



SWITCHGEAR DEVICES

DE-ION[®] POWER FUSES

BORIC ACID • VENTED AND CONDENSER—TYPE BA

APPLICATION DATA

36-300

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5 TO 34.5 KV INDOOR

7.5 TO 34.5 KV OUTDOOR

RATINGS			INTERRUPTING CAPACITIES							
BIL FUSE VOLTAGE RATING	MAX. AMPERE REFILL	RATED VOLTAGE	VENTED				CONDENSER			
			50/60 CYCLES		25 CYCLES		50/60 CYCLES		25 CYCLES	
			AMPS. ^①	KVA ^②	AMPS. ^①	KVA ^②	AMPS. ^①	KVA ^②	AMPS. ^①	KVA ^②
BA-100										
5000 AND 7500	100	2400	25000	65000	10000	26100	.....	.....	.....	.....
	100	4160	25000	112800	10000	45000	.....	.....	.....	.....
100	6900	25000	186500	10000	74600	.....	.....	.....	.....	.....
15000 L or H	100	6900	25000	186500	10000	74600	.....	.....	.....	.....
	100	13800	20000	300000	9500	141500	.....	.....	.....	.....
23000	100	13800	20000	300000	9500	141500	.....	.....	.....	.....
	100	22000	15000	357000	8000	190000	.....	.....	.....	.....
BA-200										
5000 AND 7500	200	2400	27500	71500	12500	32500	17500	45400	10000	26100
	200	4160	27500	123700	12500	56200	17500	78700	10000	45000
200	6900	25000	186500	10000	74600	15000	112000	8000	60000	60000
15000 L or H	200	6900	25000	186500	10000	74600	15000	112000	8000	60000
	200	13800	20000	300000	9500	141500	12500	187000	7000	104500
23000	200	13800	20000	300000	9500	141500	12500	187000	7000	104500
	200	22000	15000	357000	8000	190000	10000	238000	6000	143000
34500	200	13800	20000	300000	9500	141500	12500	187000	7000	104500
	200	22000	15000	357000	8000	190000	10000	238000	6000	143000
200	33000	10000	357000	7000	250000	7500	267600	5000	178500	178500
BA-400^③										
5000 AND 7500	400	2400	40000	104000	15000	38900	30000	78000	12500	32500
	400	4160	40000	180000	15000	67500	30000	135000	12500	56200
400	6900	35000	261000	12500	93300	25000	186500	10000	74600	74600
15000 L or H	400	6900	35000	261000	12500	93300	25000	186500	10000	74600
	400	13800	30000	448000	10000	150000	20000	300000	8000	119500
23000	300	13800	30000	448000	10000	150000	20000	300000	8000	119500
	300	22000	25000	595000	9000	214000	17500	417000	7000	166500
34500	300	13800	30000	448000	10000	150000	20000	300000	8000	119500
	300	22000	25000	595000	9000	214000	17500	417000	7000	166500
300	33000	20000	715000	8000	286000	15000	536000	6000	21200	21200

① **ASYMMETRICAL RMS CURRENT (1.6 x SYMMETRICAL) AT SYSTEM VOLTAGE.** The interrupting current rating is given as the RMS instantaneous asymmetrical value which includes the d-c component. A fault occurring at or near the zero point on the voltage wave may reach, for the first half cycle, a value of 1.6 times that of the symmetrical current wave. Due to the fast operation of the BA fuse, the asymmetrical value may be interrupted and the fuses should be so applied.

② **EQUIVALENT 3 PHASE SYMMETRICAL KVA AT SYSTEM VOLTAGE.** Since system kva calculations are usually based on RMS Symmetrical current the kva ratings of the table have been obtained by dividing the asymmetrical kva values by 1.6.

③ **BA-800 Fuses up to 15 kv are also available.** Interrupting rating is same as BA-400. Refer to East Pittsburgh for details.

