

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

Trans-Guard® FX full-range current-limiting fuse

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01 Figure 1

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02 Figure 2

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03 Figure 3

- Patented damage sensor significantly reduces the risk of fuse failure should the fuse be subjected to an element-damaging current surge
- Hermetically sealed construction ensures that no gases escape from the fuse during current interruption
- All Trans-Guard FX fuses are helium mass spectrometer leak tested to ensure sealing system integrity
- Rugged machined brass end caps used for greater ferrule strength, resulting in less distortion and more secure fuse attachment in dry-well canisters
- Tested in accordance with the most recent ANSI/IEEE standards including short circuit testing at the manufacturer's specified rated maximum application temperature (RMAT)
- Optional blown fuse indicator features a unique design that does not affect the fuse's arcing performance

This fuse provides both overload and fault current protection for distribution equipment in a single fuse body. As a full-range fuse, it is capable of interrupting any continuous current between the minimum current that can cause melting of its elements and its rated maximum interrupting current (50,000 A). The fuses are capable of interrupting in elevated ambient temperatures up to their rated maximum application temperature (RMAT).

The Trans-Guard FX fuse is hermetically sealed and thus discharges no gases during fuse operation. An additional design distinction is its patented damage sensor that significantly reduces the potential for fuse failure in the event of element-damaging current surges.



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Applications:

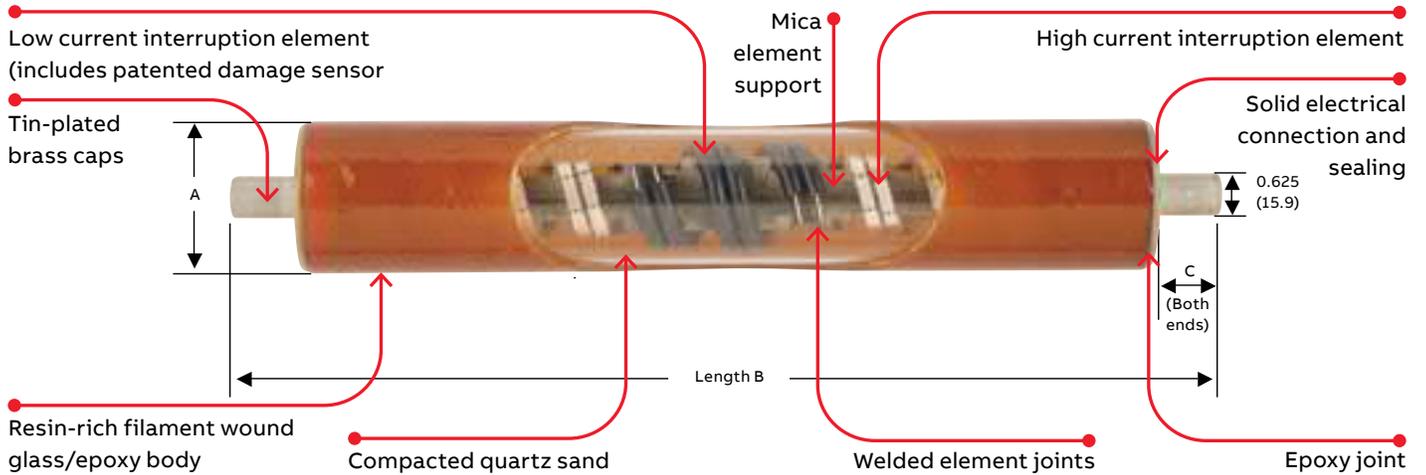
Trans-Guard FX fuses are available in a broad range of ratings. For ease of application, all designs are compatible with the industry-recognized standard mounting codes. Common applications include the Trans-Guard FX:

- Installed in drywell canisters for distribution transformer protection (see Figure 1)
- Clip mounted in live-front switchgear (see Figure 2)

