GUARANTEED TECHNICAL PARTICULARS
VACUUM CIRCUIT BREAKER TYPE – HCA (NEW)
DOCUMENT NO. – 1VYN 400490 - 002

Prepared By	Checked By	Approved By	Year/Week	Rev./Week	Page No.
SPD	DVKM	SD	00/49	B 03/33	1/7

RATING AS PER STANDARD :IEC 62271-100		**HCA 12/ 1240**	**HCA 12 / 2040**	**HCA12 / 3040**
1)	Rated Voltage & Frequency	12kV, 50Hz	12kV, 50Hz	12kV, 50Hz
2)	Current Ratings - a) Continuous rating in open erection b) Continuous rating in Self Ventilated cubicle. c) Short time withstand current for 3 Sec. d) Dynamic peak withstand current	 1250 A 1250 A 40kA rms 100kA peak	 2000 A 2000 A 40kA rms 100kA peak	 3000 A 3000 A 40kA rms 100kA peak
3)	Ref. Ambient Temperature	40^0C	40^0C	40^0C
4)	Maximum rise of Temperature over reference ambient for current rating a) Contact in gas b) Contact in air	 65^0C	 65^0C	 65^0C
5)	De-rating factor for 50° C ambient Temperature	0.8	0.8	0.8
6)	Rated Operating duty	O – 3 min. – CO – 3 min. – CO **OR** O – 0.3 Sec. – CO – 3 min. – CO		

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7)	Breaking capacity - a) Symmetrical at rated voltage b) Percentage DC component	 40kA rms 35%	 40kA rms 35%	 40kA rms 35%
8)	Transient recovery voltage – a) Rated of rise at 12kV b) Peak Voltage at 12kV	As per IEC 62271 – 100 As per IEC 62271 – 100		
9)	Number of breaks per pole	One	One	One
10)	Total Length of contact travel	12 mm	12 mm	12 mm
11)	Total Length of break per pole	Approx. 12mm	Approx. 12mm	Approx. 12mm
12)	Rate of current travel a) At tripping b) At Closing	 1.1 to 1.6 m/s 0.7 to 1.0 m/s		
13)	Type of special device, if any, used to limit the rate of restriking voltage	None	None	None

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14)	Type of contacts a) Main b) Arcing c) Arc control device	Butt No Separate arcing contact None		
15)	Material of contacts a) Main b) Whether contacts silver plated	 Cr Cu No	 Cr Cu No	 Cr Cu No
16)	Contact pressure (Final Closing)	400 kg	400 kg	400 kg
17)	Insulating level of C.B. a) One Minute Power Frequency withstand voltage b) Impulse voltage withstand with 1.2/50 micro second wave shape	 28kV rms 75kV peak	 28kV rms 75kV peak	 28kV rms 75kV peak

18)	Minimum Clearance in air a) Between phase b) Between live parts & earth c) Center distance between phases	 110 mm (with phase barrier) 110 mm** 210 mm

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19)	Whether C.B. is designed to close and latch on making or fitted with making current release	To close and latch		
20)	Whether C.B. is trip free or fixed trip a) If trip free, is it completely trip free under every method of closing (except manual closing)	Trip free Yes	Trip free Yes	Trip free Yes
21)	Type of operating mechanism - a) Motor or solenoid operated b) No of C.B. operations stored	Spring wound by motor O – C – O		

22)	Spring charging motor details a) Rating b) Rated voltage c) Voltage variation d) Time required to charge the springs completely at rated voltage	 0.2KW 110V DC, 220V DC & 230V AC 85 to 110% 15 Sec. Max.

** Wherever the clearance is less, insulating sleeve is provided.

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23)	Method of closing a) Normal b) Emergency on C.B. front sheet	 Electromagnet Not provided
24)	Type of closing mechanism	Stored energy spring mechanism
25)	Closing coil details a) Rated voltage b) Voltage variation c) Power required at rated voltage	 As per client's requirement 85 to 110% 180W

26)	Type of tripping a) Normal b) Emergency	 Electromagnet Mechanical
27)	Type of tripping mechanism	Stored energy spring mechanism
28)	Tripping coil details a) Rated voltage b) Voltage variation c) Power required at rated voltage	 As per client's requirement 70 to 110% 180W

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29)	Arc duration a) Arcing time at 100% breaking capacity, max. b) Opening time c) Total break time at 100% breaking capacity, max.	 15 ms 35 – 50 ms 65 ms	 15 ms 35 – 50 ms 65 ms	 15 ms 35 – 50 ms 65 ms
30)	Closing time, maximum	75 ms	75 ms	75 ms
31)	No. of openings C.B. is capable of performing without inspection replacement			

	of contacts or other main parts a) At no load or very low current b) At 100% rated current c) At 100% rated breaking current	 5000 5000 50	 5000 5000 50	 5000 5000 50
32)	Auxiliary contacts a) N/O and N/C contacts provided b) Whether convertible at site c) Breaking current (D.C.) and inductive circuit at 110 & 220V DC respectively at L/R = 25 ms d) Breaking current AC and PF = 0.8 at 230V AC	 6 NO+ 6 NC No 5 & 2 Amps 10 Amps	 6 NO+ 6 NC No 5 & 2 Amps 10 Amps	 6 NO+ 6 NC No 5 & 2 Amps 10 Amps

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33)	Interlocks provided (As per IEC requirements)	Yes	Yes	Yes
34)	CB operable in a) Test / Service position b) In between Test and Service position	 Yes No	 Yes No	 Yes No
35)	Weight of Circuit Breaker (Approx.)	190 Kg.	225 Kg.	250 Kg.

36)	Provision for slow closing for maintenance purpose	Yes	Yes	Yes
37)	Rated Capacitive Breaking Current a) Breaking Current b) Making Current	400 Amps. 20kA peak at 5 kHz Natural Frequency		
38)	Rated cable charging breaking current	25 Amps		