

Annexure: MCC / Drive panel,
Dt: 12/5/18.

DOL 3.7KW STIRRER-A	DOL 3.7KW STIRRER-B	DOL 3.7KW STIRRER-C
DOL 1.1KW TRANSFER PUMP-A	DOL 1.1KW TRANSFER PUMP-B	DOL 1.1KW TRANSFER PUMP-C
DOL/DRIVE 0.37KW SCREW FEEDER-A	DOL/DRIVE 0.37KW SCREW FEEDER-B	DOL/DRIVE 0.37KW SCREW FEEDER-S
SFU WITH O/C, S/C, E/F	CONTROL T/F WITH ON / OFF INDICATION	CONTROL T/F (S) WITH ON / OFF INDICATION

3.7 KW DRIVE CUM DOL (ACTUAL MOTOR RATING MAY VARIES B/W 2.2 TO 3.7 KW	3.7.KW DRIVE CUM DOL (ACTUAL MOTOR RATING MAY VARIES B/W 2.2 TO 3.7 KW
3.7.KW DRIVE / DOL (ACTUAL MOTOR RATING MAY VARIES B/W 2.2 TO 3.7 KW	3.7.KW DRIVE / DOL (ACTUAL MOTOR RATING MAY VARIES B/W 2.2 TO 3.7 KW
SFU WITH S/C & E/F PROTECTION	CONTROL T/F WITH INDICATOR

MCC PANEL (DOL/DRIVE)

