Guaranteed Technical Particulars

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1		GENERAL	Unit	
	a)	Name of the Manufacturer		Crompton Greaves Ltd
	b)	Country of Manufacture		India
	c)	Type of Circuit Breaker		SF6 Gas Insulated
	d)	Manufacturer's type designation		120-SFM-32B
	e)	Standard applicable		IEC-62271-100 / IS 13118
	f)	Rated Voltage	kV (rms)	145
	g)	Rated Current		
	i.	under normal condition at 40 degree C ambient	A	Upto 3150
	ii.	under site condition at 50 degree C ambient	A	Upto 3150
	h)	Rated Frequency	Hz	50 / 60
	i)	Number of poles	No.	3
	j)	Whether gang operated		
	i.	Electrically		Yes
	ii.	Mechanically		Yes
	k)	Whether dead tank or live tank		Live tank
	l)	Type of installation		Outddor
	m)	Number of breaks per pole	No	1
	n)	Latching current	kAp	100
2		GUARANTEED RATINGS		
	a)	Rated short circuit breaking currents		
	i.	Symmetrical component at rated voltage	kA	40
	ii.	DC component	%	45.00%
	iii.	Asymmetrical breaking current at rated voltage	kA	47.4
	iv.	Rated symmetrical breaking capacity	MVA	10046
	v.	Rated asymmetrical breaking capacity	MVA	11907
	b)	Rated short circuit making current OR Short circuit peak withstand current		
	i.	at higher rated voltage	kA (peak)	100
	ii.	at lower rated voltage	kA (peak)	100
	c)	Break time		
	i.	Rated Break time	ms	</=60
	ii.	Maximum total break time under any duty condition for any current up to rated breaking current with limiting conditions of voltage and pressure	ms	</=60
	d)	Rated Closing time	ms	</=130
	e)	Rated Opening time	ms	</=30
	f)	Rated maximum Opening time under any condition with limiting voltage and pressure	ms	</=34
	g)	Rated Arcing time	ms	</=30
	h)	First pole to clear factor		1.5
	i)	Rated Close open time	ms	</=40 ms
	j)	Rated Short-time withstand current		
	i.	1 second	kA	40
	ii.	3 second	kA	40
	k)	Rated operating duty		O-0.3s-CO-3min-CO
	l)			L90 & L75 As per IEC-62271-100
	m)	Rated out-of-phase breaking current OR Rated breaking capacity under asynchronous condition	kA	10
	n)	Rated line charging breaking current	A	50
		Rated cable charging breaking current	A	160
	p)	Rated single capacitor bank breaking current	A	400
	q)	Corresponding over voltage during breaking capacitive current	p.u.	< 2.3

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Standardised Guaranteed Technical Particulars and Drawi
for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. 213-I-I Revision No. 0
Prepared & Approved during **October - 2011**

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	r)	Rated shunt reactor breaking current	A	315			
	s)	Maximum arc duration and corresponding breaking current under lockout pressure	ms, kA	30, 40			
	t)	Rated Small fault current breaking capacity	kA	4			
	u)	Maximum temperature rise for main contacts over an ambient temperature of 50 degree C	°C	< 55 degree C			
	v)	Rated supply voltage and pick up range for					
	i.	Trip coil	V DC	220,(70 to 110%)			
	ii.	Close coil	V DC	220, (85 to 110%)			
	w)	Normal power consumption at rated supply voltage of					
	i.	Trip Coil	W	2x635W at 220VDC			
	ii.	Close Coil	W	605W at 220VDC			
	x)	Rated pressure and limits of operation for extinguishing medium at 20 deg.C	(kg/cm^2)	7; 6 to 7			
	y)	Minimum dead time for					
	i.	Three phase reclosing	ms	300			
	ii.	Single phase reclosing	ms	NA			
	z)	Data on Restriking voltage					
	i.	Rated Breaking currents	%	100%	60%	30%	10%
	ii.	TRV Peak	kV (peak)	249	266	266	272
	v.	Rate of rise of restriking voltage	kV/µS	2	3	5	6
	aa)	No. of breaker operations before maintenance					
	i.	at rated interrupting capacity		10			
	ii.	at 50% of rated interrupting capacity		20			
	iii.	at rated normal current		1000			
	iv.	at 50% of rated normal current		3000			
	bb)	Maximum pole descrepancy during					
	i.	Opening	ms	</=3.3			
	ii.	Closing	ms	</=5			
	cc)	Minimum time interval between each make / break operations	ms	Suitable for Operating seq. O-0.3sec-CO-3min-CO			
3		**DIELECTRIC WITHSTANDS OF COMPLETE BREAKER**					
	a)	One minute dry and wet power withstand voltage					
	i.	Between live terminal	kV (rms)	275			
	ii.	Between terminal with breaker contacts open & ground	kV (rms)	275			
	b)	1.2/50 micro second impulse withstand voltage					
	i.	Between live terminal	kV (peak)	650(on demand 700kVp is available)			
	ii.	Between terminal with breaker contacts open & ground	kV (peak)	650(on demand 700kVp is available)			
	c)	Creeapage distance					
	i.	To earth	mm	3625			
	ii.	Across interruptor	mm	3625			
4		**OPERATING MECHANISM**					
	4.1	**SPRING CHARGNING MECHANISM**					
	a)	Type of operating mechanism		Motorised Spring charged mechanism			
	i.	Closing		Spring			
	ii.	Opening		Spring			
	b)	Type Designation		BM			
	c)	No. of operations possible with stored energy		O-C-O			
	4.2	**DETAILS OF SPRING CHARGNING MOTOR**					
	a)	Type of Motor		Universal			
	b)	Type of Mounting		Neck Mounted			

