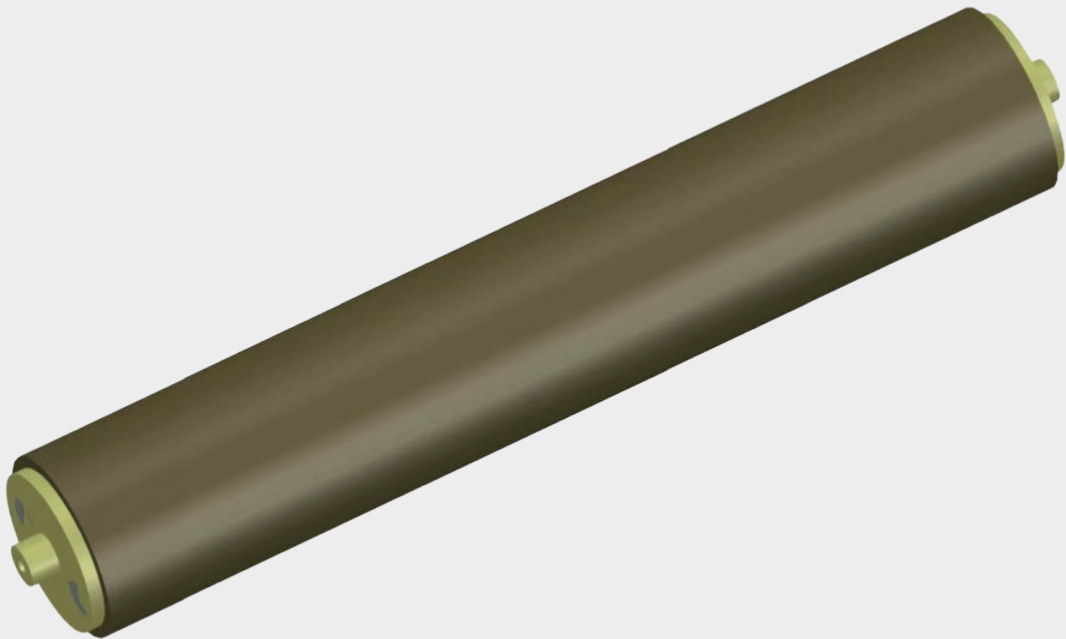

ABB Fuse

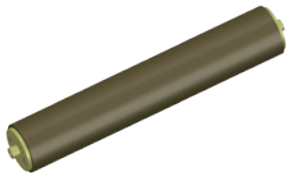
ABB Backup current limited fuse




ABB

Backup current limited fuse

ABB backup current limited fuse is a back-up type currentlimiting fuse designed for application within distribution transformers. Its ability to significantly reduce fault energy and its very high interrupting capabilities provide state-of-the-art protection against rising available fault currents.

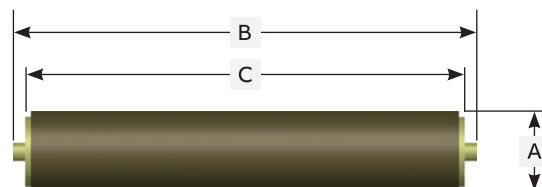


As a back-up current-limiting fuse (refer to IEEE C37.40 for fuse definitions), ABB backup current limited fuse must always be applied in series with a properly sized low-current protective device. This device is typically an under-oil expulsion fuse (i.e., bay-o-net or load sensing link, terminal board weak link, etc.). The expulsion and current-limiting fuse are each selected to provide fault protection over a certain range of currents. The expulsion fuse is chosen to clear the low-magnitude currents such as those caused by faults that occur external to the transformer, high-impedance faults within the transformer, and in the case of load sensing links, transformer overloads. Such currents are generally below the minimum interrupting current of the current-limiting fuse. The back-up current-limiting fuse is selected as to clear all other faults up to maximum interrupting capability. In addition to interrupting the fault currents resulting from low-impedance faults within the transformer, the back-up current-limiting fuse serves the very important function of limiting the amount of energy that is let through to the source of the fault to a value below the withstand capability of the transformer tank. By doing this the current-limiting fuse minimizes the likelihood of disruptive equipment failures (i.e. transformer tank ruptures, accessories being damaged or broken loose from their mountings, etc.). No other protective device is available to similarly reduce the risk of disruptive transformer failures.