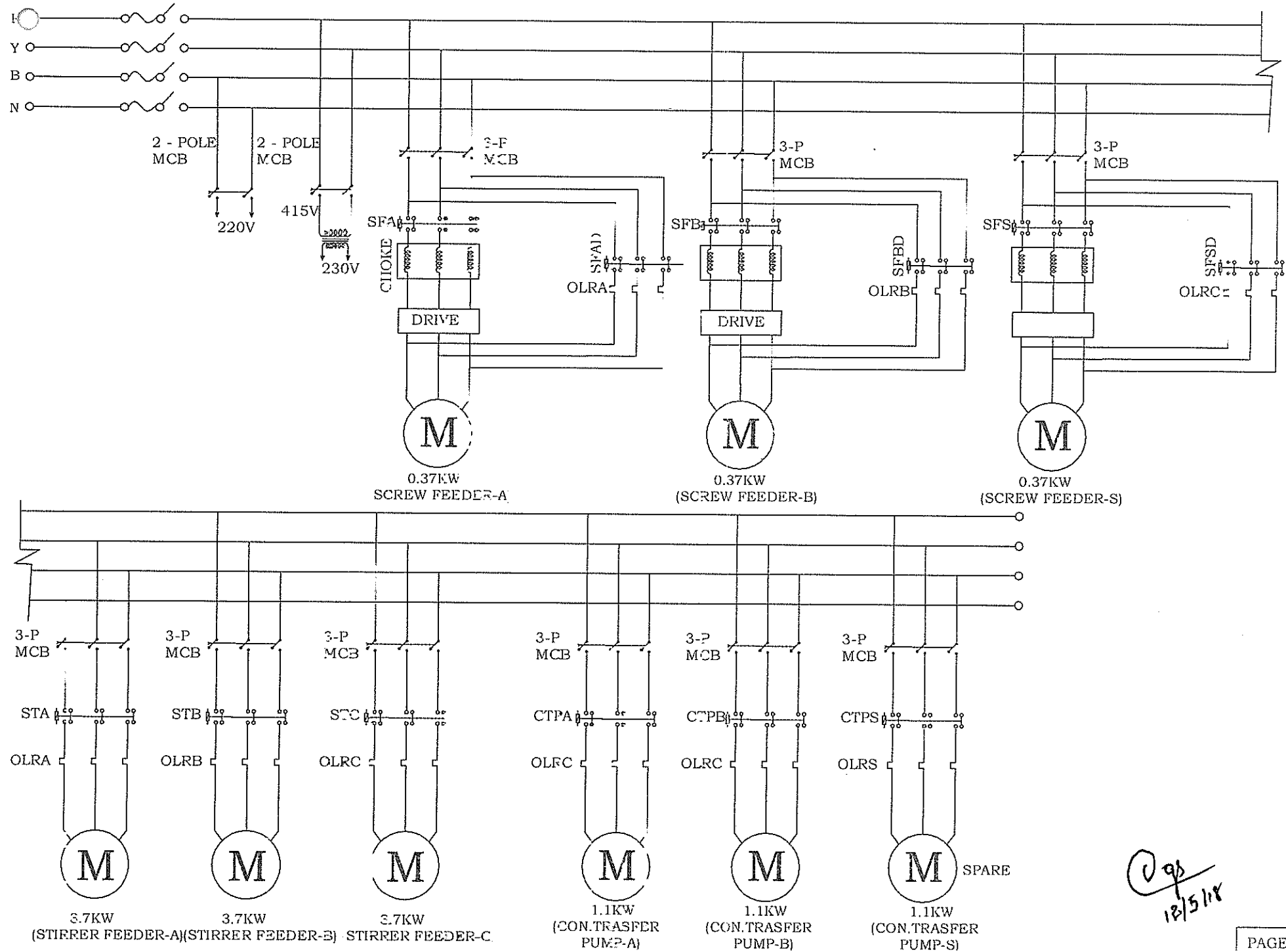
DOL / DRIVE PANEL

NOTE :-

1. DOL : DIRECT ONLINE FEEDER
2. DOL/DRIVE : DOL & DRIVE FEEDER
3. ALL FEEDERS SHALL HAVE SUITABLE RANGE OF
TRANSDUCERS,CURRENT TRANSFORMERS,VOLT METER,AMMETER,
ON/OFF/TRIP INDICATION LAMPS WITH PROPER FERRULE NUMBER
- 4.PANELS SHOULD BE PROVIDED WITH SUITABLE BASE STAND
(CLEARANCE FROM GROUND LEVEL : 0.7 MTR.)
5. ALL DRIVE FEEDERS SHALL HAVE A COMMUNICATION CARD WITH
RS 232 PORT
6. ALL DRIVE FEEDERS SHALL HAVE A POTENTIO VARIAC FOR SMOOTH
VARIATION OF SPEED REFERENCE.

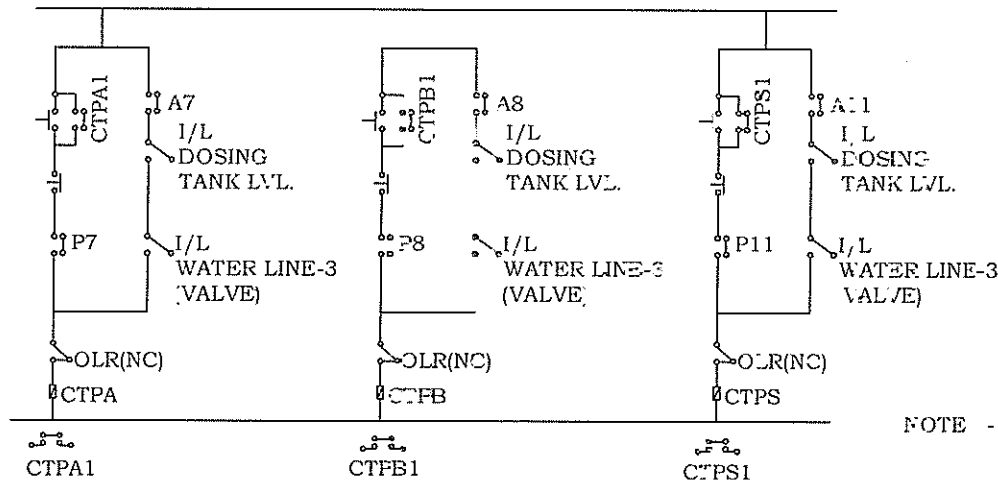
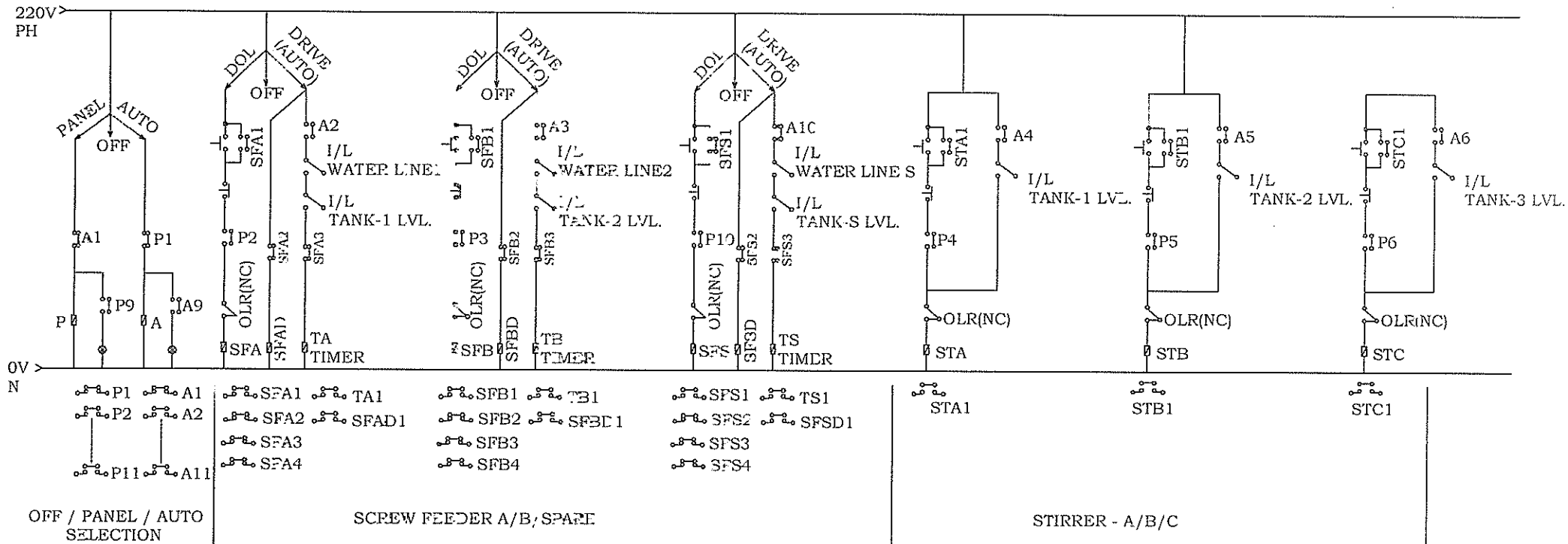
0.96
12/5/18

