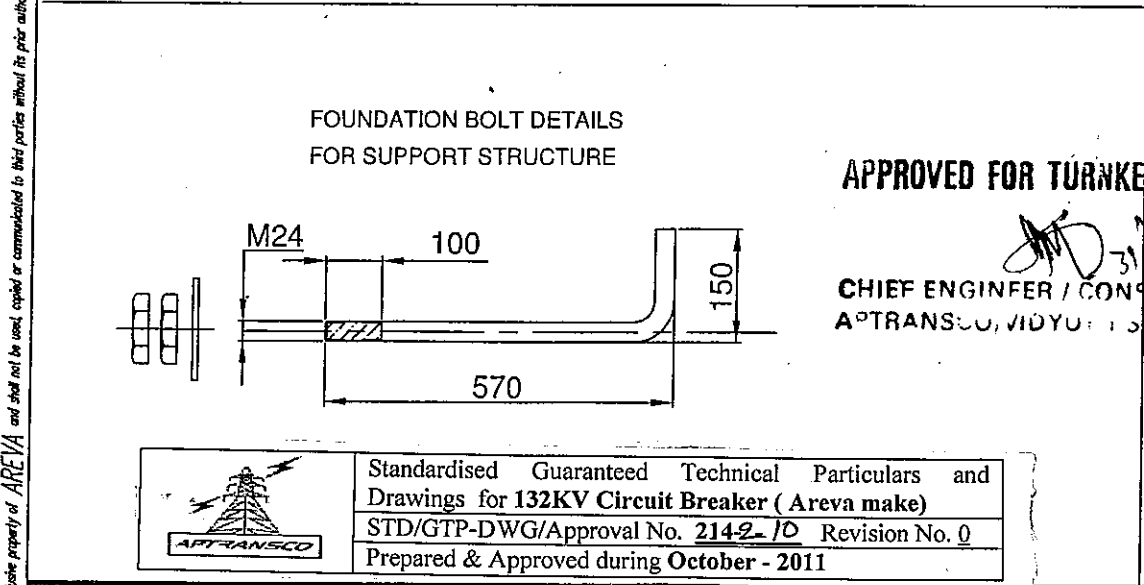
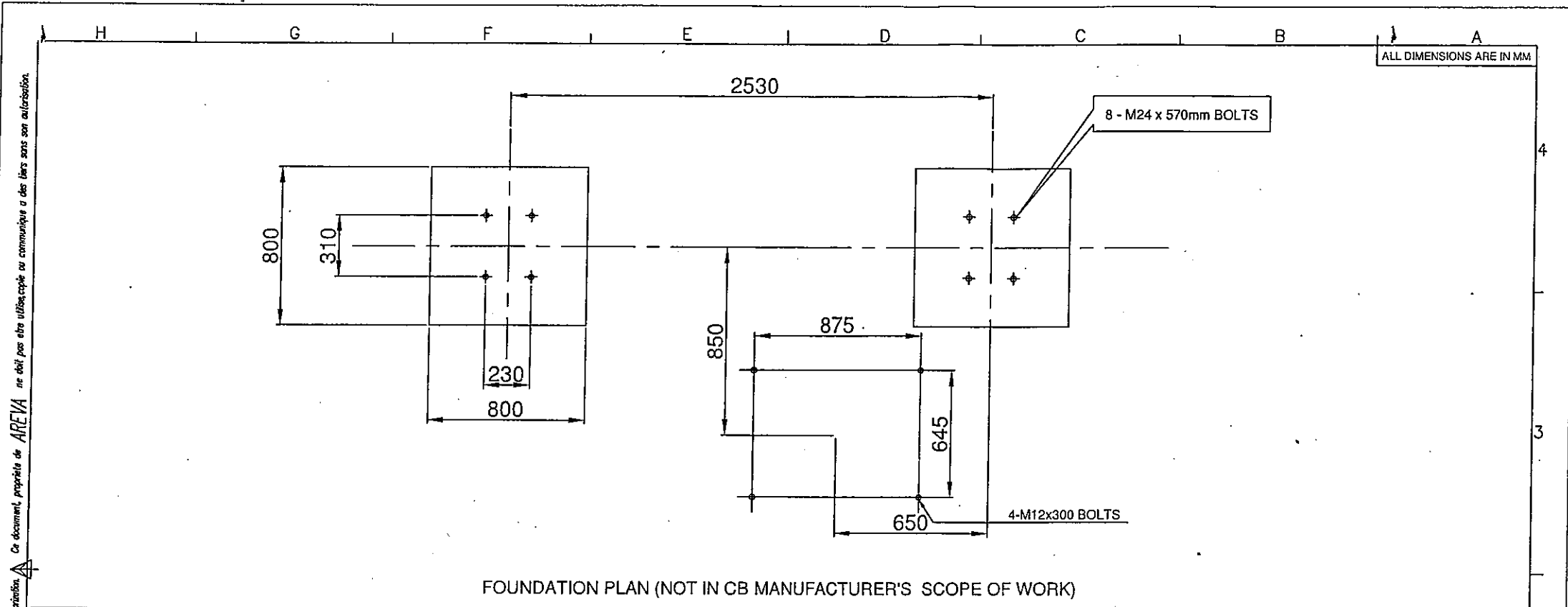
T&D
Chennai India