- Externally mounted on overhead distribution systems, – contact factory for more information (see Figure 3)
- Installed in Elastimold® MCAN rubber molded canister for deadfront/submersible applications
- Installed directly in oil, Type 8 (contact factory for more information)

Hi-Tech® FX backup current-limiting fuses

Construction



Dimensional information for Trans-Guard® FX fuses

Nominal fuse voltage rating (kV)	Current rating (amps)	Dimensions in. (mm)			Standard mounting code
		A	B	C	
5.5	3-75	2.25-2.18 (57.0-55.3)	10.00-9.90 (254.0-251.5)	1.02-1.00 (25.9-25.4)	4
	80-200	3.32-3.25 (84.4-82.5)	17.51-17.35 (444.8-440.7)	1.21-1.17 (30.7-29.7)	6
8.3	3-50	2.25-2.18 (57.0-55.3)	10.00-9.90 (254.0-251.5)	1.02-1.00 (25.9-25.4)	4
	65-80	2.25-2.18 (57.0-55.3)	14.31-14.21 (363.5-360.9)	1.02-1.00 (25.9-25.4)	5
	65-125	3.32-3.25 (84.4-82.5)	14.70-14.54 (373.4-369.3)	1.21-1.17 (30.7-29.7)	5
15.5	3-50	2.25-2.18 (57.0-55.3)	14.31-14.21 (363.5-360.9)	1.02-1.00 (25.9-25.4)	5
	65	2.25-2.18 (57.0-55.3)	17.12-17.02 (434.8-432.3)	1.02-1.00 (25.9-25.4)	6
	65-100	3.32-3.25 (84.4-82.5)	17.51-17.35 (444.8-440.7)	1.21-1.17 (30.7-29.7)	6
23.0	6-50	2.25-2.18 (57.0-55.3)	17.12-17.02 (434.8-432.3)	1.02-1.00 (25.9-25.4)	6

Blown fuse indicator – Type 1

01 Before operation
02 After operation



01



02

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

Electrical characteristics

Electrical characteristics of Trans-Guard® FX fuses (single fuses)

Nominal fuse voltage rating (kV)	Fuse diameter (in.)	Current rating (amps)	Fuse cat. no. (N1)	Rated maximum voltage (kV)	Maximum continuous current (in air) (N6) (N7) (amps)			Peak arc voltage (N5) (kV)	Minimum melt I ² t (amp ² -sec)	Maximum melt I ² t (N3) (N4) (amp ² -sec)		RMAT (N8) (°C)
					25 °C	40 °C	55 °C			(N3)	(N4)	
5.5	2.2	3	HTFX220003	5.5	5.0	4.9	4.7	30	100	238		140
		6	HTFX220006		11.0	10.5	10.0	25	620	1,764		
		8	HTFX220008		13.5	13.0	12.5	23	800.0	2,560		
		10	HTFX220010		16.0	15.5	15.0	23	800.0	2,560		
		12	HTFX220012		20.5	19.5	19.0	21	920.0	4,814		
		18	HTFX220018		23.5	22.5	22.0	18	1,310	5,815		
		20	HTFX220020		27.5	26.5	25.5	18	1,620	6,779		
		25	HTFX220025		37.0	35.5	34.5	18	3,660	13,747		
		30	HTFX220030		41.0	39.5	38.5	18	5,250	18,863		
		40	HTFX220040		50.0	48.5	47.0	18	8,700	31,415		
		50	HTFX220050		57.0	55.0	53.5	18	12,800	44,260		
		65	HTFX220065		69.5	67.5	64.0	17	20,500	95,000		
75	HTFX220075	78.5	76.0	72.0	17	30,200	129,000					
5.5	3.3	80	HTFX320080	5.5	99	96	94	15	22,100	110,000		71
		100	HTFX320100		126	122	118	15	56,700	280,000		
		125	HTFX320125		142	138	134	15	78,300	380,000		
		150	HTFX320150		184	178	173	15	176,000	860,000		
		200	HTFX320200		208	202	196	15	259,000	1,270,000		
8.3	2.2	3	HTFX230003	10.0	5.0	4.9	4.7	30	100	350		140
		6	HTFX230006		11.0	10.5	10.0	32	620	2,700		
		8	HTFX230008		13.5	13.0	12.5	28	800	4,000		
		10	HTFX230010		16.0	15.5	15.0	28	800	4,000		
		12	HTFX230012		20.5	19.5	19.0	26	920	8,000		
		18	HTFX230018		23.5	22.5	22.0	26	1,310	9,500		
		20	HTFX230020		27.5	26.5	25.5	26	1,620	11,000		
		25	HTFX230025		37.0	35.5	34.5	26	3,660	22,000		
		30	HTFX230030		41.0	39.5	38.5	26	5,250	30,000		
		40	HTFX230040		50.0	48.5	47.0	26	8,700	50,000		
		50	HTFX230050		57.0	55.0	53.5	26	12,800	70,000		
		65	HTFX230065		8.8	87.0	84.0	81.5	23	34,000	200,000	
	80	HTFX230080	100.0	98.0	95.0	22	51,200	280,000		71		
	3.3	65	HTFX330065	8.3	81.0	79.0	77.0	25	25,200		100,000	
		80	HTFX330080		95.0	92.0	89.0	25	47,200		185,000	
		100	HTFX330100		120.0	117.0	113.0	25	78,300	330,000		
			125	HTFX330125		135.0	131.0	127.0	25	115,150	480,000	