MCC PANEL POWER CIRCUIT DIAGRAM



095
12/5/18

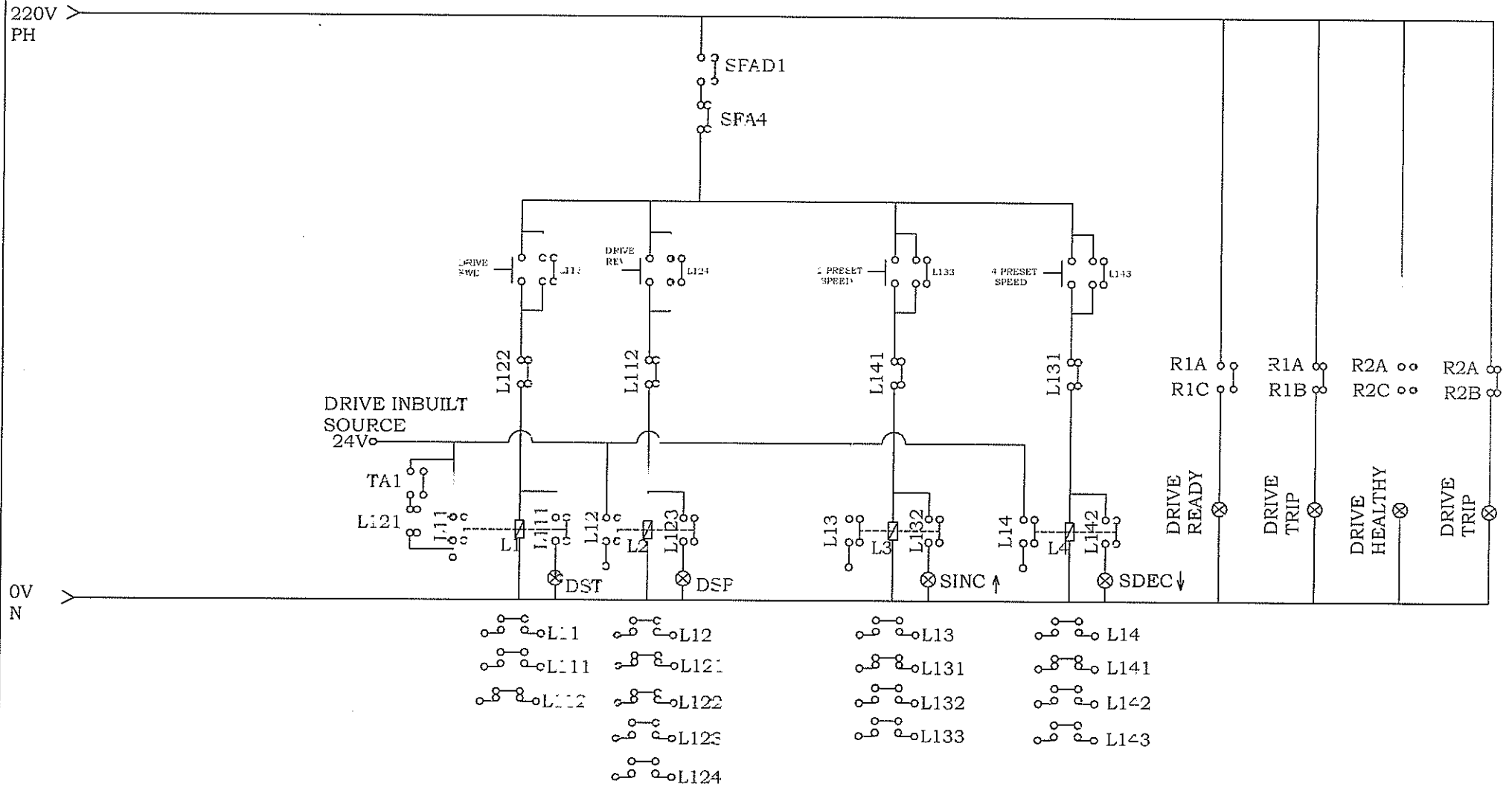
DRIVE / DOL CONTROL DIAGRAM (MCC-panel)