ABB backup current limited fuses are manufactured in the China and compact in size, which is especially critical in small single phase distribution transformers. Distribution transformers protected solely by an expulsion fuse have very low interrupting capacity, ranging between 600 and 3,500 A, and are subjected to higher risk of tank damage during an internal fault condition. These units also are subjected to large amounts of additional arcing and energy during an internal fault that may affect additional equipment on the distribution system. If a fault occurs that exceeds the expulsion fuse interrupting capability, the fault will continue to arc within the transformer until another protective device has time to react. This situation can increase the number of affected customers while extending the time required to restore service. The OS Shorty's high interrupting capabilities not only reduce the duration of arcing inside the transformer, but also isolate the fault to the transformer which minimizes the effects of the event.



Backup current limited fuse



Dimensional information

Nominal fuse voltage rating (kV)	Current rating (A)	Fuse cat. no. (N1)	Overall diameter A in. (mm)	Overall length B in. (mm)	Body length C in. (mm)	Fuse weight (kg)
8.3	30	HTSS132030CN	1.5	6.24	5.2	0.90
	40	HTSS132040CN	(38.1)	(162.6)	(132.1)	0.14
	50	HTSS132050CN				
	65	HTSS132065CN	2.2	7.5	6.3	2.0
	80	HTSS132080CN	(55.9)	(190.5)	(160.0)	0.91
	100	HTSS132100CN				
	125	HTSS132125CN		11.0	9.9	3.25
	150	HTSS132150CN		(279.4)	(251.5)	1.45
	165	HTSS132165CN				
17.2	200	HTSS132200CN				
	30	HTSS142030CN	1.5	9.8	8.6	1.3
	40	HTSS142040CN	(38.1)	(248.9)	(218.4)	0.54
	50	HTSS242050CN	2.2"	9.0	7.8	2.5
			(55.9)	(228.6)	(198.12)	1.1
	65	HTSS242065CN		11.8	10.6	3.25
	80	HTSS242080CN		(299.7)	(269.2)	1.48
	100	HTSS242100CN				
	125	HTSS242125CN		16.6	15.5	4.75
15.5	150	HTSS242150CN		(421.6)	(393.7)	2.15
	165	HTSS242165CN				
23.0	30	HTSS152030CN	1.5	11.7	10.5	1.5
	40	HTSS152040CN	(38.1)	(297.2)	(266.7)	0.68
	50	HTSS252050CN	2.2	12.5	11.3	3.25
			(55.9)	(317.5)	(287.0)	1.48
	65	HTSS252065CN		16.1	15.25-15.33	4.75
	80	HTSS252080CN		(408.9)	(378.5)	2.15
38.0	100	HTSS252100CN				
	65	HTSS372065CN	3.3	19.3-19.4	18.3	12.0-12.23
	80	HTSS372080CN	(83.5-85)	(490-492.8)	(464-464.8)	5.4-5.5
	100	HTSS372100CN				
	125	HTSS372125CN				
	140	HTSS372140CN		22-22.1	21.0	13.5-13.9
	165	HTSS372165CN		(560-561.3)	(533.4-534)	6.1-6.3
	200	HTSS372200CN				



Backup current limited fuse

Electrical characteristics (single fuses)

Nominal fuse voltage rating (kV)	Current rating (amps)	Fuse cat. no. (N1)	Rated maximum voltage (kV)	Rated maximum interrupting current (kA)	Peak arc voltage (kV) (N3)	Minimum I/C (amps)	Minimum melt I ² t (amp ² -sec)	Maximum total I ² t (amp ² -sec) (N1) (N2)
8.3	30	HTSS132030CN	8.3	50.0	25	250	1,300	7,100
	40	HTSS132040CN				340	2,550	8,000
	50	HTSS132050CN				400	3,500	13,200
	65	HTSS232065CN	10.0			350	3,700	18,000
	80	HTSS232080CN				430	6,300	31,000
	100	HTSS232100CN				570	12,800	66,000
	125	HTSS232125CN	8.3		26	850	39,000	120,000
	150	HTSS232150CN			24.5	900	23,000	110,000
	165	HTSS232165CN			24	1,020	39,500	175,000
	200	HTSS232200CN				1,120	54,500	225,000
17.2	30	HTSS142030CN	17.2	44.0	49	250	1,300	7,800
	40	HTSS142040CN				340	2,550	9,000
	50	HTSS242050CN		50.0		440	4,440	17,000
	65	HTSS242065CN				360	3,700	22,000
	80	HTSS242080CN				440	6,300	36,000
	100	HTSS242100CN				580	12,800	76,000
	125	HTSS242125CN		44.0		540	14,800	66,000
	150	HTSS242150CN				700	34,800	137,000
15.5	165	HTSS242165CN	15.5		48	780	51,200	195,000
23.0	30	HTSS152030CN	23.0	31.0	63	270	1,300	8,800
	40	HTSS152040CN			63	360	2,550	10,000
	50	HTSS252050CN	25.5	50.0	71	570	3,200	20,000
	65	HTSS252065CN			70	360	3,700	17,000
	80	HTSS252080CN				440	6,300	28,000
	100	HTSS252100CN				575	12,800	70,000
38.0	65	HTSS372065CN	38.0	50.0	110	390	2,600	12,100
	80	HTSS372080CN				490	5,600	23,500
	100	HTSS372100CN				675	13,900	55,000
	125	HTSS372125CN				785	19,300	70,000
	140	HTSS372140CN		26.0	105	715	25,000	99,000
	165	HTSS372165CN		50.0		1,200	43,500	155,000
	200	HTSS372200CN				1,180	51,000	180,000