Electrical characteristics of Trans-Guard® FX fuses (single fuses) (continued)

Nominal fuse voltage rating (kV)	Fuse diameter (in.)	Current rating (amps)	Fuse cat. no. (N1)	Rated maximum voltage (kV)	Maximum continuous current (in air) (N6) (N7) (amps)			Peak arc voltage (N5) (kV)	Minimum melt I ² t (amp ² -sec)	Maximum melt I ² t (N3) (N4) (amp ² -sec)		RMAT (N8) (°C)
					25 °C	40 °C	55 °C			(N3)	(N4)	
15.5	2.2	3	HTFX240003	17.2	5.0	4.9	4.7	51	100	510	140	
		6	HTFX240006		11.0	10.5	10.0	54	620	2,600		
		8	HTFX240008		13.5	13.0	12.5	46	800	3,700		
		10	HTFX240010		16.0	15.5	15.0	46	800	3,700		
		12	HTFX240012		20.5	19.5	19.0	43	920	6,500		
		18	HTFX240018		23.5	22.5	22.0	45	1,310	8,000		
		20	HTFX240020		27.5	26.5	25.5	45	1,620	10,000		
		25	HTFX240025		37.0	35.5	34.5	45	3,660	22,000		
		30	HTFX240030		41.0	39.5	38.5	45	5,250	30,000		
		40	HTFX240040		50.0	48.5	47.0	45	8,700	50,000		
	50	HTFX240050	53.0	51.5	50.0	45	12,800	70,000				
	65	HTFX240065	15.5	72.0	70.0	68.0	39	28,300	164,000	71		
	3.3	65	HTFX340065	78.0	75.0	73.0	40	25,200	110,000			
80		HTFX340080	88.0	85.0	82.0	40	39,400	185,000				
		100	HTFX340100		114.0	110.0	107.0	40	80,000	380,000		
23.0	2.2	6	HTFX250006	23.0	11.0	10.5	10.0	67	620	3,100	140	
		8	HTFX250008		13.5	13.0	12.5	61	800	4,800		
		10	HTFX250010		16.0	15.5	15.0	61	800	4,800		
		12	HTFX250012		20.5	19.5	19.0	60	920	8,300		
		18	HTFX250018		23.5	22.5	22.0	60	1,310	11,200		
		20	HTFX250020		27.5	26.5	25.5	60	1,620	13,000		
		25	HTFX250025		37.0	35.5	34.5	60	3,660	28,000		
		30	HTFX250030		41.0	39.5	38.5	60	5,250	38,000		
		40	HTFX250040		48.0	46.5	45.0	60	8,700	61,000		
		50	HTFX250050		55.0	53.0	51.5	60	12,800	82,000		