CON. TRANSFER PUMP - A/E/SPACE

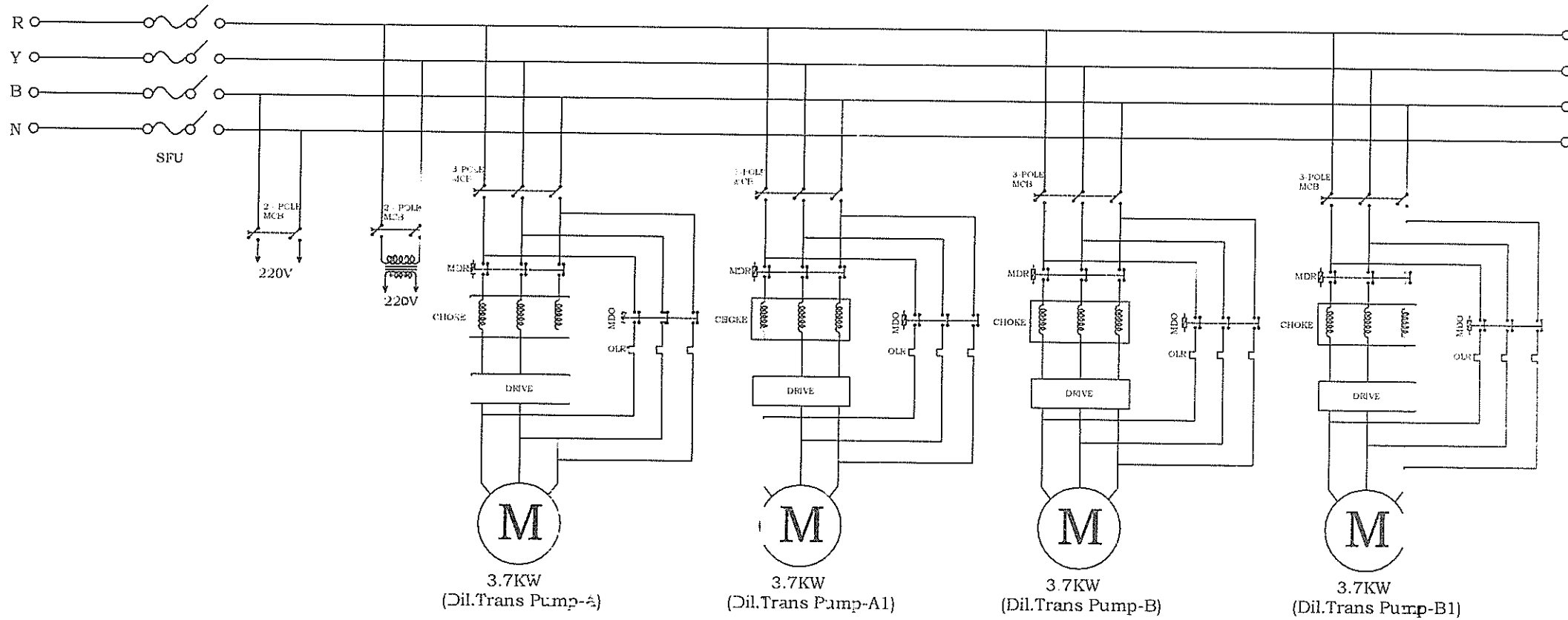
- NOTE - 1) I/L : INTER LOCK PROVISION PURPOSE, SUITABLE CONTRACTORS/ TERMINALS TO BE PROVIDED (TERMINAL BLOCKS WITHOUT CONNECTIONS)
 2) CONTROL/POWER CKT. SHALL BE DIFFERENTIATED WITH SUITABLE TERMINAL BLOCKS SEPARATELY
 3) INDICATORS FOR ALL FUNCTIONS SHALL BE PROVIDED