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	c)	Direction of rotation as viewed from non-driving end		Clockwise
	d)	Rated supply voltage and operating range	V AC	1 Ph, 240, 85-110%
	e)	Motor Wattage	W	650
	f)	Rated speed at rated voltage and frequency on no load	rpm	850
	g)	Full load current at rated voltage and frequency	A	3.6 at 240V, 50Hz AC
	h)	Efficiency of motor at rated voltage and frequency	%	50
	'i)	Starting current		< 600% at full load current
	j)	Stator winding insulation class		B
	k)	Weight	kg	3 approx.
	l)	Maximum time for charging the spring	sec.	15
	m)	Whether indication of spring charged condition provided in control cabinet		Yes
	n)	Make of Motor		KPT
5		**DATA ON SF6 GAS**		
	a)	Quantity of SF6 per pole	kg	2.5
	b)	Guaranteed maximum leakage rate	%/annum	Less than 1% per annum
	c)	Rated pressure of SF6 gas in operating chamber at 20°C	kg/cm^2	7
	d)	Operating pressure range	kg/cm^2	6.0 - 7.0
	f)	Capacity of SF6 gas cylinder	kg	11
	g)	Spare gas provided		20%
	h)	Whether breakers are dispatched filled with gas		Partially filled to 0.5 to 1 kg/cm^2 dispatched filled with gas for transportation & storage to be topped at site
	i)	Parameters of SF6 gas		As per IEC-600376
	j)	Gas pressure settings at 20°C)		
	i.	Low pressure alarm at	kg/cm^2	$6.5^{+/-0.3}$
	ii.	Lockout pressure for		
		a) Opening	kg/cm^2	$6.0^{+/-0.3}$
		b) Closing	kg/cm^2	$6.0^{+/-0.3}$
6		**GENERAL DIMENSIONS**		
	a)	Over all Dimensions		
	i.	Length	mm	4000
	ii.	Width	mm	800
	iii.	Height	mm	5450
	b)	Weight of complete breaker for foundation design	kg	1450
	c)	Weight of each pole	kg	335
	d)	Weight of Mechanism + Housing + Base frame	kg	560
	e)	Weight of the heaviest part of the breaker	kg	560
	f)	Impact loading for foundation design		
	i.	Downwords	kg	2000
	ii.	Upwords	kg	2000
	g)			
	h)	Seismic level	g	0.5
	i)	Minimum clearance in air		
	i.	Between live parts	mm	1280
	ii.	Between phases (Centre to Centre)	mm	1700
	iii.	Live parts to earth	mm	1200
	iv.	Live parts to ground level including plinth of 300 mm	mm	3790
	j)	Noise level distance of		
	i.	0M from the breaker	db	< 140
	ii.	50 M from the breaker	db	< 140

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	iii.	100M from the breaker	db	< 140
	iv.	150M from the breaker	db	< 140
	k)	Packing Dimensions		
	i.	Pole Unit Assy (2 nos in one case)	mm	3300 X 1260 X 810(H)
	ii.	Pole Unit Assy (1 no in one case)	mm	3300 X 800 X 810(H)
	iii.	Mechanism Housing Assy.(1 no in one case)	mm	4040x900x1470(H)
	iv.	Marshalling box (Total 1 no)	mm	NA
7		**CONSTRUCTIONAL DETAILS**		
	a)	Weight of absorbant per pole	gm	300
	b)	Whether arcing contacts are provided		Yes
	c)	Type and material of arcing contacts		Tulip, Copper-Tungsten
	d)	Type and Material of main contacts		Finger, Copper-Chromium
	e)	Whether main contacts are silver plated / Silver plating thickness		Yes / 25 microns
	f)	Contact pressure on main contacts	kg/mm	0.3
	g)	Length of contact separation	mm	120
	h)	Length of contact travel	mm	150
	i)	Rate of contact travel		
	i.	Opening	m/s	4.2 - 5.0
	ii.	Closing	m/s	1.8 -2.2
	k)	Wheather the making & breaking contacts are hermatically sealed		Yes
	l)	No. of spare auxiliary contacts provided for Owner's use		
	i.	Normally Open when breaker is open		8/9/10
	ii.	Normally Closed when breaker is open		8/9/10
	m)	Rated voltage of auxillary contacts	V DC	250
	n)	Type of auxiliary contacts		Rotary
	o)	Continuous Current Carrying Capacity	A	20
	p)	DC breaking current with 20 ms time constant	A	7.5 A at 264 VDC
	q)	Whether auxiliary contacts are sliver plated		Yes
	r)	Finish of exposed ferrous parts		Hardware are HDG/SS
	s)	Finish paint		As per customer requirement
	i.	Offered to Domestic Customer's		Shade 631 of IS 5
	ii.	Offered to International Customer's		Shade RAL 7032
	t)	Finish for Support Structure OR Columns		Hot Dip Galvanised
	u)	Make of support porcelains		ARGILON-GERMANY/SARVANA(SIL)/LIAONING SHUANGLING/FUSHUN HIGH TECH ELECTRIC/ LILING HUAXIN/LILING PUKOU INSULATORS/PRATHAMESH CERAMICS/IEC/ MODERN
9		**VALIDATED OPERATING CONDITIONS**		
	a)	Maximum ambient air temperature	^{o}C	50
	b)	Minimum ambient air temperature	^{o}C	-20
	c)	Maximum relative humidity	%	100%
	d)	Wind load / Wind velocity	$kg/cm^2/m/sec.$	260/80
	e)	Seismic Level	g	0.5
	f)	Altitude	m	1000
	g)	Maximum annual rain fall	mm	3000
	h)	Average thunder storms days per year	No.	80
	i)	Maximum DC supply voltage variation		
	i.	Closing	%	+/-20
	ii.	Opening	%	-30, +20
	j)	Maximum AC supply voltage variation	%	+/-10
	k)	Degree of pollution as per IEC 815		CL-III, Heavily polluted