4211700012GA312P01

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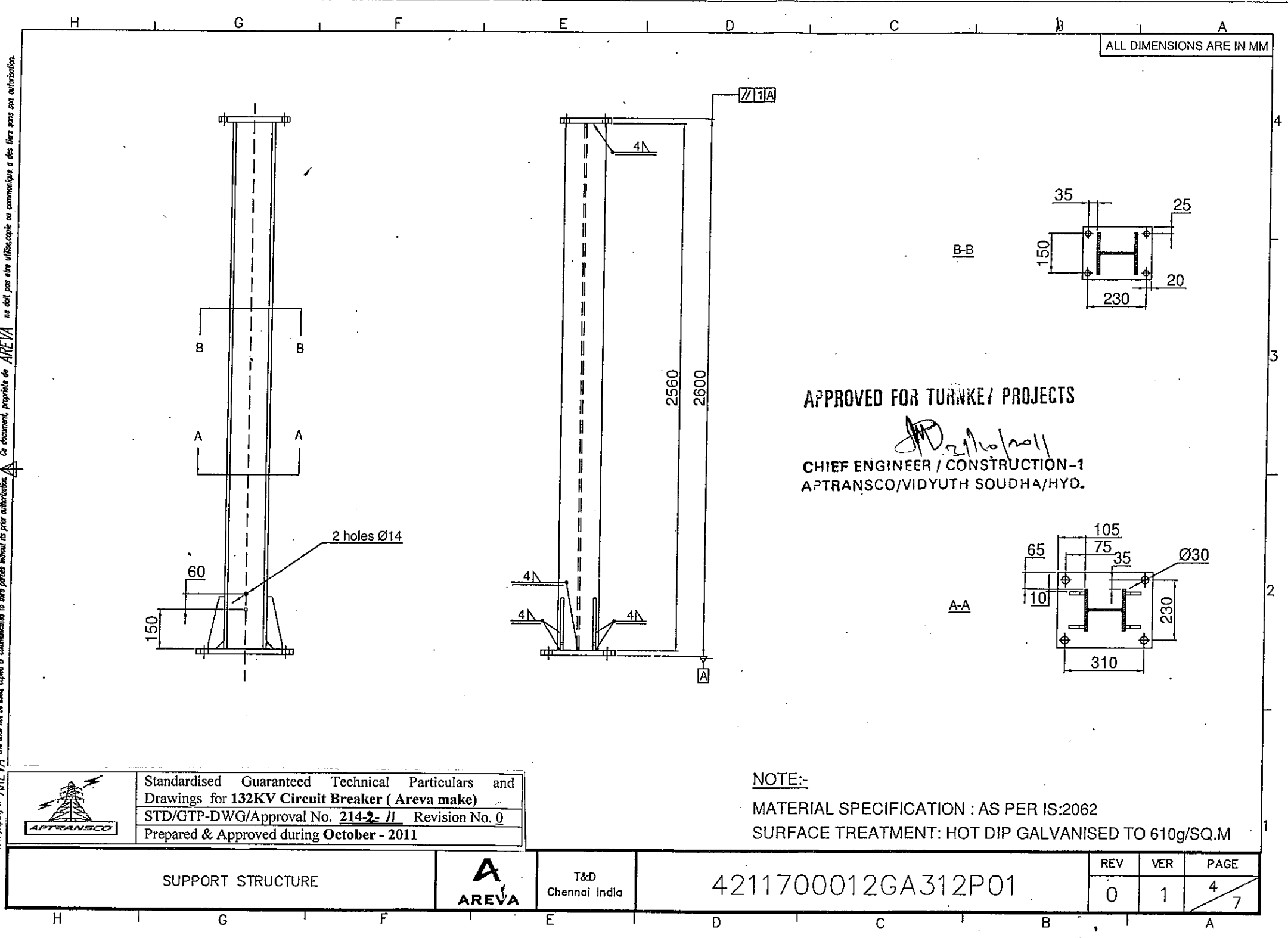
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MD 31/10/2011
CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO, VIDYUTHI SOJJI VHYD.


 Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
 STD/GTP-DWG/Approval No. 2142-10 Revision No. 0
 Prepared & Approved during October - 2011

FOUNDATION PLAN	 T&D Chennai India	4211700012GA312P01	REV	VER	PAGE
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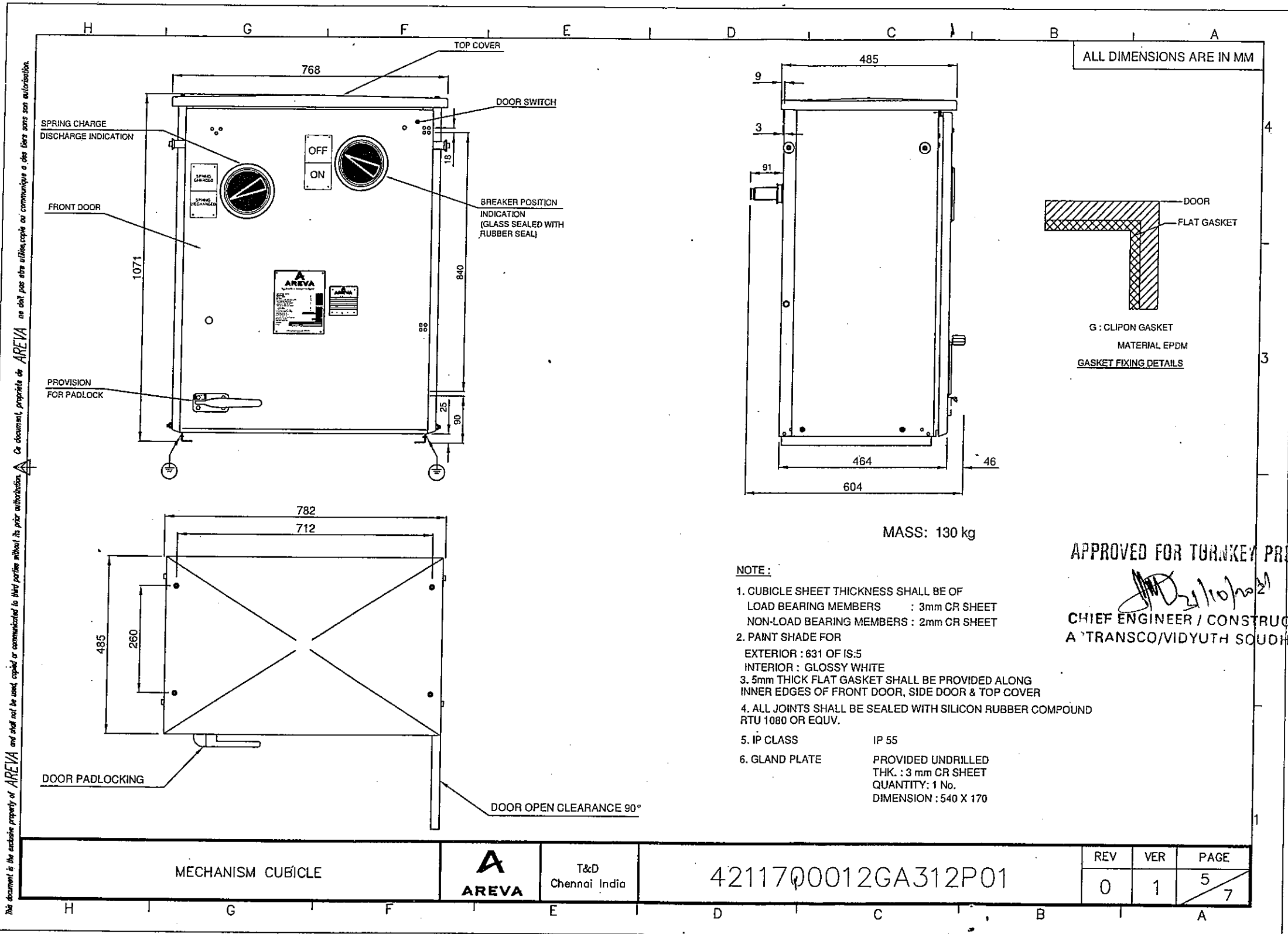
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[Signature]
 CHIEF ENGINEER / CONSTRUCTION -1
 APTRANSCO/VIDYUTH SOUDHA/HYD.