DRIVE / DOL CONTROL DIAGRAM



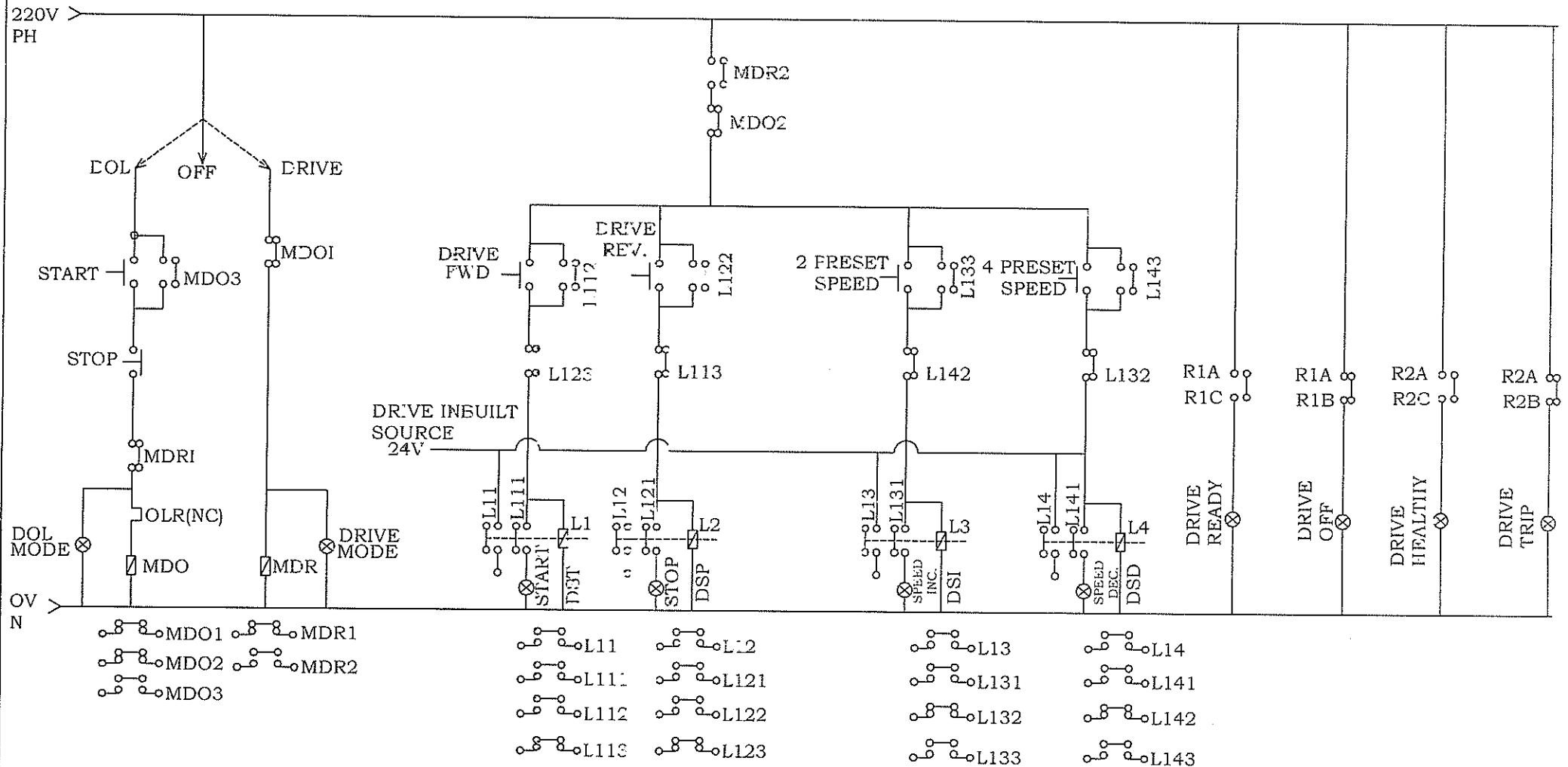
13/5/14

DRIVE / DOL PANEL POWER CIRCUIT



9/12/15/15

DRIVE / DOL CONTROL DIAGRAM



L11/L12/L13/L14 - DRIVE LOGIC CONTACT
 R1A-R1C/R1A-R1B/ R2A-R2C/R2A-R2B, - DRIVE AUX. CONTACTS
 REF : ALTIVAR-31 DRIVE

Qgs
 12/5/18

WRITEUP FOR NEW FLOCCULENT SYSTEM OPERATION

Concentrated flocculent preparation tank-A : Levels: LA1, LA2 & LA3.

Concentrated flocculent preparation tank-B : Levels: LB1, LB2 & LB3.

Dilute flocculent preparation tank- C : Levels: LC1, LC2& LC3.

Water line valves: VA, VB & VD.

Screw feeders : S/F – A, S/F-B, S/F-C.

Agitator motor units : AG-A, AG-B & AG-C.

Concentrated flocculent motor pump units : A, B & S.