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Backup current limited fuse

Total Clearing Time-Current Curves 38kV Nominal Voltage Rating

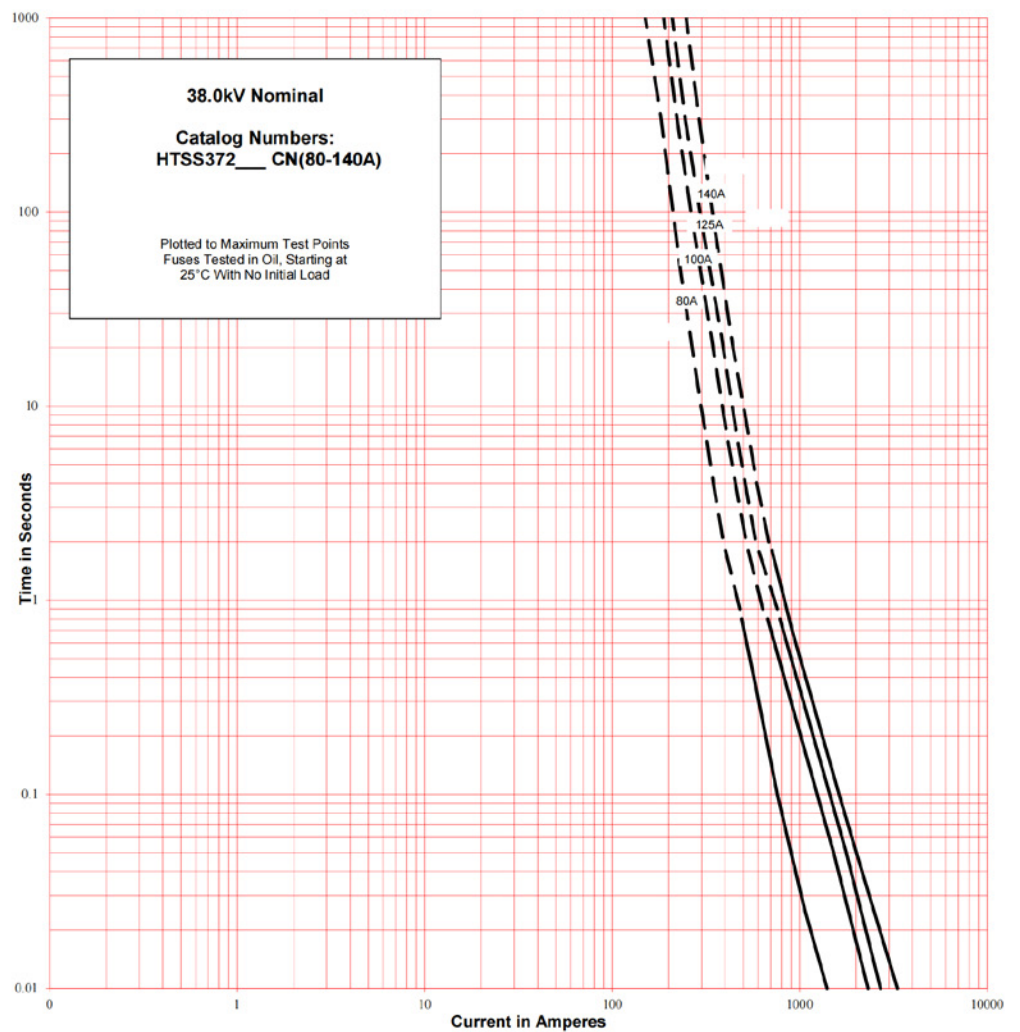


Figure 1 Total Clearing Time-Current Curves 38kV Nominal Voltage Rating


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Backup current limited fuse

Minimum Melting Time-Current Curves 38kV Nominal Voltage Rating

