

## European Fuses DIN Fuses 7.2kV - 36kV

**IBD**  
**7.2 UP TO 36 KV**



HIGH-VOLTAGE FUSES DESIGNED FOR POWER TRANSFORMER PROTECTION

INTERIOR/EXTERIOR USE  
CERAMIC HOUSING

“MEDIUM” CLASS TRIP-INDICATOR

COMBINED WITH A LOWERED MINIMUM BREAKING CURRENT

COMPLIES WITH IEC 282-1, DIN 43625 AND VDE 0670/4 RECOMMENDATIONS

COMPLIES WITH APPLICATION RULES OF IEC PUBLICATION 787

### Presentation

IBD fuses are designed for the protection of HV/LV distribution transformers. The fuse technology is known as “enclosed” melting. It ensures against any visible evidence of the fuse during its operation.

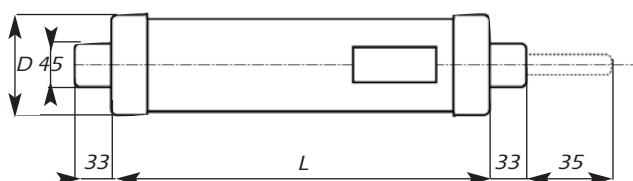
The main features include:

- enameled ceramic housing
- nickle-plated brass end caps
- solid silver fuse elements
- waterproof system for outdoor use.

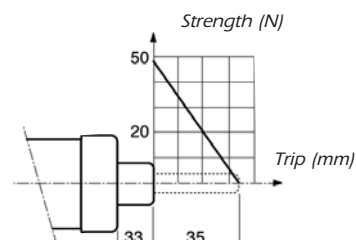
IBD fuses satisfy existing operational constraints for electric networks.

Their characteristics are based on operation at ambient temperatures ranging from  $-25^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ , and a maximum altitude of 1000 meters.

Dimensions (mm)