Notes:

- N1. Ratings have maximum interrupting capability of 50 kA, except 17.2 kV 3A (HTFX240003) which tested at 44 kA.
- N2. Current ratings shown in chart above are achieved by using a parallel combination of two fuses (order two fuses). To facilitate equal sharing of the interrupting duty, the two fuses should be resistance matched (± 2%) and be mounted such that the current paths to and from each fuse are symmetrical.
- N3. Tabulated Maximum Total I²t values are for currents of 50,000 A at the nominal voltage of the fuse (except for fuses having a rated maximum voltage of 8.8 kV, in which case the maximum total I²t values are at 8.8 kV). Fuses that have a rated maximum voltage higher than their nominal voltage rating will have a higher I²t let-through when applied at voltages up to these higher values. For example, maximum total I²t values are increased by approximately 30% when 8.3 kV fuses are applied at 10 kV and approximately 25% when 15.5 kV fuses are used at 17.2 kV.
- N4. Maximum total I²t values are reduced for currents below 50,000 A. For example, at 10,000 A, maximum total I²t values are approximately 15% less than the published values.
- N5. Peak arc voltages quoted are for 50,000 A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.
- N6. Maximum continuous currents at higher ambient temperatures, and in confining enclosures:
 - These may be determined by derating the fuses by .2% per °C over 25 °C (for example, at 85 °C the derating would be 60 x .2 = 12%, making the maximum continuous current of a 30 A fuse 41 x .88 = 36.1 A).
 - When fuses are applied in a confining enclosure, such as a drywell canister, additional derating of a fuse's maximum continuous current is necessary. Specifically, the maximum continuous current for fuses used in a dry-well canister, with the canister completely submerged in oil, will be reduced by an additional 2% (3% for fuses having a rated maximum voltage of 8.8kV). When calculating the derating for temperature, as described above, the temperature of the oil surrounding the canister should be used. For other types of enclosures, please consult the factory.
- N7. Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures and use in enclosures is the same as described above for "Maximum Continuous Current". See time-current characteristics for melting characteristics in this time region.
- N8. The 2.2"-dia. 80 A and 160 A (paralleled 80 A) fuses have an RMAT of 140 °C at a reduced rated maximum voltage of 5.5 kV.

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

Electrical characteristics

Electrical characteristics of Trans-Guard® FX fuses (parallel fuses)

Nominal fuse voltage rating (kV)	Fuse diameter (in.)	Current rating (amps)	Fuse cat. no. (order two fuses) (N2)	Rated maximum voltage (kV)	Maximum continuous current (in air) (N6) (amps)			Peak arc voltage (N5) (kV)	Minimum melt I ² t (amp ² -sec)	Maximum melt I ² t (N3) (N4) (amp ² -sec)	RMAT (N8) (°C)		
					25 °C	40 °C	55 °C						
8.3	2.2	60	HTFX230030	10.0	80.0	77.0	75.0	26	21,000	120,000	140		
			HTFX230040		98.0	95.0	92.0					34,000	180,000
		80	HTFX230050	8.3	111.0	108.0	105.0	24	51,200	250,000			
			HTFX230065		8.8	170.0	165.0	160.0	22	136,000		670,000	
			HTFX230080			198.0	191.0	186.0	21	204,800		890,000	40
	3.3	130	HTFX330065	8.3		158.0	154.0	151.0	24	100,800	400,000	71	
			HTFX330080		186.0	180.0	175.0	24	189,000	740,000			
		200	HTFX330100	235.0	229.0	221.0	24	313,000	1,300,000				
			HTFX330125	265.0	256.0	249.0	24	460,500	1,800,000				
			15.5	2.2	HTFX240030	17.2	80.0	77.0	75.0	45	21,000		110,000
HTFX240040	98.0	95.0			92.0		45	34,800	170,000				
HTFX240050	104.0	101.0			98.0		45	51,200	310,000				
3.3	HTFX340065	15.5		152.0	147.0	143.0	39	100,800	440,000	71			
	HTFX340080			172.0	167.0	160.0	39	157,500	740,000				
200	HTFX340100	222.0	214.0	208.0	39	320,000	1,520,000						

