Hi-Tech® EX full-range current-limiting fuses
Trans-Guard® EX full-range current-limiting capacitor fuses

The Trans-Guard EX full-range current-limiting capacitor fuse provides both low and high current fault protection in a single, compact fuse body.

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01 Outdoor use
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02 Indoor use

- Lowest total I^2t let-throughs in the industry provide maximum protection for banks by minimizing energy let-through during a fault
- Higher melt I^2t's make fuses less susceptible to damaging current surges
- Hermetically sealed design produces no expulsion products or noise during operation and has no flying parts, making it easy to mount the fuse in confined areas
- Blown fuse indicator makes it easy to see when a fuse has operated, helping to locate failed capacitor banks
- Patented damage sensor significantly reduces the potential for fuse failure in the event an element damaging current surge occurs
- Rigorous testing to meet ANSI/IEEE standards, including 100% physical inspection, resistance measurement and helium mass spectrometer leak testing
- High fault current interrupting capability – 50,000 A symmetrical
- Bushing and bus mount options available for indoor and outdoor applications

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Hi-Tech® EX full-range current-limiting fuses

Blown fuse indicator

01 Before operation

02 After operation

As a full-range fuse, the Trans-Guard® EX is capable of interrupting any current that causes melting up to its rated maximum interrupting current of 50 kA. Its ability to significantly limit energy let-through during a fault greatly reduces the likelihood of disruptive equipment failures. The blown fuse indicator makes it easy to see when a fuse has operated, helping to locate failed capacitor banks.

The Indoor versions of the Trans-Guard EX current-limiting capacitor fuses are used in metal-enclosed capacitor banks, harmonic filter banks and padmounted capacitor banks. Outdoor versions are coated with an oven-baked UV acrylic paint and are used in open rack-mounted systems. All Trans-Guard EX fuses provide protection against disruptive equipment failures, such as a case rupture, when a dielectric or non-dielectric fault occurs within the capacitor. Fuses are sized to withstand transient inrush currents associated with back-to-back capacitor bank switching.

The Trans-Guard EX fuse is hermetically sealed so no external expulsion gases are produced during interruption and it has no moving parts. This makes it ideal for bus-mounting or bushing-mounting, and both indoor and outdoor versions are available. An additional design distinction is its patented damage sensor which significantly reduces the potential for fuse failure in the event of element-damaging current surges.

Dimensional information

Rated maximum voltage (kV)	Current rating (amps)	Dimensions in. (mm)			
		Fuse length "A"	Tag length "B"	Fuse diameter "C"	Tag offset "D"
5.5	6–75	8.0 (203)	2.9 (74)	2.2 (56)	1.125 (29)
	80–200	14.7 (373)	2.5 (64)	3.3 (84)	1.75 (44)
8.3	6–50	8.0 (203)	2.9 (74)	2.2 (56)	1.125 (29)
	65–125	11.9 (302)	2.5 (64)	3.3 (84)	1.75 (44)
15.5	6–50	12.3 (312)	2.9 (74)	2.2 (56)	1.125 (29)
	65–100	14.7 (373)	2.5 (64)	3.3 (84)	1.75 (44)
23.0	6–50	15.1 (384)	2.9 (74)	2.2 (56)	1.125 (29)

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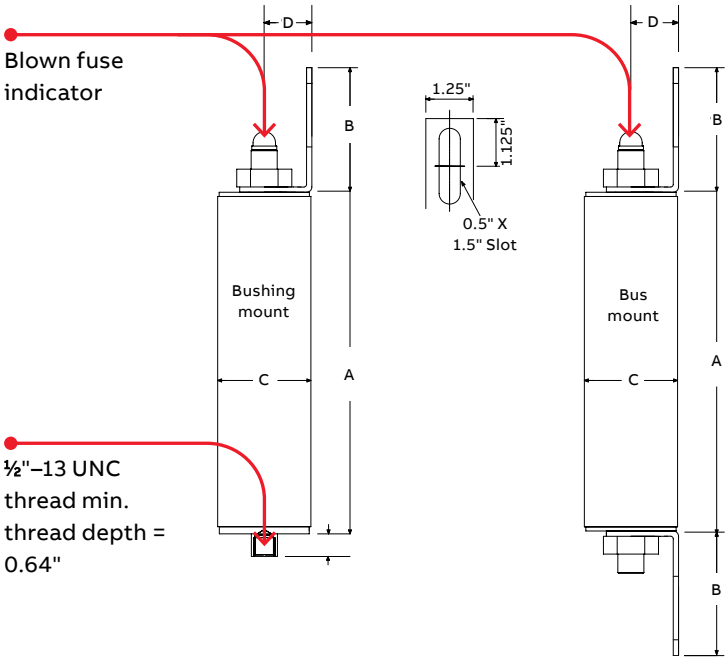