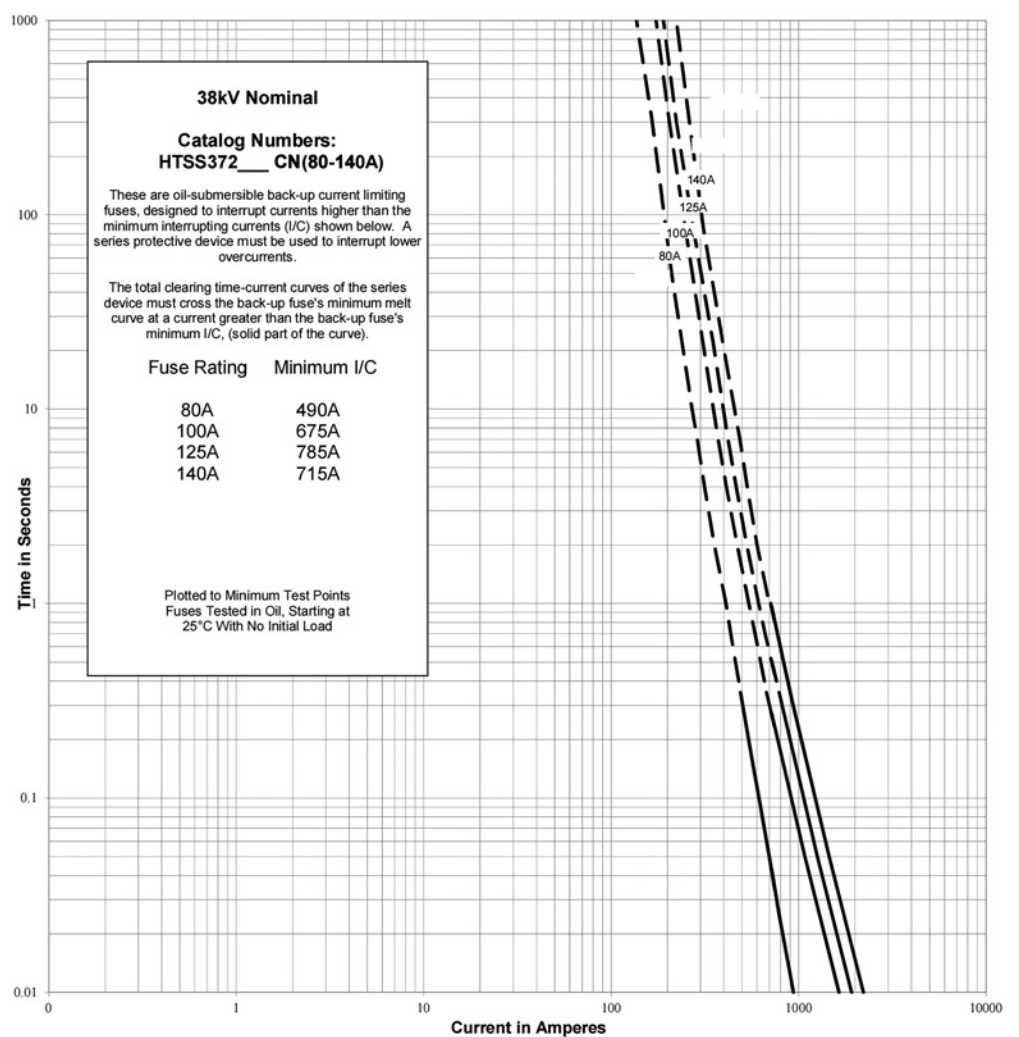


Figure 2 Minimum Melting Time-Current Curves 38kV Nominal Voltage Rating

Fuse Selection:

For a quick and convenient method of selecting the proper Trans-Guard OS Shorty fuse for coordination with under oil expulsion fuses, please visit Hi-Tech's fuse application coordination tool located at <http://www.tnb.com/Hi-TechFACT>