LITERATURE REFERENCE

DESCRIPTION—See Descriptive Bulletin 36-300

DIMENSIONS—See Dimension Sheet 36-300

PRICES—See Price List 36-300

APPLICATION DATA

36-300

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DE-ION® POWER FUSES
 BORIC ACID • VENTED AND CONDENSER—TYPE BA



RATINGS FOR SHORT CIRCUIT PROTECTION OF TRANSFORMERS

RECOMMENDED MINIMUM FUSE RATINGS FOR TRANSFORMER SHORT CIRCUIT PROTECTION*												
KVA	2400 VOLTS		4160 VOLTS		6900 VOLTS		13800 VOLTS		22000 VOLTS		33000 VOLTS	
	AMPERES		AMPERES		AMPERES		AMPERES		AMPERES		AMPERES	
	FULL LOAD	FUSE RATING	FULL LOAD	FUSE RATING	FULL LOAD	FUSE RATING	FULL LOAD	FUSE RATING	FULL LOAD	FUSE RATING	FULL LOAD	FUSE RATING
SINGLE-PHASE TRANSFORMERS												
5	2.08	5	1.2	5	.73	5	.73	5	1.14	5	.76	5
10	4.16	10	2.4	5	1.45	5	1.45	5	1.70	5	1.14	5
15	6.25	15	3.6	7	2.17	5	1.08	5	2.28	5	1.52	5
25	10.4	20	6.0	15	3.62	7	1.81	5	3.41	5	2.27	5
37.5	15.6	30	9	20	5.44	10	2.72	5	4.55	5	3.03	7
50	20.8	50	12	25	7.25	15	3.62	7	6.8	15	4.55	10
75	31.2	65	18	40	10.9	25	5.45	10	9.1	20	6.07	15
100	41.7	100	24	50	14.5	30	7.25	15	11.4	25	7.6	15
150	62.5	125	36	80	21.7	50	10.8	25	15.2	30	10.1	20
200	83.5	200	48	100	29	65	14.5	30	19.7	40	12.1	25
250	104	200	60	125	36.2	80	18.1	40	22.8	50	15.2	30
333	139	300	80	200	48.4	100	24.2	50				
400	168	400	96	200	58	125	28.9	65				
500	208	400	120	250	72.5	150	36.2	80				
THREE-PHASE TRANSFORMERS												
5	1.2	5	.69	5	.83	5	.62	5	.65	5	.44	5
10	2.4	5	1.39	5	1.25	5	1.04	5	.99	5	.66	5
15	3.6	7	2.08	5	1.25	5	1.57	5	1.31	5	.87	5
25	6.0	14	3.47	7	2.08	5	2.1	5	1.97	5	1.31	5
37.5	9.0	20	5.2	10	3.14	7	3.14	7	2.63	5	1.75	5
50	12.0	25	6.9	15	4.18	10	4.19	10	3.93	10	2.62	5
75	18.0	40	10.4	20	6.26	15	6.21	15	5.25	10	3.5	7
100	24.0	50	13.9	30	8.36	20	8.35	20	7.85	15	5.2	10
150	36.0	80	20.8	50	12.5	25	11.8	40	11.8	25	7.87	15
200	48.0	100	27.8	65	16.7	40	18.8	40	13.1	30	8.73	20
300	72	150	41.6	100	26.1	50	21.0	50	15.8	30	10.5	20
450	108	200	62.5	125	37.7	80	31.4	65	19.7	40	13.1	30
500	120	250	69	150	41.8	100	21.0	50	13.1	30	8.73	20
600	144	300	83.2	200	50.2	100	25.2	50	15.8	30	10.5	20
750	180	400	104	200	62.6	125	31.4	65	19.7	40	13.1	30
1000	.....	.....	139	300	83.6	200	41.9	100	26.3	65	17.5	40
1500	.....	.....	208	400	125	250	62.1	125	39.3	80	29.5	65
2000	.....	.....	.....	.....	167	400	83.5	200	52.5	125	35	80
2500	.....	.....	.....	.....	208	400	104	200	65.5	125	43.7	100
3000	.....	.....	.....	.....	.....	.....	125	250	78.5	150	52.3	125
3750	.....	.....	.....	.....	.....	.....	157	300	98.5	200	65.7	125
5000	.....	.....	.....	.....	.....	.....	210	400	131	250	87.5	200
6000	.....	.....	.....	.....	.....	.....	.....	.....	158	300	105	200
7500	.....	.....	.....	.....	.....	.....	.....	.....	197	400	131	250
10000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	175	400

* For special applications and where coordination is required, refer to curves.

For Open Delta Banks, use the following rules:

- A. Balanced Open Delta—Fuse the common phase wire at the full 3-phase equivalent bank rating. Fuse the other 2-phase wires at one-half the 3-phase bank rating.
- B. Unbalanced Open Delta—Fuse the common phase wire at the full 3-phase equivalent of the largest transformer. Fuse the outside legs at one-half the 3-phase equivalent of the transformer feeding that leg.

"E" RATINGS

Current ratings of the BA fusible elements are based on the new NEMA "E" power fuse current rating standard.

These requirements specify that the fusible element rated 100 amperes or below, shall melt in 300 seconds at an rms current within the range of 200 to 240% of the continuous current rating of the fuse unit. The fusible elements rated above 100 amperes shall melt in 600 seconds at an rms current within the range of 220 to 264% of the continuous rating of the fuse unit.

The "E" rating and the former "N" rating are based on the 100% current-carrying standard. Conforming to this standard, the BA fuse unit will carry its rated current continuously without exceeding permissible temperature rises. Curves attached to this page show the time-current characteristics of these fuse units for voltages from 5000 volts to 34.5 kv.