Hi-Tech® EX full-range current-limiting fuses

Ordering information and electrical characteristics

Fuse ordering and electrical characteristic information

Rated maximum voltage (kV)	Current rating (amps)	Indoor cat. no.		Outdoor cat. no.		Minimum melt I^2t (A^2 sec)	Maximum total I^2t (A^2 sec)
		Bus mount	Bushing mount	Bus mount	Bushing mount		
5.5	6	HTEX22T006	HTEX22D006	HTEX22U006	HTEX22C006	620	2,700
	8	HTEX22T008	HTEX22D008	HTEX22U008	HTEX22C008	800	4,000
	10	HTEX22T010	HTEX22D010	HTEX22U010	HTEX22C010	800	4,000
	12	HTEX22T012	HTEX22D012	HTEX22U012	HTEX22C012	920	8,000
	18	HTEX22T018	HTEX22D018	HTEX22U018	HTEX22C018	1,310	9,500
	20	HTEX22T020	HTEX22D020	HTEX22U020	HTEX22C020	1,620	11,000
	25	HTEX22T025	HTEX22D025	HTEX22U025	HTEX22C025	3,660	22,000
	30	HTEX22T030	HTEX22D030	HTEX22U030	HTEX22C030	5,250	30,000
	40	HTEX22T040	HTEX22D040	HTEX22U040	HTEX22C040	8,700	50,000
	50	HTEX22T050	HTEX22D050	HTEX22U050	HTEX22C050	12,800	70,000
	65	HTEX22T065	HTEX22D065	HTEX22U065	HTEX22C065	20,500	95,000
	75	HTEX22T075	HTEX22D075	HTEX22U075	HTEX22C075	30,200	129,000
	80	HTEX32T080	HTEX32D080	HTEX32U080	HTEX32C080	22,100	110,000
	100	HTEX32T100	HTEX32D100	HTEX32U100	HTEX32C100	56,700	280,000
	125	HTEX32T125	HTEX32D125	HTEX32U125	HTEX32C125	78,300	380,000
	150	HTEX32T150	HTEX32D150	HTEX32U150	HTEX32C150	176,000	860,000
	200	HTEX32T200	HTEX32D200	HTEX32U200	HTEX32C200	259,000	1,270,000
8.3	6	HTEX23T006	HTEX23D006	HTEX23U006	HTEX23C006	620	2,700
	8	HTEX23T008	HTEX23D008	HTEX23U008	HTEX23C008	800	4,000
	10	HTEX23T010	HTEX23D010	HTEX23U010	HTEX23C010	800	4,000
	12	HTEX23T012	HTEX23D012	HTEX23U012	HTEX23C012	920	8,000
	18	HTEX23T018	HTEX23D018	HTEX23U018	HTEX23C018	1,310	9,500
	20	HTEX23T020	HTEX23D020	HTEX23U020	HTEX23C020	1,620	11,000
	25	HTEX23T025	HTEX23D025	HTEX23U025	HTEX23C025	3,660	22,000
	30	HTEX23T030	HTEX23D030	HTEX23U030	HTEX23C030	5,250	30,000
	40	HTEX23T040	HTEX23D040	HTEX23U040	HTEX23C040	8,700	50,000
	50	HTEX23T050	HTEX23D050	HTEX23U050	HTEX23C050	12,800	70,000
	65	HTEX33T065	HTEX33D065	HTEX33U065	HTEX33C065	25,200	100,000
	80	HTEX33T080	HTEX33D080	HTEX33U080	HTEX33C080	47,200	185,000
	100	HTEX33T100	HTEX33D100	HTEX33U100	HTEX33C100	78,300	330,000
	125	HTEX33T125	HTEX33D125	HTEX33U125	HTEX33C125	115,150	480,000