NOTE:-
 MATERIAL SPECIFICATION : AS PER IS:2062
 SURFACE TREATMENT: HOT DIP GALVANISED TO 610g/SQ.M


 Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
 STD/GTP-DWG/Approval No. 214-2-11 Revision No. 0
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SUPPORT STRUCTURE	 T&D Chennai India	4211700012GA312P01	REV	VER	PAGE
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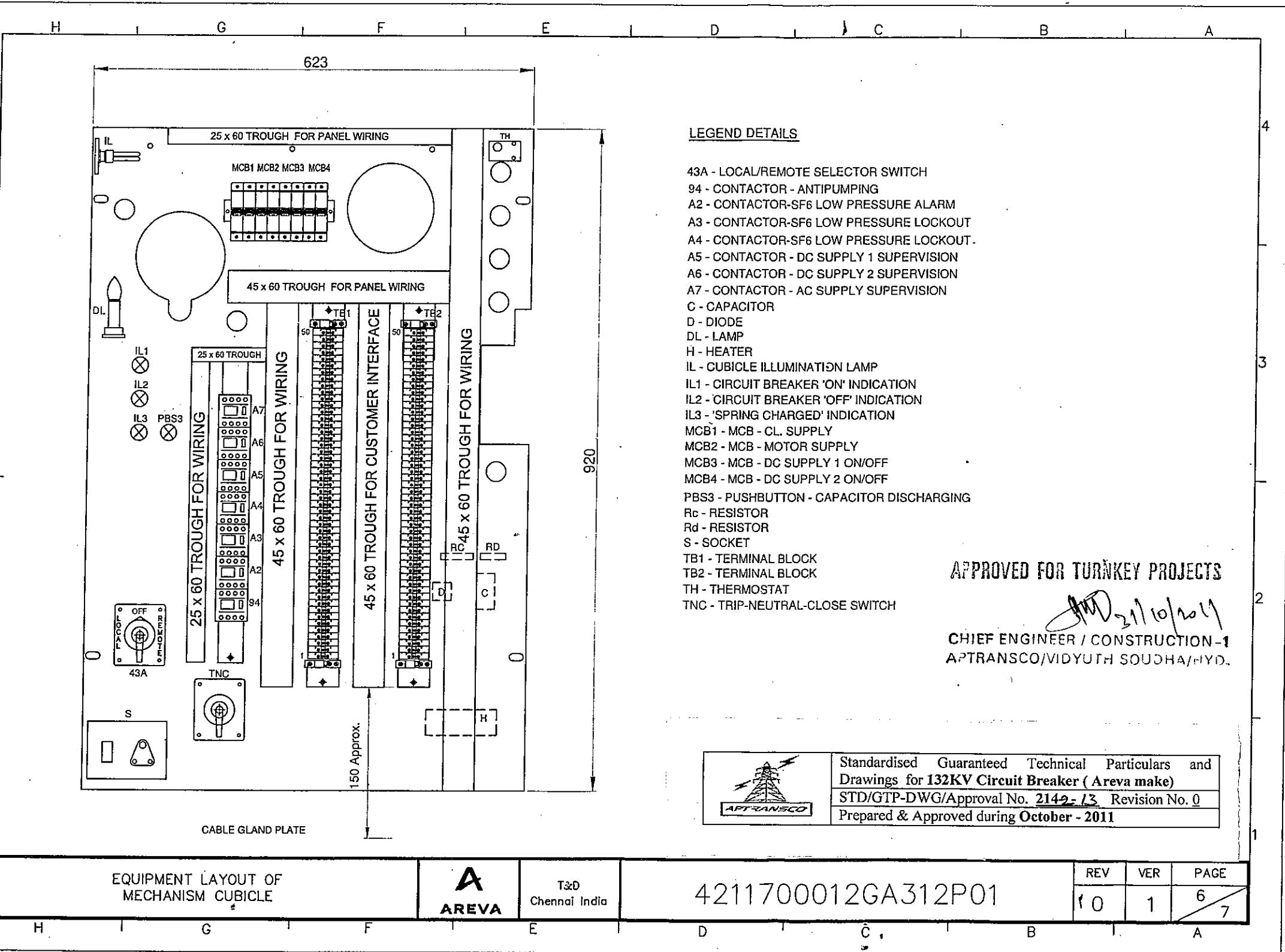
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[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
 A TRANSCO/VIDYUTH SODHA/HYD.