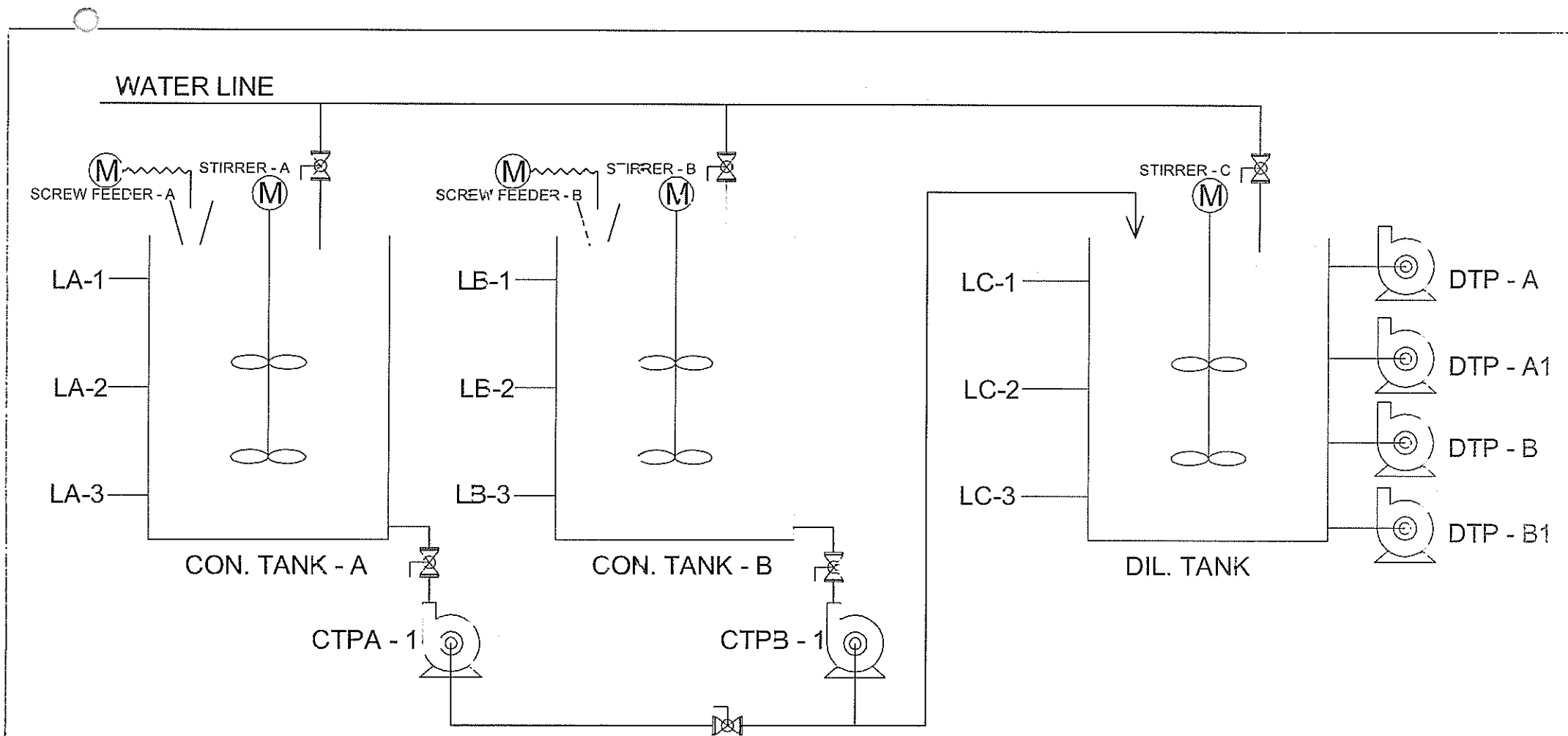
Diluted flocculent motor pump units : A, A1, B & B1.

Logic & Operation:

- 1) Stirrer motors : if tank level reaches to lower limit , then only stirrer operation will be stopped remaining time all stirrer motors will be in "on state"
- 2) Screw feeder motors: if water line valve is in on state & tank level reaches to moderate limit, then Screw feeder motors will on automatically and this operation will be continued till the completion of set time period.
If any interlock fails, screw feeder will not be operated.
- 3) Concentrated flocculent transfer pump - motor unit: If diluted flocculent tank level reaches to moderate limit, then concentrated flocculent transfer pump-motor units will start automatically till level reaches to high limit.
- 4) Diluted flocculent transfer pump motor units: These units will be operated as per the requirement of end user by local control.

Approved
12/5/18

(P) 91
12/5/18



NEW FLOCCULENT SYSTEM
(MILL HOUSE)

Qgs
12/15/88

Technical details

1. System voltage: 415V AC, 50HZ, 3 Phase, 3 Wire.
2. Rated control voltage: 240V AC By using a suitable control transformer , 415V/240V, capacity: 1.5 times of rated.
3. Ambient temp: 50 Deg cent.
4. Relative humidity less than/ equal to 100%
5. Altitude: less than 1000m
6. Type of mounting : Panels to be mounted on suitable base stand.
7. Minimum clearance between ground and base stand is: 0.7 mtrs.
8. Lifting eye bolts to be provided.
9. Front access: hinged doors
10. Rear access: bolted cover.
11. Clearance recommended: front:1000mm, Rear:1000mm.
12. Gland plate: Suitable size.
13. Degree of protection: IP42,
14. Paint: Powder coated
15. Paint shade: RAL 7035 –inside & outside, Base stand shall be black painted.
16. Material of name plate: Anodized aluminum
17. Letter type on name plate: white letter on black back ground.
18. Equipment marking: Self adhesive designation stickers on equipment/ base next to it.
19. Sheet steel thickness:2mm for doors/load bearing members, 1.6mm side wall, top cover 2mm for equipment mounting plate, 4mm for gland plat(Al).
20. Door lock :left of panel.
21. Make of panels: Certified by ABB/SIEMENS/L&T/SCHNEIDER ELECTRIC.
22. Auxillary power/control circuit wiring.

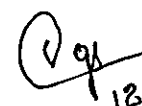
Flexible multi stranded cu conductor of size : 1.5 Sq.mm
23. Colour coding: Red : Phase, Black: Neutral, Earth: Green, Coupling of relay contacts: Blue.
24. All wires shall be properly lugged & ferrules to be provide on white sleeves with black lettering on both ends
25. Power terminals: properly insulated nut/bolt type terminals shall be mounted on AL Bus Bars
26. Bus bar shall be properly insulated with
- 26 . Separate busbar arrangement shall be made for power circuit & control circuit.

