

TD-201 Rev No. 00	Form No.	 	PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD	ANNEXURE-1C to PY55295
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ANNEXURE-1 C TO PY55295

DATA SHEET FOR 11kV HT SWITCHGEAR

(To be filled by the vendor and Submitted during detailed Engineering stage)

PROJECT

75MW VISAKH REFINERY
MODERNIZATION PROJECT (VRMP)

CUSTOMER

M/S HINDUSTAN PETROLEUM
CORPORATION LIMITED,VIZAG,A.P

CONSULTANT

ENGINEERS INDIA LIMITED

Project	Project Management Consultancy (PMC) Services for execution of VRMP			Client	HPCL
Unit	CAPTIVE POWER PLANT (CPP)	Location	VIZAG	Job No.	B016
				Unit No.	606
PURCHASER'S DATA					
A. Site Conditions					
1.	Maximum Ambient Temperature	°C	45		
2.	Minimum Ambient Temperature	°C	12.5		
3.	Design Ambient Temperature	°C	45		
4.	Relative Humidity	%	95		
5.	Altitude Above MSL	mm	< 5.56		
6.	Environment	Humid & highly corrosive			
B. Operating Conditions					
1.	Voltage	kV	11 +/- 10 %		
2.	Frequency	Hz	50 +/- 3 %		
3.	No of phases	Three			
4.	System fault level	kA	40		
5.	System earthing	Resistance Earthing			
6.	Auxiliary supply				
	AC	V	240 +/- 10 %		
	DC	V	110 +/- 10% DC		
C. Electrical Data					
1.	Busbar current rating (inside panel at design temp.)				
2.	1 sec. Short Circuit withstand capacity	kA	40		
3.	System Breaking capacity	kA	40		
	% D.C. Component	As per IEC			
4.	System making capacity	kA(peak)	100		
5.	Type of Circuit Breaker	VCB			
	Shunt Trip Coil-1 :	V	110 DC		
	Shunt Trip Coil-2 : (see note-1)	V	110 AC UPS		
6.	Duty Cycle of C.B.	O-3min-CO-3min-CO			
7.	Suitability for Cap. Switching	YES			
8.	Surge supressor for Motor Feeder.	Yes			
9.	Provision of earthing				
	Earthing truck	Required			
	Earthing switch	Not Required			
D. Miscellaneous					
1.	Interface with ECS	Required			
2.	Incoming Power Entry	Cable/Bus Duct			
3.	Cable Entry				
4.	Separate bolted removable gland palte for cable entry	Reqd.(Gland Plate Drilled at site)			
5.	Cable glands and lugs for cable termination	Included			
6.	Paint shade	RAL-7032			
7.	Windows at the rear side of panels for thermography	Required			
MANUFACTURER'S DATA					
A. Switchboards					
1.	Make				
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Unit	CAPTIVE POWER PLANT (CPP)	Location	VIZAG	Job No.	B016	Unit No. 606
2.	Type designation					
3.	Degree of protection					
4.	Max. overall weight of C.B. panel		Kg			
5.	Overall dimensions of C.B. panel					
	Width		mm			
	Depth		mm			
	Height		mm			
6.	Overall dimensions of dummy /gland palte for cable entry					
	Width		mm			
	Depth		mm			
	Height		mm			
7.	Overall weight and dimensions of largest shipping section					
	Weight		Kg			
	Width		mm			
	Depth		mm			
	Height		mm			
8.	Overall dimensions of each swbd. including all dummy/adaptor/rear extension panels					
	Width		mm			
	Depth		mm			
	Height		mm			
9.	Recommended clearances					
	Front		mm			
	Rear		mm			
	Above		mm			
10.	Shock loading on foundation					
11.	Max. size/no. of cables that can be terminated inside the panel					
	without rear extension panel					
	with rear extension panel					
	size of rear extension panel					
12.	Clearance in air					
	Phase to Phase (min.)		mm			
	Phase to Earth (min.)		mm			
13.	Busbar current rating at design ambient temperature		A			
14.	Busbar (separately for each swbd)					
	(a).Horizontal main busbar size (No. of flats x size of each flat)					
	(b).Horizontal main busbar size as tested at CPRI for full short ckt					
	withstand as per specification requirement (No. of flats x size of each flat)					
	(c).Vertical dropper size (No. of flats x size of each flat)					
15.	Horizontal main busbar/Vertical busbar material					
16.	Insulating material (Busbar supports)					
17.	Earth busbar size					
18.	Earth busbar material					
19.	1 min. power frequency withstand voltage (rms		kV			
	Over voltage factor for PTs					
20.	Impuse withsatnd voltage (peak)		kV			
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Project Project Management Consultancy (PMC) Services for execution of VRMP		Client HPCL	
Unit CAPTIVE POWER PLANT (CPP)	location VIZAG	Job No. B016	Unit No. 606
Wave shape of impulse voltage			
21.	1 sec. short ckt. Withstand capacity	kA	
22.	Peak dynamic withstand capacity	kA	
23.	Safety Features		
	(a).Heat shrinkable sleeves, rated to withstand the system line to line voltage for one min., provided on busbar		
	(b).Removable FRP shrouds for all busbar joints and tap-off connections provided		
	(c).Arc propagation barrier in busbar compartment provided		
	(d).Breaker service, test and drawn-out position provided		
	(e).Distinct overall lockable door for breaker compartment provided		
	(f).Automatic safety shutter provided		
	(g).Independent pressure release flaps provided for all HV compartments		
	(h).Wire mesh for all louvered openings provided		
	(i).Suitable interlocks to prevent faulty operation as per Cl. 4.4.10 of spec. 6-51-0001 provided		
B. Circuit Breaker			
1.	Type		
	2nd shunt trip coil for VFD feeders		
2.	Make		
3.	Type Designation		
4.	Circuit Breaker mounting in panel		
5.	No. of poles/phase		
6.	Current rating (in free air)	A	
7.	Current rating inside the panel at specified design temperature	A	
8.	Short time rating (1sec.)	kA	
9.	Symmetrical breaking capacity	kA	
9.1	% D.C. Component		
10.	Peak making current	kA	
11.	1 min. dry withstand voltage (power frequency)	kV	
12.	Duty Cycle		
13.	Total opening time	m sec.	
14.	Total closing time	m sec.	
15.	Power required for opening	W/VA	
16.	Power required for closing	W/VA	
17.	Power required for spring charging motor	W/VA	
18.	Breaker is trip free		
19.	Closing mechanism		
20.	Provision of manual spring charging provided		
21.	Mechanical Trip PB provided		
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22.	Mech. On/Off indicator provided					
23.	Operation counter provided					
24.	Time taken for spring charging		sec.			
25.	No. of aux. contacts and their current ratings					
26.	Interrupter					
	(a).Make					
	(b).Pressure switch for monitoring of SF6 gas pressure provided					
	(c).Re-filling arrangement of SF6					
27.	LOTO (Lock-Out Tag-Out) Provision for mechanical locking arrangement					
28.	Suppressor					
	Type designation					
	Make					
27.	Derating reqd. for Cap. Switching					
29.	Earthing System					
30.	Copies of following test certificates enclosed					
	For each type of offered circuit breaker panel with breake					
	(a).Short Circuit tests (Peak and 1 sec.withstand)					
	(b).Heat run test					
	(c).Internal arc test					
	(d).Impulse and power freq. withstand					
	For each type of offered circuit breaker (in panel)					
	(a).Short Circuit test duties					

Eil Notes

1 Shunt Trip Coil-2 shall be provided for VFD feeders.

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