

SQUARE D COMPANY SMYRNA, TN	ENGINEERING STANDARD	E 52100
SUBJECT	TECHNICAL DATA - VACUUM CIRCUIT BREAKER, VAD-3	PAGE 1 OF 4

1. PURPOSE

To document breaker and breaker components technical data and reference information.

2. APPLICABLE TO

Application and Order Engineering, Marketing and Sales

3. VAD-3 BREAKER STANDARD RATINGS

CATALOG NO. (MARKETING)	CAT (INT)	(1) MAX KV	(2) FACT K	(3) CONT. CURR.	(4) SHORT CIRC	(5) MIN KV	(6) MAX INT	(7) CLOSE LATCH	(8) MVA CLASS
				A	KA		KA	KA	REF
VAD-3-05025-12	V3D31	4.76	1.24	1200	29	3.85	36	97	(250MVA)
VAD-3-05025-20	V3D32	4.76	1.24	2000	29	3.85	36	97	(250MVA)
VAD-3-05035-12	-	4.76	1.19	1200	41	3.85	49	132	(350MVA)
VAD-3-05035-20	-	4.76	1.19	2000	41	3.85	49	132	(350MVA)
VAD-3-08050-12	V3D51	8.25	1.25	1200	33	6.60	41	111	(500MVA)
VAD-3-08050-20	V3D52	8.25	1.25	2000	33	5.50	41	111	(500MVA)
VAD-3-15050-12	V3D61	15.0	1.30	1200	18	11.5	23	62	(500MVA)
VAD-3-15050-20	V3D62	15.0	1.30	2000	18	11.5	23	62	(500MVA)
VAD-3-15075-12	V3D71	15.0	1.30	1200	28	11.5	36	97	(750MVA)
VAD-3-15075-20	V3D72	15.0	1.30	2000	28	11.5	36	97	(750MVA)
VAD-3-15100-12	-	15.0	1.30	1200	37	11.5	48	130	(1000MVA)
VAD-3-15100-20	-	15.0	1.30	2000	37	11.5	48	130	(1000MVA)

Rated interrupting time: 3 cycles

- (1) Rated maximum voltage, KV, rms
- (2) Rated voltage range, Factor "K"
- (3) Rated continuous current at 60HZ (AMP, RMS)
- (4) Rated short circuit current at rated maximum KV, (KA, RMS)
- (5) Rated maximum voltage divided by "K", (KV, RMS)
- (6) Maximum symmetrical interrupting capability & rated short-time current (KA, RMS)
- (7) Closing & latching capability 2.7 times rated short circuit current KA, crest
- (8) MVA class reference

A	12/90	WRB	C	8/92	WRB				PREPARED	
									BY	DATE
B	1/92	JWM	D	11/92	JWM				JWM	3/31/90
									APPROVED	
									JWM	

4. CONTROL VOLTAGES & CONTROL RATING

CONTROL DESCRIPTION	PART #	RATED VOLTAGE	CURRENT AT RATED VOLTAGE (A)	TIME DURATION OF CURRENT FLOW	BURDEN (VA)	DC RESISTANCE (OHMS)
CHARGING MOTOR	44068-196-02	48 VDC	6A	8 SEC	288	--
	44068-196-01	125 VDC	3A	8 SEC	375	--
	44068-196-03	250 VDC	3A 1.5A	8 SEC 315 SEC	750	--
	44068-196-01	120 VAC	5A	8 SEC	600	--
	44068-196-03	240 VAC	3A	8 SEC	720	--
MOTOR RELAY	44068-069-07	48 VDC	0.042	--	2.0	1200
	44068-069-03	125 VDC	0.016	--	2.0	6000
	44068-069-05	250 VDC	0.008	--	2.0	24000
	44068-069-01	120 VAC	0.083	--	10.0	280
	44068-069-02	240 VAC	0.042	--	10.0	1200
ANTI-PUMP RELAY	44068-069-07	48 VDC	0.042	--	2.0	1200
	44068-069-04	125 VDC	0.016	--	2.0	6000
	44068-069-06	250 VDC	0.008	--	2.0	24000
	44068-069-01	120 VAC	0.083	--	10.0	280
	44068-069-02	240 VAC	0.042	--	10.0	1200
CLOSING SOLENOID	44068-105-03	48 VDC	5A	32 MS	240	6.8
	44068-105-02	125 VDC	2A	38 MS	250	62.0
	44068-105-04	250 VDC	2A 1A	38 MS 3ms	250	169.0
	44068-105-01	120 VAC	4A	21 MS	480	15.6
	44068-105-02	240 VAC	2A	21 MS	480	62.0
TRIP SOLENOID	44071-218-01	24 VDC	20A	26 MS	480	.7
	44071-218-04	48 VDC	10A	25 MS	480	2.7
	44071-218-03	125 VDC	5A	25 MS	625	18.0
	44071-218-05	250 VDC	3A	25 MS	750	85.0
	44071-218-02	120 VAC	6A	20 MS	720	4.5
	44071-218-03	240 VAC	3A	22 MS	720	18.0