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

STD/GTP-DWG/Approval No. **213-I-H** Revision No. **0**

Prepared & Approved during **October - 2011**

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	l)	Wheather breaker is suitable for tripping at 50% of DC supply voltage		Yes
	m)	Wheather breaker is suitable to work under hot humid climate, chemically polluted atomsphere, fumes, fungus and salt spray conductive rust.		Yes

VALIDATED MULTIPLE USES:

EHV/HV SUBSTATIONS (IN INDIA AS WELL AS IN OTHER COUNTRIES)
INDUSTRIAL PROJECTS
STEEL PLANT
LINE APPLICATIONS
GENERATOR APPLICATIONS
HILLY AREAS/HIGHER ALTITUDE IN EXCESS OF 1000M

NOTE: -

1) THE BREAKERS ARE VALIDATED FOR OPERATING CONDITIONS AND MULTIPLE USES AS ABOVE . FOR OPERATING CONDITIONS DIFFERENT THAN ABOVE PLEASE REFER TO DESIGN DEPARTMENT

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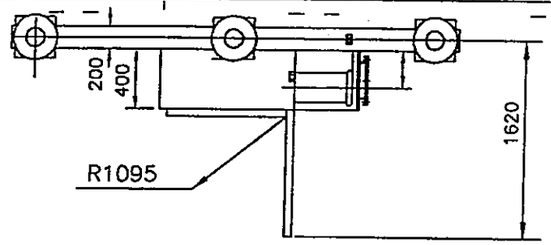
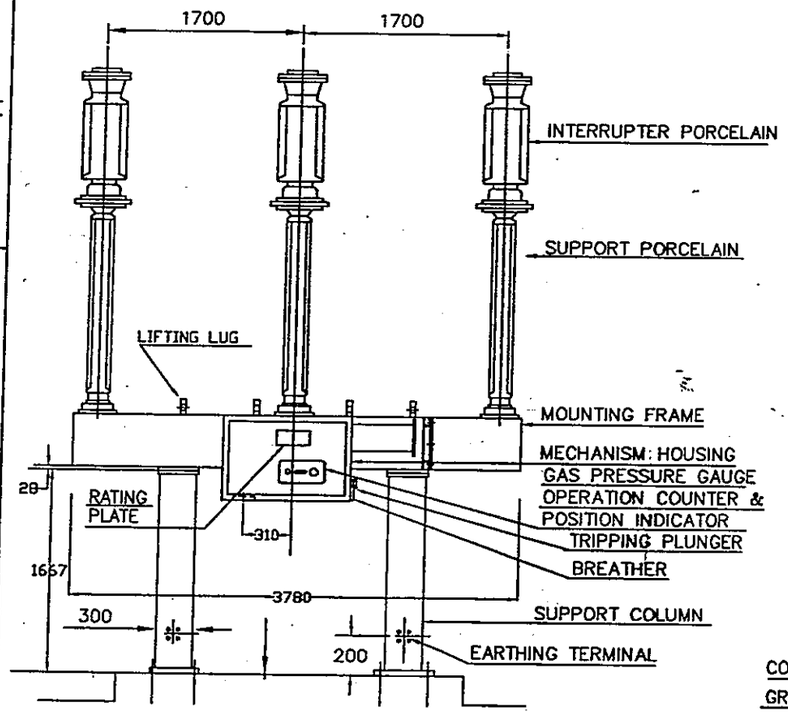
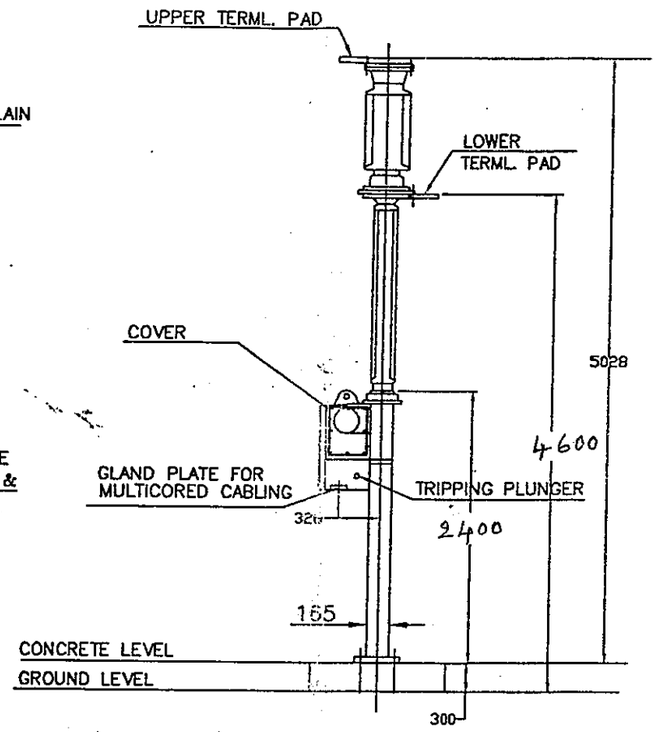
Standardised Guaranteed Technical Particulars and Drawings for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. 213-I -5 Revision No. 0
Prepared & Approved during **October - 2011**