Notes:

N1. Ratings have maximum interrupting capability of 50 kA, except 17.2 kV 3A (HTFX240003) which tested at 44 kA.

N2. Current ratings shown in chart above are achieved by using a parallel combination of two fuses (order two fuses). To facilitate equal sharing of the interrupting duty, the two fuses should be resistance matched ($\pm 2\%$) and be mounted such that the current paths to and from each fuse are symmetrical.

N3. Tabulated Maximum Total I²t values are for currents of 50,000 A at the nominal voltage of the fuse (except for fuses having a rated maximum voltage of 8.8 kV, in which case the maximum total I²t values are at 8.8 kV). Fuses that have a rated maximum voltage higher than their nominal voltage rating will have a higher I²t let-through when applied at voltages up to these higher values. For example, maximum total I²t values are increased by approximately 30% when 8.3 kV fuses are applied at 10 kV and approximately 25% when 15.5 kV fuses are used at 17.2 kV.

N4. Maximum total I²t values are reduced for currents below 50,000 A. For example, at 10,000 A, maximum total I²t values are approximately 15% less than the published values.

N5. Peak arc voltages quoted are for 50,000 A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.

N6. Maximum continuous currents at higher ambient temperatures, and in confining enclosures:

- These may be determined by derating the fuses by .2% per °C over 25 °C (for example, at 85 °C the derating would be $60 \times .2 = 12\%$, making the maximum continuous current of a 30 A fuse $41 \times .88 = 36.1$ A).

- When fuses are applied in a confining enclosure, such as a drywell canister, additional derating of a fuse's maximum continuous current is necessary. Specifically, the maximum continuous current for fuses used in a dry-well canister, with the canister completely submerged in oil, will be reduced by an additional 2% (3% for fuses having a rated maximum voltage of 8.8kV). When calculating the derating for temperature, as described above, the temperature of the oil surrounding the canister should be used. For other types of enclosures, please consult the factory.

N7. Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures and use in enclosures is the same as described above for "Maximum Continuous Current". See time-current characteristics for melting characteristics in this time region.

N8. The 2.2"-dia. 80 A and 160 A (paralleled 80 A) fuses have an RMAT of 140 °C at a reduced rated maximum voltage of 5.5 kV.

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

Recommendations

Recommended Trans-Guard® FX mounted in a standard drywell canister in oil (at a max. oil temp. of 100 °C)

Recommended fuse current ratings (amps)																		
Fuse voltage		5.5 kV				8.3 kV				15.5 kV				23 kV				
1-phase transformer kVA	Transformer 1-phase voltage rating (kV) phase-to-ground																	
	2.4		4.16		4.8		7.2		7.62		12		14.4		16		19.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10	6 ^b	8	-	6 ^a	-	3	-	3 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	6 ^a
15	8	12	-	6	-	6	-	3	-	3	-	3 ^a	-	3 ^a	-	3 ^a	-	6 ^a
25	18	20	8	12	8 ^b	10	-	6	-	6	-	3	-	3	-	3	-	6 ^a
37.5	20	30	12	18	12 ^b	18	8	10	-	8	-	6	-	6 ^a	-	6 ^a	-	6 ^a
50	30	40	18	20	18	20	10	12	10	12	-	6	-	6	-	6	-	6 ^a
75	50	75	25	40	20	30	12	20	12	20	8	12	8	10	-	8	-	6
100	65	80*	30	50	25	40	20	25	20	25	12 ^b	18	10	12	10 ^b	12	-	8
167	100*	-	65	80*	50	65	30	50	30	50	20	25	18	25	18	20	12	18
250	-	-	80*	-	80*	-	50	60*	50	60*	25	40	20	40	20	30	18	25
333	-	-	-	-	100*	-	60*	100*	60*	100*	40	60*	30	50	25	40	20	30
500	-	-	-	-	-	-	-	-	-	-	60*	80*	50	80*	40	60*	40	50
750	-	-	-	-	-	-	-	-	-	-	80*	-	80*	-	60*	100*	-	-
1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100*	-	-	-