- NOTE:**
- CUBICLE SHEET THICKNESS SHALL BE OF
 LOAD BEARING MEMBERS : 3mm CR SHEET
 NON-LOAD BEARING MEMBERS : 2mm CR SHEET
 - PAINT SHADE FOR
 EXTERIOR : 631 OF IS:5
 INTERIOR : GLOSSY WHITE
 - 5mm THICK FLAT GASKET SHALL BE PROVIDED ALONG
 INNER EDGES OF FRONT DOOR, SIDE DOOR & TOP COVER
 - ALL JOINTS SHALL BE SEALED WITH SILICON RUBBER COMPOUND
 RTU 1080 OR EQUIV.
 - IP CLASS : IP 55
 - GLAND PLATE : PROVIDED UNDRILLED
 THK. : 3 mm CR SHEET
 QUANTITY: 1 No.
 DIMENSION : 540 X 170

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LEGEND DETAILS

- 43A - LOCAL/REMOTE SELECTOR SWITCH
- 94 - CONTACTOR - ANTIPUMPING
- A2 - CONTACTOR-SF6 LOW PRESSURE ALARM
- A3 - CONTACTOR-SF6 LOW PRESSURE LOCKOUT
- A4 - CONTACTOR-SF6 LOW PRESSURE LOCKOUT
- A5 - CONTACTOR - DC SUPPLY 1 SUPERVISION
- A6 - CONTACTOR - DC SUPPLY 2 SUPERVISION
- A7 - CONTACTOR - AC SUPPLY SUPERVISION
- C - CAPACITOR
- D - DIODE
- DL - LAMP
- H - HEATER
- IL - CUBICLE ILLUMINATION LAMP
- IL1 - CIRCUIT BREAKER 'ON' INDICATION
- IL2 - CIRCUIT BREAKER 'OFF' INDICATION
- IL3 - 'SPRING CHARGED' INDICATION
- MCB1 - MCB - CL. SUPPLY
- MCB2 - MCB - MOTOR SUPPLY
- MCB3 - MCB - DC SUPPLY 1 ON/OFF
- MCB4 - MCB - DC SUPPLY 2 ON/OFF
- PBS3 - PUSHBUTTON - CAPACITOR DISCHARGING
- Rc - RESISTOR
- Rd - RESISTOR
- S - SOCKET
- TB1 - TERMINAL BLOCK
- TB2 - TERMINAL BLOCK
- TH - THERMOSTAT
- TNC - TRIP-NEUTRAL-CLOSE SWITCH