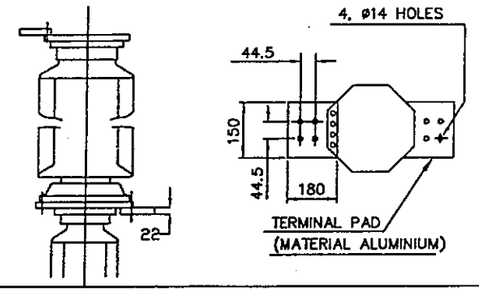
DRG.NO.:CG-145GD-GA/1 /R0



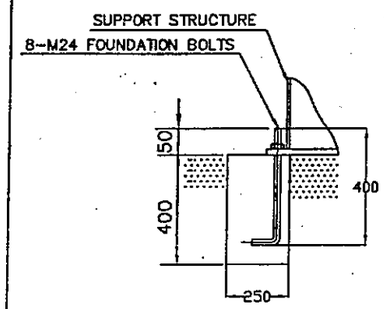




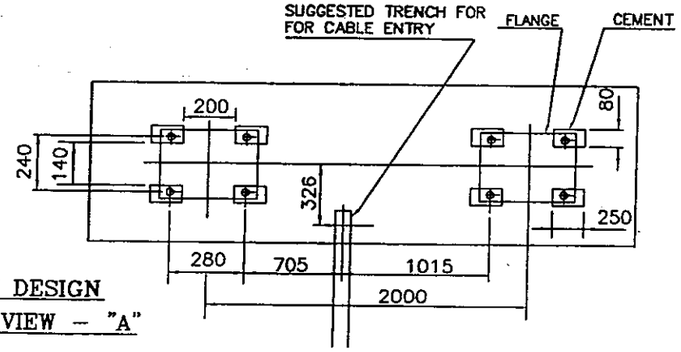
NOTE:- CLEAN BOTH CONNECTING SURFACES OF TERMINAL PADS AND TERMINAL FLANGE WITH SAND PAPER AND COAT SUPPLIED COMPOUND BEFORE CONNECTING.



DETAIL OF UPPER AND LOWER TERMINAL PADS



DETAIL OF FOUNDATION BOLT



FOUNDATION DESIGN
DETAILS OF VIEW – "A"

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.
7)MAKE OF INSULATORS:MODERN/ABIL/IEC ARGILON-GERMANY/SARVANA(SIL)/LIAONING SHUANGLING/ FUSHUN HIGH TECH ELECTRIC/ LILING HUAXIN/ LILING PUKOU INSULATORS/PRATHAMESH CERAMICS

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NO	REVISION	NAME	DATE
5			
4			
3			
2			
1			

NAME	TENDER PURPOSE
DRN	
CHD	
APPD	
SCALE: N.T.S.	
DATE:	

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Standardised Guaranteed Technical Particulars and Drawings for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. **213-2-1** Revision No. **0**
Prepared & Approved during **October - 2011**

TITLE: GENERAL ARRANGEMENT
FOR: 145KV, 40 KA, SP-SP
GCB TYPE: 120-SFM-32B
ALL DIMENSIONS ARE IN mm

THIRD ANGLE PROJECTION

Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

DRG.NO:CG-145GD-GA1/1 R0

DRG.NO:CG-145GD-RP1/1 R0

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Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

GAS CIRCUIT BREAKER

TYPE 120–SFM–32B	STD IEC: 62271–100	SR. NO. : *	YEAR 2011
RATED VOLTAGE	145 kV	RATED FREQUENCY	50 Hz
RATED NORMAL CURRENT	1600 A	RATED MAKING CAPACITY	100 kAp
RATED SHORT CIRCUIT BREAKING CURRENT	40 kA	RATED SHORT TIME CURRENT 40 kA FOR 3 SECONDS	
RATED OUT OF PHASE BREAKING CURRENT	10 kA	FIRST POLE TO CLEAR FACTOR	1.5
RATED LIGHTNING IMPULSE WITHSTAND VOLTAGE	650 kVp	RAT.OPR.SEQ. O–0.3SEC–CO–3MIN–CO	
RATED SF6 GAS PRESSURE 7 kg/cm^2–g(AT 20°C)		GAS WT 8 Kg	TOTAL WT. 1550 Kg
RATED COIL VOLTAGE – CLOSING	220 V DC ,TRIPPING	220 V DC	
MOTOR VOLTAGE 240 V AC		AUX CIRCUIT VOLTAGE 1ø,240V AC,50 Hz.	

CUSTOMER:–

P.O.NO:–

118

NOTE: –

MATERIAL: STAINLESS STEEL 0.5THK

" * " (SR. NO.) :– –QTY– NOS.