Recommended 8.3 kV Trans-Guard FX mounted in 15.5 kV drywell canister in oil (at a max. oil temp. of 100 °C)

Recommended fuse current ratings (amps)										
Fuse voltage		8.3 kV								
1-phase transformer KVA	Transformer 1-phase voltage rating (kV) phase-to-ground									
	2.4		4.16		4.8		7.2		7.62	
	A	B	A	B	A	B	A	B	A	B
75	-	80	-	-	-	-	-	-	-	-
100	65	80	-	-	-	-	-	-	-	-
167	X†	160*	65	80	-	80	-	-	-	-
250	160*	-	80	130*	80	130*	-	65	-	65
333	-	-	130*	160*	X†	160*	65	X†	65	X†
500	-	-	160*	-	160*	-	-	130*	-	130*

†X=Use an 8.3 kV Drywell Canister. See top chart for fuse recommendations.

Notes:

Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

Fuses recommended in bottom chart must be mounted in a 15.5kV mounting code 5 drywell canister.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second.

Fuses also meet cold load pickup criteria of six times transformer full load current for 1 second and three times transformer full load current for 10 seconds.

* Indicates parallel fuse applications.

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

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

Recommendations

Recommended Trans-Guard® FX mounted in a standard drywell canister in oil (at a max. oil temp. of 100 °C)

Recommended fuse current ratings (amps)

Fuse voltage	5.5 kV				8.3 kV				15.5 kV						23 kV					
	Transformer 3-phase voltage rating (kV) phase-to-phase																			
	2.4		4.16		4.8		7.2-7.96		8.32		12.47		13.2-14.4		20.8		22.9-24.9C		34.5C	
3-phase transformer kVA	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15	-	6	-	3	3		-	3 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
22.5	8	10	-	6	6 ^a		-	3	-	3	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
30	10	18	-	6	6		-	6 ^a	-	3	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
45	18	20	8	12	8 ^b	10	-	6	-	6	-	3	-	3	-	6 ^a	-	6 ^a	-	6 ^a
75	25	40	18	20	12	18	8	12	8 ^b	10	-	6	-	6	-	6 ^a	-	6 ^a	-	6 ^a
100	40	50	20	25	18	20	12 ^b	18	10	12	-	8	6	8	-	6 ^a	-	6 ^a	-	6 ^a
112.5	40	65	20	30	20	25	12	18	12 ^b	18	8 ^b	10	-	8	-	6	-	6 ^a	-	6 ^a
150	50	80*	25	40	25	40	18	20	18	20	10	18	10 ^b	12	-	6	-	6	-	6 ^a
200	75	100*	40	65	30	50	20	30	20	25	12	20	12 ^b	18	8	10	-	8	-	6
225	80*	-	40	75	40	65	25	40	20	30	18	20	12	20	8	12	8	10	-	6
300	-	-	65	80*	50	80*	30	50	30	40	20	25	20	25	12	18	12 ^b	18	-	8
500	-	-	100*	-	80*	-	60*	80*	50	80*	30	50	30	40	20	25	18	25	12	18
750	-	-	-	-	-	80*	-	80*	-	-	50	80*	50	60*	25	40	25	40	18	25
1000	-	-	-	-	-	-	-	-	-	-	60*	100*	60*	80*	40	-	40	-	20	30
1500	-	-	-	-	-	-	-	-	-	-	-	100*	-	-	-	-	50	-	40	-
2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-