APPROVED FOR TURNKEY PROJECTS

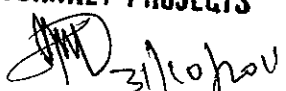
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	Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)	
	STD/GTP-DWG/Approval No. 2142-13 Revision No. 0	
	Prepared & Approved during October - 2011	



EQUIPMENT LAYOUT OF MECHANISM CUBICLE		T&D Chennai India	4211700012GA312P01	REV 10	VER 1	PAGE 6 7
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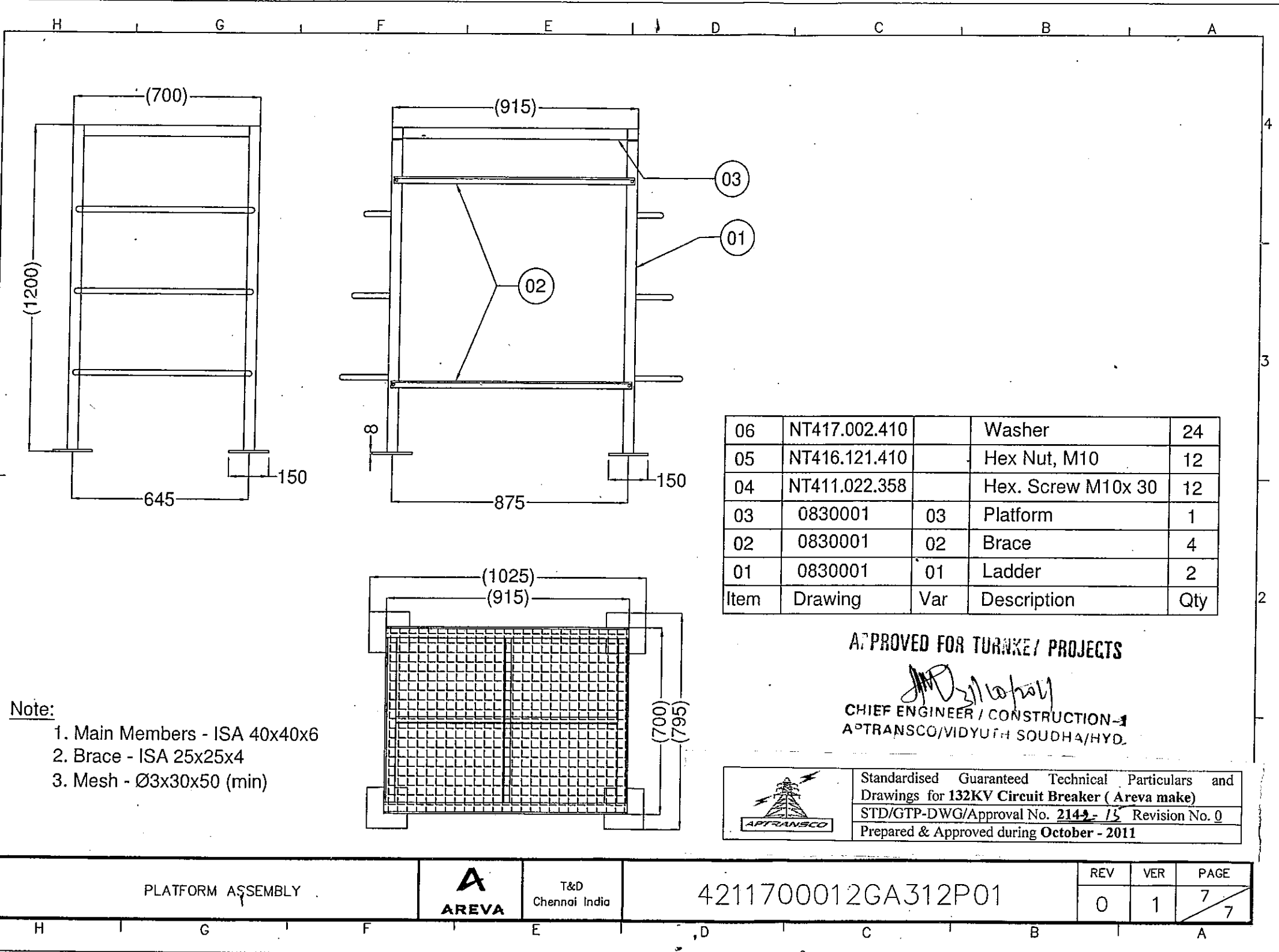
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2	4211700012NP312P01	2 of 2	NAME PLATE	07.01.2011	ORIGINAL ISSUE				