CONTROL VOLTAGE OPERATING RANGE (ANSI 37.06, TABLE 9)

Rated Voltage	Closing Voltage Range	Tripping Voltage Range
24 VDC	NOT AVAILABLE	14-28 VDC
48 VDC	38-56 VDC	28-56 VDC
125 VDC	100-140 VDC	70-140 VDC
250 VDC	200-280 VDC	140-280 VDC
120 VAC	104-127 VAC	104-127 VAC
240 VAC	208-254 VAC	208-254 VAC

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B	1/92	JWM	D	11/92	JWM				JWM	3/31/90
										APPROVED
										JWM

5. SCHEMATIC & WIRING DIAGRAMS

See E52300, page 3.

6. AUXILIARY CONTACT RATINGS

Continuous rating, 20A up to 600V

Interrupting Rating		
Voltage	Non-inducting	Inductive
24VDC	15A	10A*
48VDC	12A	8A*
125VDC	10A	5A*
250VDC	5A	3A*
120VAC	15A	15A**
230VAC	10A	10A**

*.08 HENRY

**.8 PF

Auxiliary switch: Electros witch Series 101
Part No. 102112LH

7. BREAKER WEIGHT

Breaker Rating	Weight
1200A, 23KA & 36KA	360 lb
2000A, 23KA & 36KA	410 lb

8. BREAKER TIME CHARACTERISTICS

8.1 Time from energizing trip coil until (max):

- | | |
|--|--------------------|
| a. Main contacts part | 22 ms, 1.32 cycles |
| b. Auxiliary switch "a" contacts open | 43 ms, 2.58 cycles |
| c. Auxiliary switch "b" contacts close | 26 ms, 1.56 cycles |

8.2 Time from energizing closing control relay until (max):

- | | |
|--|--------------------|
| a. Main contacts complete the closing | 48 ms, 2.88 cycles |
| b. Auxiliary switch "a" contacts close | 22 ms, 1.32 cycles |
| c. Auxiliary switch "b" contacts open | 42 ms, 2.52 cycles |

8.3 Rated interrupting time: 50 ms, 3 cycles

8.4 Permissible tripping delay: 2 seconds

8.5 Spring Charging Time (max): 10 seconds

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9. BREAKER IMPACT

Downward impact = Approximately 50 lb(s) + breaker weight

10. BREAKER MAINTENANCE

- a. Recommended maintenance interval 3 years
- b. Recommended maintenance interval 3,000
 (# of normal operations)
- c. Recommended maintenance interval 10
 (# of full faults)
- d. Man-hours required for maintenance 1 hour

11. INTERRUPTER LIFE EXPECTANCY

- a. Anticipated interval between vacuum interrupter replacement 20 years
- b. Number of normal operations 10,000
- c. Number of full faults 15KV, 500 MVA - 100
 (Maximum symmetrical 15KV, 750 MVA - 37
 interrupting capability) 5KV, 250 MVA - 37

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									JWM	3/31/90	JWM