Recommended 8.3 kV Trans-Guard FX mounted in 15.5 kV drywell canister in oil (at a max. oil temp. of 100 °C)

Recommended fuse current ratings (amps)

Fuse voltage	8.3 kV									
	Transformer 3-phase voltage rating (kV) phase-to-phase									
	2.4		4.16		4.8		7.2-7.96		8.32	
3-phase transformer kVA	A	B	A	B	A	B	A	B	A	B
112.5	-	65	-	-	-	-	-	-	-	-
150	-	80	-	-	-	-	-	-	-	-
200	80	X [†]	-	65	-	-	-	-	-	-
225	80	130*	-	65	-	65	-	-	-	-
300	130 ^{b*}	160*	65	80	-	80	-	-	-	-
500	160*	-	X [†]	160*	80	130*	65	80c	-	80 ^c
750	-	-	160*	-	130*	-	80 ^c	130*	80 ^c	130*
1000	-	-	-	-	160*	-	130*	160c*	130 ^{b*}	160 ^{c*}
1500	-	-	-	-	-	-	160 ^{c*}	-	130*	-

*X=Use an 8.3 kV drywell canister. See top chart for fuse recommendations.

Notes:

Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

Fuses recommended in bottom chart must be mounted in a 15.5 kV mounting code 5 drywell canister.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second. Fuses also meet cold load pickup criteria of 6 times transformer full load current for 1 second and 3 times transformer full load current for 10 seconds.

*Indicates parallel fuse applications.

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

c Recommendations limited to GNDY-GNDY transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for GNDY-GNDY three phase transformers. In some cases, the fuses recommended in bottom chart may be suitable for use with transformers that are not GNDY-GNDY (contact the factory for further information).

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

Recommendations

Recommended Trans-Guard® FX mounted in air at 40 °C ambient temperature

Recommended fuse current ratings (amps)																				
Fuse voltage		5.5 kV				8.3 kV				15.5 kV						23 kV				
3-phase transformer kVA	Transformer 3-phase voltage rating (kV) phase-to-phase																			
	2.4		4.16		4.8		7.2-7.96		8.32		12.47		13.2-14.4		20.8		22.9-24.9C		34.5C	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15	-	6	-	3	-	3	-	3 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
22.5	-	8	-	6 ^a	-	6 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
30	10 ^b	12	-	6	-	6	-	6 ^a	-	3	-	3 ^a	-	3 ^a	-	6 ^a	-	6 ^a	-	6 ^a
45	12	18	-	8	-	8	-	6 ^a	-	6 ^a	-	3	-	3	-	6 ^a	-	6 ^a	-	6 ^a
75	20	40	12	18	12 ^b	18	-	8	-	8	-	6	-	6 ^a	-	6 ^a	-	6 ^a	-	6 ^a
100	25	40	18	20	18	20	-	12	10 ^b	12	-	8	-	6	-	6 ^a	-	6 ^a	-	6 ^a
112.5	30	50	20	25	18	20	12 ^b	18	-	12	-	8	-	8	-	6 ^a	-	6 ^a	-	6 ^a
150	40	65	25	30	20	25	18	20	12	18	10 ^b	12	8 ^b	10	-	6	-	6	-	6 ^a
200	65	80	30	50	25	40	20	25	18	20	12 ^b	18	12 ^b	18	-	8	-	8	-	6 ^a
225	80	100	40	65	40	50	25	30	20	30	12	18	12 ^b	18	8	10	-	8	-	6
300	80	125	50	80	40	75	25	40	25	30	18	20	18	20	-	12	10	12	-	8
500	150	-	80	125	80	100	50	(65)	40	(65)	25	40	25	40	18	25	18	25	12 ^b	18
750	-	-	125	200	125	150	(65)	100	(65)	(80)	40	(65)	40	(65)	25	40	20	40	18	25
1000	-	-	200	-	150	-	100	(130)*	(80)	(130)*	(65)	100	(65)	80	30	50	30	50	20	25
1500	-	-	-	-	-	-	(160)*	200*	(130)*	200 ^{c*}	100	130*	80	130*	50	-	50	-	25	50
2000	-	-	-	-	-	-	200*	-	200 ^{c*}	250 ^{c*}	130*	200*	100	160*	-	-	-	-	40	-
2500	-	-	-	-	-	-	-	-	-	-	160*	200*	130*	200*	-	-	-	-	50	-
3000	-	-	-	-	-	-	-	-	-	-	200*	-	200*	-	-	-	-	-	-	-