Pgs
12/5/18

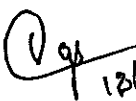
Pgc-(9)

Technical specifications for MCC Panel

SL.NO	Description	Rating	Make
INCOMER			
1.	SFU	63A,TPN	SIEMENS/L&T/ABB/SCHNEIDER
2.	FUSES	63A	SIEMENS/L&T/ABB/SCHNEIDER
3.	R,Y,B Lamps	230VAC,	SIEMENS/L&T/ABB/SCHNEIDER
4.	MCB	6A,SP	SIEMENS/L&T/ABB/SCHNEIDER
5.	MFM	Multifunction meter	SELEC/AE/ENERGY CONSERV/HONEYWELL/ ABB/SIEMENS/ L&T
6.	CT	60/5,CL-1,10VA	ELECTRO STAR/TRUTECH/KAYPEE/GUPTA/INDCOIL/RECO/ PEECO/PETE
7.	Control transformer	415/230VAC,1.5KVA	PEECO/KALPA/KAPPA/GUPTA/INDCOIL/RECO/P ETE/VIJAI ELECTRICALS/KAYCEE
8.	MCB	10A,DP	SIEMENS/L&T/ABB/SCHNEIDER
OUT GOING FEEDERS			
1.	STARTER -A,B,C	1.1KW DOL	
	MCB	20A,TP	SIEMENS/L&T/ABB/SCHNEIDER
	Contactora	26A,TP,230VAC	SIEMENS/L&T/ABB/SCHNEIDER
	OLR	6.3-10A	SIEMENS/L&T/ABB/SCHNEIDER
	MCB	6A,DP	SIEMENS/L&T/ABB/SCHNEIDER
	AUX RELAYS	4C/O,230VAC	SIEMENS/L&T/ABB/SCHNEIDER
	ON,OFF,TRIP LAMPS	230VAC,RED,GREEN,AMBE R	SIEMENS/L&T/ABB/SCHNEIDER
	START,STOP PB	1NO,1NC	SIEMENS/L&T/ABB/SCHNEIDER
	AMMETER/VO LTMETER	SUITABLE CT /PT RATIO	AE/VAISHNO/RANJIT/ELMEASURE/BEEMET
	SELECTOR SWITCH	6A,2P,2WAY	SALZER/KAYCEE/FINITECH/KAYSER/MEIRONICS/ SUBHAM/MILLBORN/ABB/SIEMENS/L&T/SCHNE IDER/PERFECT ELECTRIC
	CABLE FOR CONTROL SUPPLY	1.5SQ.MM	UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI
	CABLE FOR POWER SUPPLY	4SQ.MM	UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI
	TERMINALS	2.5SQ.MM	ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER ELECTRIC/SIEMENS/L&T/ABB
	TERMINALS	4SQ.MM	ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER ELECTRIC/SIEMENS/L&T/ABB
2	TRANSFER PUMP-A,B,C	1.1KW DOL	
	MCB	10A,TP	SIEMENS/L&T/ABB/SCHNEIDER
	Contactora	16A,TP,230VAC	SIEMENS/L&T/ABB/SCHNEIDER
	OLR	2.5-4A	SIEMENS/L&T/ABB/SCHNEIDER


 12/5/14
 Page (10)

	<u>MCB</u>	<u>6A,DP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>AUX RELAYS</u>	<u>4C/0.230VAC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>ON,OFF,TRIP</u>	<u>230VAC,RED,GREEN,AMBER</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>LAMPS</u>	<u>R</u>	
	<u>START,STOP</u>	<u>1NO,1NC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>PB</u>		
	<u>AMMETER/VO</u>	<u>SUITABLE CT /PT RATIO</u>	<u>AE/VAISHNO/RANJIT/ELMEASURE/BEOMET</u>
	<u>LTMETER</u>		
	<u>SELECTOR</u>	<u>6A,2P,2WAY</u>	<u>SALZER/KAYCEE/FINTECH/KAYSER/METRONICS/</u>
	<u>SWITCH</u>		<u>SUBHAM/MILLBORN/ABB/SIEMENS/L&T/SCHNE</u>
			<u>IDER/PERFECT ELECTRIC</u>
	<u>CABLE FOR</u>	<u>1.5SQ.MM</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI</u>
	<u>CONTROL</u>		
	<u>SUPPLY</u>		
	<u>CABLE FOR</u>	<u>4SQ.MM</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI</u>
	<u>POWER</u>		
	<u>SUPPLY</u>		
	<u>TERMINALS</u>	<u>2.5SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u>
			<u>ELECTRIC/SIEMENS/L&T/ABB</u>
	<u>TERMINALS</u>	<u>4SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u>
			<u>ELECTRIC/SIEMENS/L&T/ABB</u>
<u>3</u>	<u>SCREW</u>	<u>0.37KW-DOL/DRIVE</u>	
	<u>FFEDER-A,B,C</u>		
	<u>VFD MODULE</u>	<u>0.37KW, ALTIVAR</u>	<u>SCHNEIDER ELECTRIC/ABB</u>
		<u>31/ACS380 WITH</u>	
		<u>ADVANCED CONTROL</u>	
		<u>DISPLAY PANEL</u>	
	<u>MCB</u>	<u>10A,TP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>CONTACTOR</u>	<u>12A,TP,230VAC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>OLR</u>	<u>2.5 - 4 A</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>MCB</u>	<u>6A,DP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>AUX RELAYS</u>	<u>4C/0.230V AC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>ON,OFF,TRIP</u>	<u>230VAC,RED,GREEN,AMBER</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>LAMPS</u>	<u>R</u>	
	<u>START/STOP</u>	<u>1NO,1NC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>PB</u>		
	<u>SELECTOR</u>	<u>6A,2P,2WAY</u>	<u>SALZER/KAYCEE/FINTECH/KAYSER/METRONICS/</u>
	<u>SWITCH</u>		<u>SUBHAM/MILLBORN/ABB/SIEMENS/L&T/SCHNE</u>
			<u>IDER/PERFECT ELECTRIC</u>
	<u>CABLE FOR</u>	<u>1.5SQ.MM CU</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI</u>
	<u>CONTROL</u>		
	<u>CABLE FOR</u>	<u>4SQ.MM CU</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI</u>
	<u>POWER</u>		
	<u>TERMINALS</u>	<u>2.5SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u>
			<u>ELECTRIC/SIEMENS/L&T/ABB</u>
	<u>TERMINALS</u>	<u>4SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u>
			<u>ELECTRIC/SIEMENS/L&T/ABB</u>