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STD/GTP-DWG/Approval No. 213-1-2. Revision No. 0
Prepared & Approved during **October - 2011**

NO	REVISION	NAME	DATE
5			
4			
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DRN | CHD | APPD | SCALE: N.T.S. | DATE:

NAME | TENDER PURPOSE

TITLE: RATING PLATE DETAILS

FOR: 145KV, 40 KA, SP–SP

GCB TYPE: 120–SFM–32B

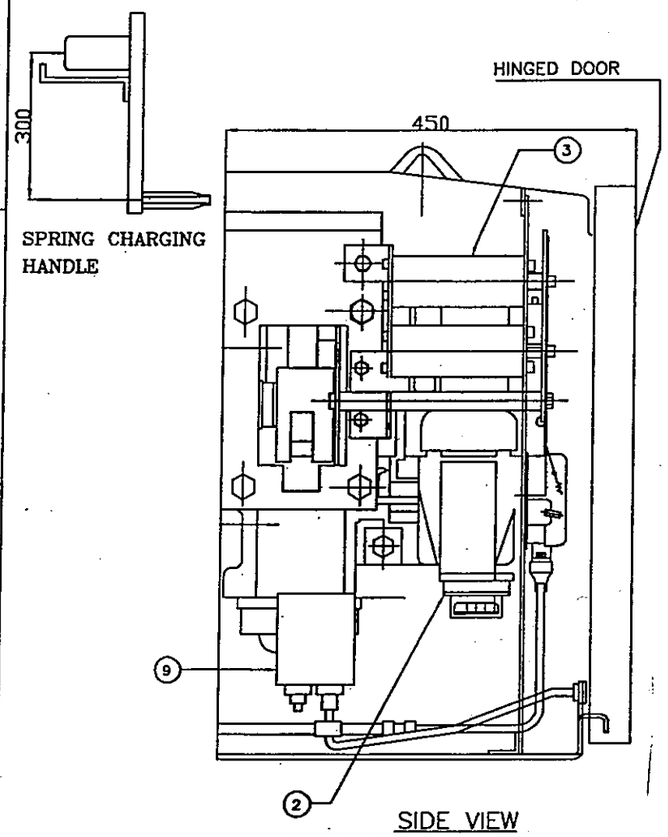
ALL DIMENSIONS ARE IN mm

THIRD ANGLE PROJECTION

Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

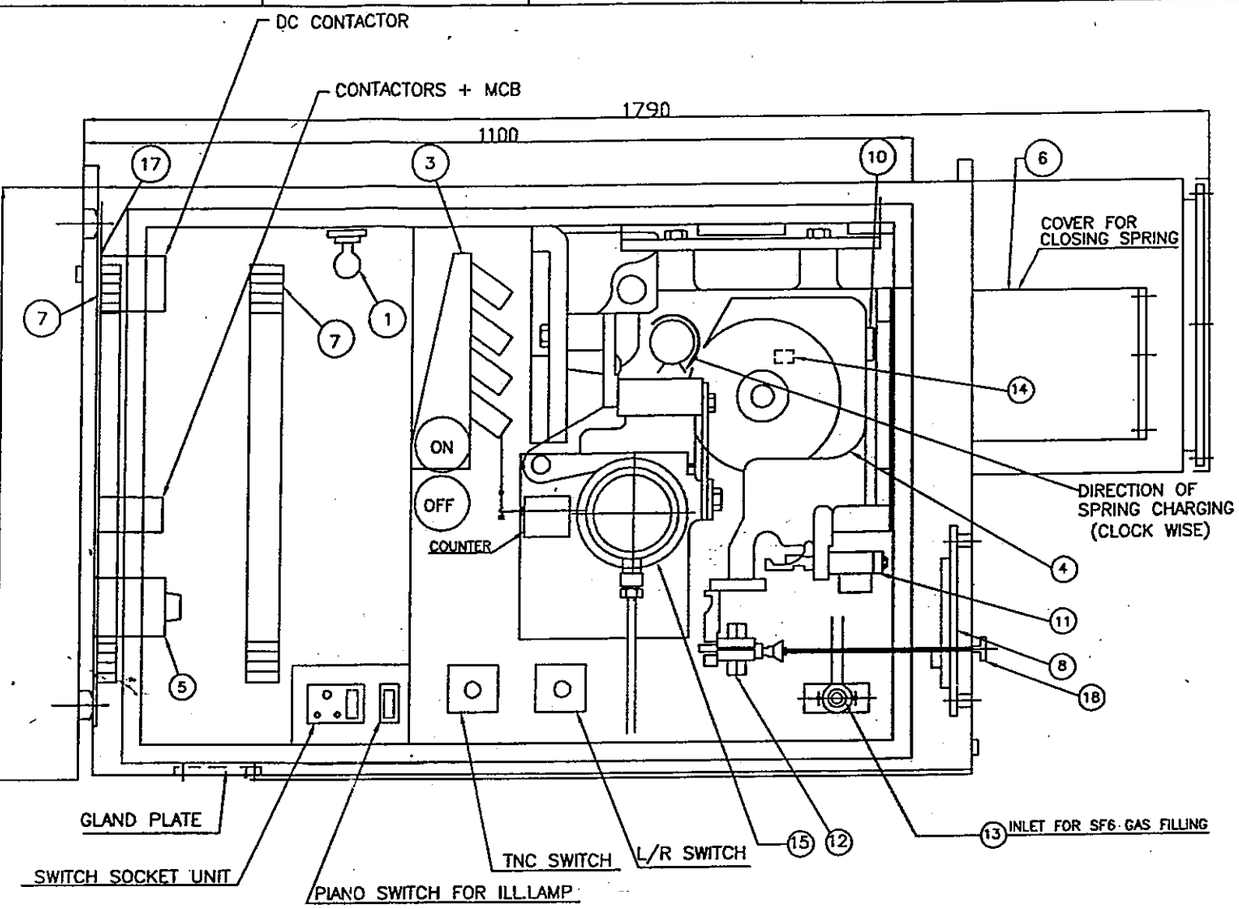
DRG.NO:CG–145GD–RP1/1 R0

DRG.NO.:CG-145GO-MECH 1/1 RO

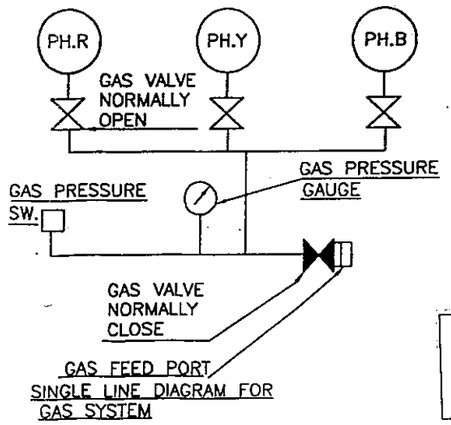


SIDE VIEW

SINO	DESCRIPTION	QTY.
1	ILLUM-LAMP	1
2	MOTOR	1
3	AUX.SWITCHES ASSY	1
4	MECHANISM BASE	1
5	THERMOSTAT.	1
6	SPRING COVER	1
7	TERMINAL BLOCKS ROW	2
8	SPACE HEATER	1
9	----------	1
10	SHOCK ABSORBER	1
11	CLOSING COIL	1
12	TRIPPING COILS 1&2	1
13	GAS FILLING PORT (DILO)	1
14	LIMIT SWITCH	1
15	GAS PRESS. GAUGE	1
16	--	--
17	CONTROL PANEL	1
18	TRIPPING PLUNGER	1



FRONT VIEW



SINGLE LINE DIAGRAM FOR GAS SYSTEM

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Standardised Guaranteed Technical Particulars and Drawings for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. **213-2-3** Revision No. 0
Prepared & Approved during **October - 2011**

NO	REVISION	NAME	DATE
5			
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DRN
CHD
APPD
SCALE: N.T.S.
DATE:
NAME TENDER PURPOSE