Hi-Tech® EX full-range current-limiting fuses

Ordering information, electrical characteristics and fuse selection

Fuse ordering and electrical characteristic information (continued)

Rated maximum voltage (kV)	Current rating (amps)	Indoor cat. no.		Outdoor cat. no.		Minimum melt I^2t (A^2 sec)	Maximum total I^2t (A^2 sec)
		Bus mount	Bushing mount	Bus mount	Bushing mount		
15.5	6	HTEX24T006	HTEX24D006	HTEX24U006	HTEX24C006	620	2,600
	8	HTEX24T008	HTEX24D008	HTEX24U008	HTEX24C008	800	3,700
	10	HTEX24T010	HTEX24D010	HTEX24U010	HTEX24C010	800	3,700
	12	HTEX24T012	HTEX24D012	HTEX24U012	HTEX24C012	920	6,500
	18	HTEX24T018	HTEX24D018	HTEX24U018	HTEX24C018	1,310	8,000
	20	HTEX24T020	HTEX24D020	HTEX24U020	HTEX24C020	1,620	10,000
	25	HTEX24T025	HTEX24D025	HTEX24U025	HTEX24C025	3,660	22,000
	30	HTEX24T030	HTEX24D030	HTEX24U030	HTEX24C030	5,250	30,000
	40	HTEX24T040	HTEX24D040	HTEX24U040	HTEX24C040	8,700	50,000
	50	HTEX24T050	HTEX24D050	HTEX24U050	HTEX24C050	12,800	70,000
	65	HTEX34T065	HTEX34D065	HTEX34U065	HTEX34C065	25,200	110,000
	80	HTEX34T080	HTEX34D080	HTEX34U080	HTEX34C080	39,400	185,000
	100	HTEX34T100	HTEX34D100	HTEX34U100	HTEX34C100	80,000	380,000
23	6	HTEX25T006	HTEX25D006	HTEX25U006	HTEX25C006	620	3,100
	8	HTEX25T008	HTEX25D008	HTEX25U008	HTEX25C008	800	4,800
	10	HTEX25T010	HTEX25D010	HTEX25U010	HTEX25C010	800	4,800
	12	HTEX25T012	HTEX25D012	HTEX25U012	HTEX25C012	920	8,300
	18	HTEX25T018	HTEX25D018	HTEX25U018	HTEX25C018	1,310	11,200
	20	HTEX25T020	HTEX25D020	HTEX25U020	HTEX25C020	1,620	13,000
	25	HTEX25T025	HTEX25D025	HTEX25U025	HTEX25C025	3,660	28,000
	30	HTEX25T030	HTEX25D030	HTEX25U030	HTEX25C030	5,250	38,000
	40	HTEX25T040	HTEX25D040	HTEX25U040	HTEX25C040	8,700	61,000
	50	HTEX25T050	HTEX25D050	HTEX25U050	HTEX25C050	12,800	82,000

Fuse selection

The fuse current rating should be greater than 1.5 x capacitor rated current. This 50% protective margin accounts for normal overvoltages, harmonics and capacitor tolerances.

Example: The rated current for a single-phase 150 kVAR 4.16 kV capacitor is 150 kVAR/4.16 kV = 36 A. Multiplying by the protective margin factor gives 36 A x 1.5 = 54 A. A 65 A fuse should therefore be used.

To select the proper fuse for a single-phase capacitor application, please refer to the table below.

Single-phase capacitor fuse recommendations

Fuse voltage rating (kV)	Capacitor voltage rating (V)	Fuse current rating						
		50 kVAR	100 kVAR	150 kVAR	200 kVAR	300 kVAR	400 kVAR	500 kVAR
5.5	2.4–2.77	30	65	100	125	200*	–	–
	4.16	18	40	65	75	125	150*	200*
	4.8	18	40	50	65	100	125	200*
8.3	6.64	12	25	40	50	80	100	125
	7.2	12	25	40	50	65	100	125
	7.62–7.96	10	20	30	40	65	80	100
	8.32	10	18	30	40	65	80	100
15.5	9.96	8	18	25	30	50	65	80
	12.47–14.4	6	12	18	25	40	50	65
23.0	19.9–21.6	6	8	12	18	25	30	40

Note: All fuses meet “safe zone” tank rupture curves for type EX or equivalent capacitors unless denoted *.