 12/5/14
 Page - (11)

Technical specifications for DOL CUM DRIVE PANEL

<u>SL.NO</u>	<u>Description</u>	<u>Rating</u>	<u>Make</u>
INCOMER			
<u>1</u>	<u>SFU</u>	<u>63A,TPN</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
<u>2.</u>	<u>FUSES</u>	<u>63A</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
<u>3.</u>	<u>R,Y,B Lamps</u>	<u>230VAC,</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
<u>4.</u>	<u>MCB</u>	<u>6A,SP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
<u>5.</u>	<u>MFM</u>	<u>Multifunction meter</u>	<u>SELEC/AE/ENERGY CONSERV/HONEYWELL/</u> <u>ABB/SIEMENS/ L&T</u>
<u>6.</u>	<u>CT</u>	<u>60/5,CL-1,10VA</u>	<u>ELECTRO</u> <u>STAR/TRUTECH/KAYPEE/GUPTA/INDCOIL/RECO/</u> <u>PEECO/PETE</u>
<u>7.</u>	<u>Control transformer</u>	<u>415/230VAC,1.5KVA</u>	<u>PEECO/KALPA/KAPPA/GUPTA/INDCOIL/RECO/P</u> <u>ETE/VIJAI ELECTRICALS/KAYCEE</u>
<u>8.</u>	<u>MCB</u>	<u>10A,DP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER/</u>
OUT GOING FEEDERS			
<u>1.</u>	<u>FEEDER</u>	<u>3.7KW DOL/DRIVE</u>	
	<u>VFD MODULE</u>	<u>3.7KW,ALTIVAR</u> <u>31/ACS380 WITH</u> <u>SUITABLE ADVANCE</u> <u>CONTROL CUM DISPLAY</u> <u>PANEL</u>	<u>SCHNEIDER ELECTRIC/ ABB</u>
	<u>MCB</u>	<u>20A,TP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>CONTACTOR</u>	<u>26A,TP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>OLR</u>	<u>6.3 TO 8.5A</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>MCB</u>	<u>6A,DP</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>AUX RELAYS</u>	<u>4 C/O,230V AC,</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>ON,OFF,TRIP</u> <u>LAMPS</u>	<u>230V</u> <u>AC,RED,GREEN,AMBER</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>START,STOP</u> <u>PB</u>	<u>1NO,1NC</u>	<u>SIEMENS/L&T/ABB/SCHNEIDER</u>
	<u>SELECTOR</u> <u>SWITCH</u>	<u>6A,2P,2WAY</u>	<u>SALZER/KAYCEE/FINTECH/KAYSER/METRONICS/</u> <u>SUBHAM/MILL BORN/ABB/SIEMENS/L&T/SCHNE</u> <u>IDER/PERFECT ELECTRIC</u>
	<u>CABLE FOR</u> <u>CONTROL</u>	<u>1.5SQ.MM CU</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI/FIN</u> <u>OLEX</u>
	<u>CABLE FOR</u> <u>POWER</u>	<u>4SQ.MM CU</u>	<u>UNIVERSAL/POLYCAB/NICCO/GLOSTER/CCI/FIN</u> <u>OLEX</u>
	<u>TERMINALS</u>	<u>1.5/2.5SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u> <u>ELECTRIC/SIEMENS/L&T/ABB</u>
	<u>TERMINALS</u>	<u>4SQ.MM</u>	<u>ELEMAX/PHEONIX/CONNECTWELL/SCHNEIDER</u> <u>ELECTRIC/SIEMENS/L&T/ABB</u>

12/5/18

Page-(12)