TITLE: MECHANISM HOUSING ASSY.
FOR: 145KV, 40KA, SP-SP
GCB TYPE: 120-SFM-32B
ALL DIMENSIONS ARE IN mm

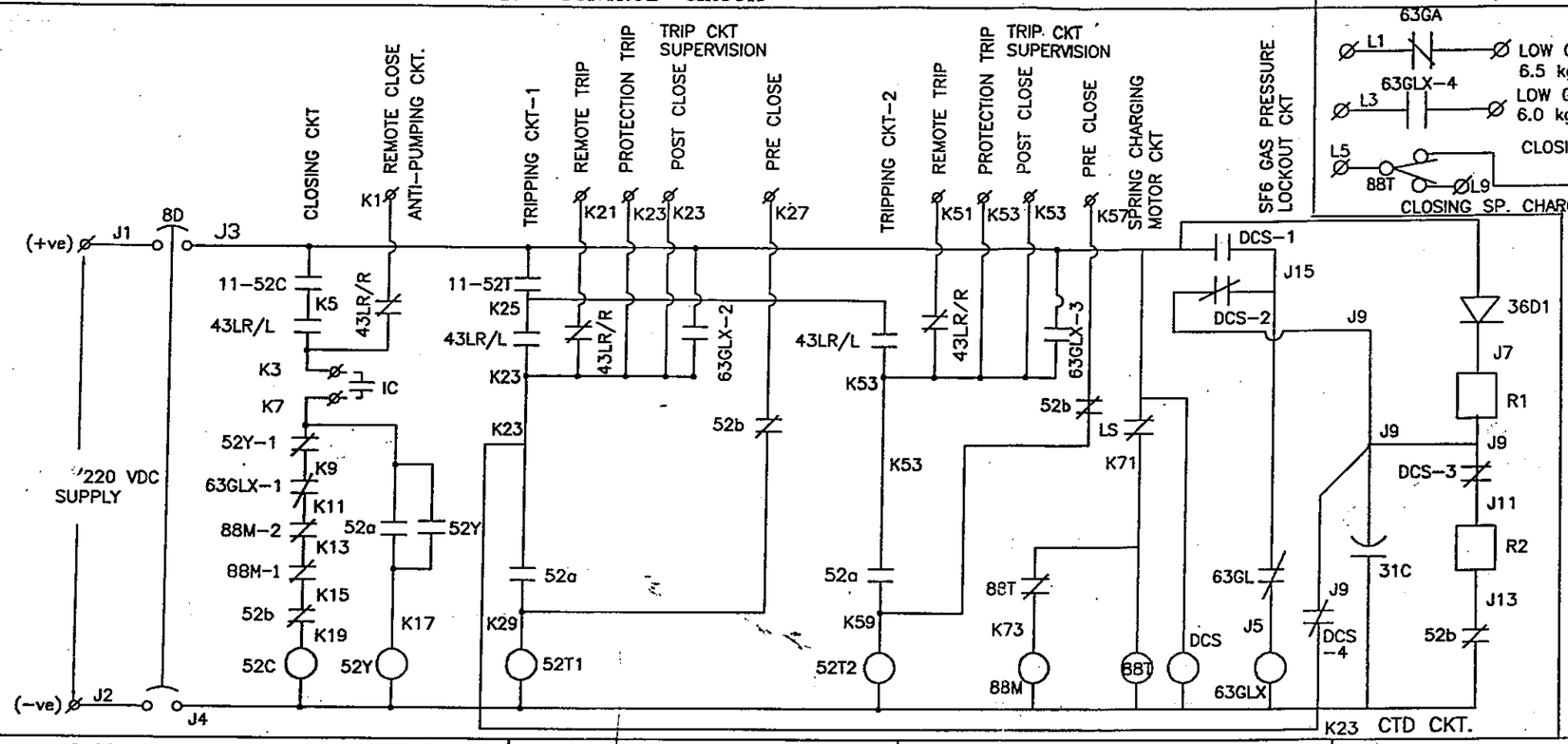
THIRD ANGLE PROJECTION

Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

DRG.NO:CG-145GO-MECH 1/1 RO

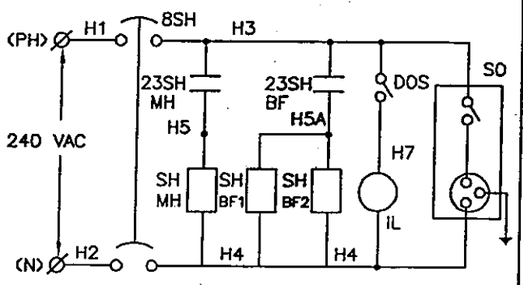
DRG.NO:CG-145GO-SCH/1 R0

G. C. B. CONTROL CIRCUIT



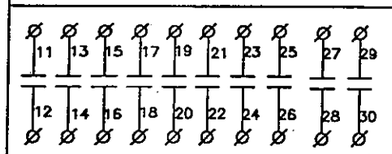
ALARM/INDICATION CONTACTS

LAMP & HEATER CONTROL CIRCUIT

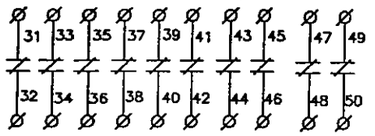


SPARE AUXILIARY CONTACTS

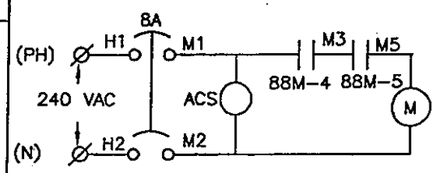
52a (10NO)



52b (10NC)



MOTOR CONTROL CIRCUIT



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NOTES:

1) BILL OF MATERIAL AS PER DRG. NO. 145-BOM-GO
2) TERMLS. SHOWN 'ø' ARE WIRED UPTO TERMINAL BLOCKS
3) THIS DIAGRAM IS SHOWN IN THE FOLLOWING CONDITIONS.
   a) GCB OPEN
   b) SF6 GAS PRESSURE IS ZERO
   c) 43LR SWITCH IS IN REMOTE POSITION
   d) CONTROL & AUXILIARY SUPPLY IS NOT APPLIED
   e) CLOSING SPRING IS DISCHARGED
4) CONTROL WIRING WILL BE DONE WITH 1.5 SQ.MM, ANNEALED BARE PVC COPPER WIRES.

APTRANSCO

Standardised Guaranteed Technical Particulars and Drawings for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. 213-2-4 Revision No. 0
Prepared & Approved during **October - 2011**

NO	REVISION	NAME	DATE
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DRN	NAME	TENDER PURPOSE
CHD		
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SCALE: N.T.S.		
DATE:		