Notes:

Column A = 140-200% of transformer rating and Column B = 200-300% of transformer rating.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second.

Fuses also meet cold load pickup criteria of 6 times transformer full load current for 1 second and 3 times transformer full load current for 10 seconds.

* Indicates parallel fuse applications.

Ratings in parenthesis are 2.2"-dia. fuses (catalog numbers HTFX230065, HTFX230080 and HTFX240065).

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

c Recommendations limited to GNDY-GNDY transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for GNDY-GNDY three phase transformers.

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

Fuse ordering information

To order the proper fuse for a particular application, first determine the correct fuse voltage and current rating using either the appropriate application table (pages 49-51)

or the published performance data (pages 46-48), the applicable TCCs and peak let-through characteristics. Then refer to the chart below to determine the appropriate catalog number.

Fuse catalog numbers

Current rating (amps)	Fuse diameter (in.)	Cat. no.			
		5.5 kV	8.3 kV	15.5 kV	23.0 kV
3	2.2	HTFX220003	HTFX230003	HTFX240003	–
6		HTFX220006	HTFX230006	HTFX240006	HTFX250006
8		HTFX220008	HTFX230008	HTFX240008	HTFX250008
10		HTFX220010	HTFX230010	HTFX240010	HTFX250010
12		HTFX220012	HTFX230012	HTFX240012	HTFX250012
18		HTFX220018	HTFX230018	HTFX240018	HTFX250018
20		HTFX220020	HTFX230020	HTFX240020	HTFX250020
25		HTFX220025	HTFX230025	HTFX240025	HTFX250025
30		HTFX220030	HTFX230030	HTFX240030	HTFX250030
40		HTFX220040	HTFX230040	HTFX240040	HTFX250040
50		HTFX220050	HTFX230050	HTFX240050	HTFX250050
60*		–	HTFX230030	HTFX240030	–
65		HTFX220065	HTFX230065	HTFX240065	–
75		HTFX220075	HTFX230075	–	–
80*		–	HTFX230080	–	–
80*		–	HTFX230040	HTFX240040	–
100*		–	HTFX230050	HTFX240050	–
130*	–	HTFX230065	–	–	
160*	–	HTFX230080	–	–	
65	3.3	–	HTFX330065	HTFX340065	–
80		HTFX320080	HTFX330080	HTFX340080	–
100		HTFX320100	HTFX330100	HTFX340100	–
125		HTFX320125	HTFX330125	–	–
130*		–	HTFX330065	HTFX340065	–
150		HTFX320150	–	–	–
160*		–	HTFX330080	HTFX340080	–
200		HTFX320200	–	–	–
200*		–	HTFX330100	HTFX340100	–
250*		–	HTFX330125	–	–

Notes: To order a fuse having a blown fuse indicator, replace the 7th character ("0") in the catalog number with a "1" (Example: HTFX241040).

Please note that indicator fuses are not suitable for use in drywell canister applications. Also, an indicator option is not available on 3 A fuses.

* Current ratings shown are achieved by using a parallel combination of two fuses (order two fuses).

Contact factory for ordering information concerning outdoor and under-oil fuse versions.