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	Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)
	STD/GTP-DWG/ApprovalNo. <u>214-2-114</u> Revision No. <u>0</u>
	Prepared & Approved during October - 2011

 T&D Chennai India	A3 SCALE -/-	CIRCUIT BREAKER TYPE : GL312P (145kV)	VERSION 1
MODIFICATION DATE: 07.01.2011 NAME: KRP		CONTENTS OF NAME PLATE	REVISION 0
APPROVED DATE: 07.01.2011 NAME: VG	PAGE 1 / 2	4211700012NP312P01	

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- Note:**
- 1. Main Members - ISA 40x40x6
 - 2. Brace - ISA 25x25x4
 - 3. Mesh - Ø3x30x50 (min)

06	NT417.002.410		Washer	24
05	NT416.121.410		Hex Nut, M10	12
04	NT411.022.358		Hex. Screw M10x 30	12
03	0830001	03	Platform	1
02	0830001	02	Brace	4
01	0830001	01	Ladder	2
Item	Drawing	Var	Description	Qty


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[Signature]
 CHIEF ENGINEER / CONSTRUCTION-1
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	Standardised Guaranteed Technical Particulars and Drawings for 132KV Circuit Breaker (Areva make)	
	STD/GTP-DWG/Approval No. 2142-15 Revision No. 0	
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AREVA

SF₆ CIRCUIT BREAKER TYPE GL312P

BREAKER SERIAL NUMBER		
RATED VOLTAGE	KV	145
NORMAL CURRENT	A	3150
FREQUENCY	Hz	50
LIGHTNING IMPULSE WITHSTAND VOLTAGE	KVp	650
FIRST-POLE-TO-CLEAR FACTOR		1.5
SHORT-TIME WITHSTAND CURRENT	kA	40
DURATION OF SHORT CIRCUIT	s	3
SHORT-CIRCUIT BREAKING CURRENT		
SYMMETRICAL	kA	40
ASYMMETRICAL	kA	46.8
SHORT-CIRCUIT MAKING CURRENT	kAp	100
OUT-OF-PHASE BREAKING CURRENT	kA	10
OPERATING SEQUENCE		O - 0.3s - CO - 3min - CO
SF ₆ GAS PRESSURE AT 20 °C	MPa(abs)	0.74
TOTAL MASS OF SF ₆ GAS	Kg	10
TOTAL MASS OF THE CIRCUIT BREAKER	Kg	1534
REFERENCE STANDARD		IEC 62271-100
YEAR OF MANUFACTURE		2011
CUSTOMER	TRANSMISSION CORPORATION OF ANDHRA PRADESH	
P.O. No.	046/2010-11 DATED 20.12.2010	


HIGH VOLTAGE SWITCHGEAR, PADAPPAI
INDIA

MAIN RATING PLATE

NOTES :-

MATERIAL : ANODISED ALUMINIUM
 TYPE OF ETCHING : PHOTO PRINTING
 BACKGROUND : SILVER
 LETTER SIZE : 4.5 MM
 THICKNESS OF PLATE : 1.4 MM

* BREAKER SL. Nos. TO BE CONFIRMED LATER



AREVA

MECHANISM CUBICLE


TYPE FK 3-1CK	
Br. Sl. No.	
MOTOR	230 V AC 50 Hz
TRIP COIL	220 V DC
CLOSE COIL	220 V DC
HEATER	230 V AC 50 Hz


HIGH VOLTAGE SWITCHGEAR, PADAPPAI
INDIA

MECHANISM RATING PLATE

APPROVED FOR TURNKEY PROJECTS

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 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD.


 Standardised Guaranteed Technical Particulars and
 Drawings for 132KV Circuit Breaker (Areva make)
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