TITLE: SCHEMATIC DIAGRAM
FOR: 145KV, 40KA, SP-SP
GCB TYPE: 120-SFM-32B
ALL DIMENSIONS ARE IN mm

THIRD ANGLE PROJECTION

Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

DRG.NO:CG-145GO-SCH/1 R0

DRG.NO.:CG-145GO-BOM/1 R0

MARK	DESCRIPTION	QTY	RATINGS
52C	CLOSING COIL	1	220 VDC 200HM /220 VDC, 90 OHMS CGL MAKE
52T1/52T2	TRIPPING COILS	1	220 VDC 19 OHM /220 VDC, 73 OHMS CGL MAKE
63GA	LOW GAS PRESSURE ALARM SWITCH	1	RATING 0.05 A AT 220 VDC, ON-6.5 Kg/sq.cm, OFF-7Kg/sq.cm. AT 20°C. (WIKA/SAGINOMIYA)
63GL	LOW GAS PRESSURE LOCKOUT SWITCH	1	RATING 0.05 A AT 220 VDC ON-6.0 Kg/ sq.cm, OFF-6.5 Kg/sq.cm. AT 20°C. (WIKA/SAGINOMIYA)
63GLX	CONTACTOR FOR 63GL	1	220 VDC, Ith=10A, DC BREAK CAP. 0.5 A AT 220 VDC, 3NO+2NC.SCHNEIDER/SIEMENS MAKE
M	MOTOR	1	240 VAC, 650 W INPUT.KPT/EQ MAKE
88M	CONTACTOR FOR MOTOR	1	220V DC, Ith 20A, AC BREAKING CAP. 8A, 2NO+3NC SCHNEIDER/SIEMENS MAKE
52Y	ANTIPUMPING CONTACTOR	1	220 VDC, Ith 10A, DC BREAK CAP 0.5 A AT 220 VDC, 3NO+2NC SCHNEIDER/SIEMENS MAKE
11-52	TRIP NEUTRAL CLOSE SWITCH	1	250 VDC, 16A, 3 POSITION, 45 deg ANGLE, 2T+2C, SPRING RETURN, SWITRON MAKE
43LR	LOCAL REMOTE CHANGEOVER SWITCH .	1	250 VDC, 16A, 2 POSITION, 90 deg. ANGLE, 3L+3R, SWITRON MAKE
8D	CIRCUIT BREAKER	1	250 VDC, 6A, 9KA(DC MCB).MERLIN GERIN/SCHNEIDER MAKE
8SH	CIRCUIT BREAKER	1	240 VAC, 16A, 6KA.CGL,MERLIN GERIN/SCHNEIDER MAKE
8A	CIRCUIT BREAKER	1	240 VAC, 2A, 6KA.CGL,MERLIN GERIN/SCHNEIDER MAKE
23SH	THERMOSTAT	2	240 VAC, 15A, (0°C TO 60°C) APT MAKE
SH	SPACE HEATER	3	240 VAC, 100W. VILECO/RASHMI MAKE
SO	SWITCH SOCKET UNIT	1	240 VAC, 15A. ANCHOR MAKE
52a/52b	AUXILIARY SWITCH. (4NO+4NC,11NO+11NC)	1 SET	110/220 VDC, 15A SHIRKE MAKE
IL	ILLUMINATION LAMP(CFL)	1	240 VAC.8W CGL/PHILIPS MAKE
DOS	DOOR OPERATED SWITCH FOR IL	1	240 VAC, 5A. KAYCEE/BRISK MAKE
LS	LIMIT SWITCH FOR 88M	1	110/220 VDC, 1A.1NC OMRON MAKE
36D1	DIODE	1	600 VDC, 1N 1198 HIND MAKE
31C	CAPACITOR	1	350V DC,1000 MICRO F. ALCON MAKE
R1/R2	RESISTOR	2	300 OHMS,30W BRIGHT ELECTRICALS
DCS	CONTACTOR FOR CTD	1	220 VDC, Ith 10A, DC BREAK CAP 0.5 A AT 220 VDC, 3NO+4NC. SCHNEIDER MAKE
88T	TIMER FOR SPRING CHARGE FAIL ALARM	1	220 VDC, MULTI RANGE TIMER SELEC /SIEMENS/EQ MAKE
ACS	AC SUPPLY SUPERVISION CONTACTOR	1	230 VAC, 2NO+2NC. SCHNEIDER/EQ. MAKE
RL	RED LED INDICATION LAMP	1	24-220 VAC/ DC, UNIVERSAL,SIEMENS/TEKNIC/EQ. MAKE
GL	GREEN LED INDICATION LAMP	1	24-220 VAC/ DC, UNIVERSAL,SIEMENS/TEKNIC/EQ. MAKE
BL	BLUE LED INDICATION LAMP	1	24-220 VAC/ DC, UNIVERSAL,SIEMENS/TEKNIC/EQ. MAKE

THIS ITEMS ARE IN CAPACITOR TRIP DIVICE (BOX)

IF IN DOUBT ASK!

NOTES:-

1) AUXILIARY SWITCHES ARE SHOWN FOR OPEN BREAKER.
2) AUXILIARY CONTACTORS CONTACTS ARE SHOWN IN DE-ENERGISED POSITION.
3) GAS PRESSURE SWITCH IS SHOWN FOR NO GAS PRESSURE.
4) LOCAL REMOTE CHANGEOVER SWITCH IS SHOWN IN REMOTE POSITION.
   ⊣⊢ ARE OPEN CONTACTS
   ⊣N⊢ ARE CLOSE CONTACTS.
5) SIZE OF WIRE =1.5 sq.mm. ANNEALED BARE COPPER PVC INSULATED.
7) COLOUR OF WIRE FOR AC CIRCUIT-BLACK, FOR DC CIRCUIT & SPARE CONTACTS-GRAY & FOR EARTHING-GREEN.
8) STUD TYPE (CSTSB3 /STH4)TERMINAL BLOCKS ARE PROVIDED. CONTINUOUS CURRENT CARRYING CAPACITY OF TRIP COIL IS 50mA TO CATER FOR TRIP COIL SUPERVISION.
10) 52a CONTACTS ARE OPEN WHEN BREAKER IS OPEN.
11) 52b CONTACTS ARE CLOSE WHEN BREAKER IS OPEN.
12) "ø" TERMINAL ARE WIRED UPTO TERMINAL BLOCKS FOR REMOTE CONTROL PANEL OF CIRCUIT BREAKER.
13) REFER SCHEMATIC DIAGRAM NO : CG-145GO-SCH

APPROVED FOR TURNKEY PROJECTS

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

NO	REVISION	NAME	DATE
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	NAME	TENDOR PURPOSE
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CHD		
APPD		
SCALE: N.T.S.		
DATE:		

Standardised Guaranteed Technical Particulars and Drawings for **132KV Circuit Breaker (CGL make)**
STD/GTP-DWG/Approval No. 213-2-5 Revision No. 0
Prepared & Approved during **October - 2011**

TITLE: BILL OF MATERIAL
FOR: 145KV, 40KA, SP-SP
GCB TYPE: 120-SFM-32B
ALL DIMENSIONS ARE IN mm

THIRD ANGLE PROJECTION

Crompton Greaves Ltd.
SWITCHGEAR DIVISION S3
AMBAD, NASHIK.

DRG.NO:CG-145GO-BOM/1 R0