Trip indicator features



# Medium voltage fuses

## European Fuses DIN Fuses 7.2kV - 36kV

### Main characteristics

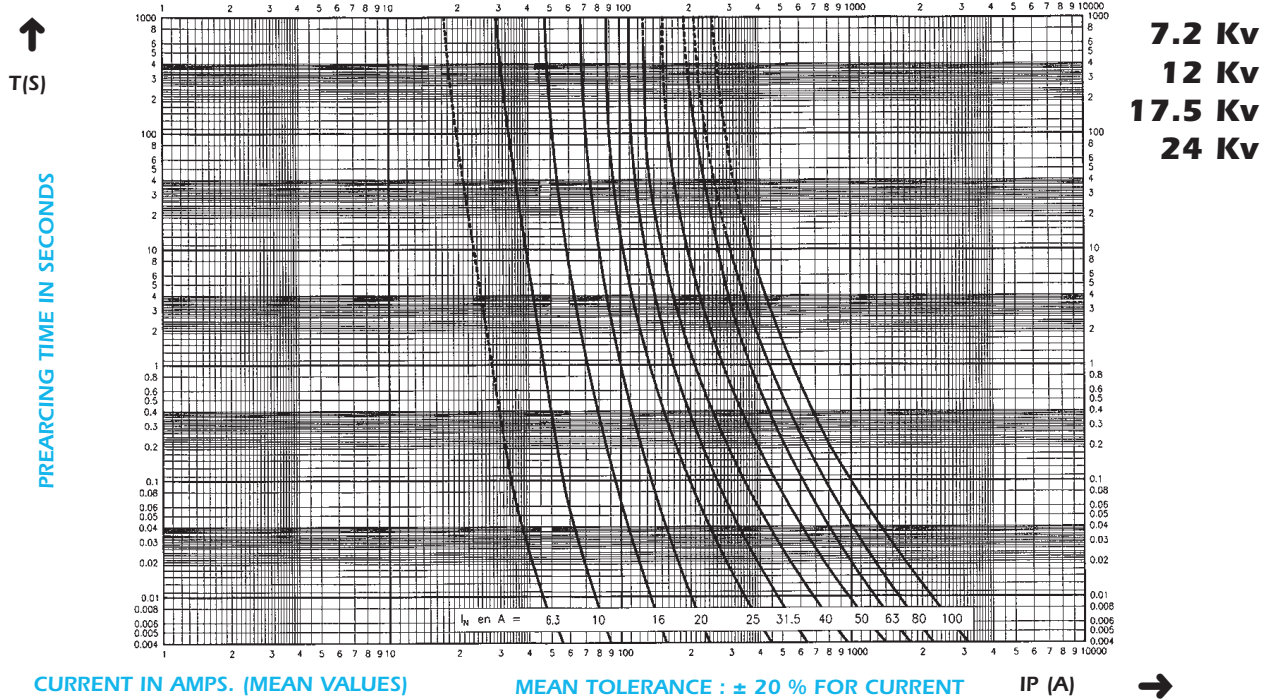
Rated voltage Un (Kv)	Rated current In (A)	Dimensions		Ref. Number	Minimum breaking current (A)	Breaking capacity (KA)	Maximum breaking voltage (Kv)	Power losses @ In (W)	Total I <sup>2</sup> t @ Un (103A2S)	Weight (kg)	Catalog number	
		L (mm)	D (mm)									
3/7.2	6.3	192	D1 = 53	S209293	31	25	23	3.5	0.9	1.1	45DIN72V6,3P	
	10			T209294	20	50	23	8.9	1.82	1.1	45DIN72V10P	
	16			V209295	35	50	23	15	8.3	1.1	45DIN72V16P	
	20			W209296	52	50	23	15	11	1.1	45DIN72V20P	
	25			X209297	76	50	23	16	14	1.1	45DIN72V25P	
	31.5			Y209298	102	50	23	20	19	1.1	45DIN72V31,5P	
	40			Z209299	128	50	23	28	25	1.1	45DIN72V40P	
	50			A209300	159	50	23	29	48	1.8	45DIN72V50P	
	63			B209301	210	50	23	35	60	1.8	45DIN72V63P	
	80			C209302	280	25	23	53	160	1.8	45DIN72V80P	
100	D209303	350	25	23	67	205	1.8	45DIN72V100P				
6/12	6.3	292	D1 = 53	F209305	31	25	37	12	0.9	1.6	45DIN120V6,3P	
	10			G209306	20	50	37	19	1.82	1.6	45DIN120V10P	
	16			H209307	34	50	37	27	8.3	1.6	45DIN120V16P	
	20			J209308	51	50	37	28	11	1.6	45DIN120V20P	
	25			K209309	76	50	37	29	14	1.6	45DIN120V25P	
	31.5			L209310	101	50	37	36	19	1.6	45DIN120V31,5P	
	40			M209311	125	50	37	50	25	1.6	45DIN120V40P	
	50			N209312	159	50	37	52	48	2.6	45DIN120V50P	
	63			P209313	210	50	37	64	60	2.6	45DIN120V63P	
	80			Q209314	290	25	37	115	160	2.6	45DIN120V80P	
100	R209315	350	25	37	120	205	2.6	45DIN120V100P				
10/17.5	6.3	292	D1 = 53	T209317	31	25	55	14	4.5	1.6	45DIN175V6,3P	
	10			V209318	20	50	55	30	22	1.6	45DIN175V10P	
	16			W209319	35	50	55	40	28	1.6	45DIN175V16P	
	20			X209320	52	50	55	42	31	1.6	45DIN175V20P	
	25			Y209321	78	50	55	45	34	1.6	45DIN175V25P	
	31.5			Z209322	104	50	55	55	39	1.6	45DIN175V31,5P	
	40			A209323	125	50	55	82	42	1.6	45DIN175V40P	
	50			N220099*								45AL175V50P-2
	63			J220164*								45AL175V63P-2
	80			V202671*								45AL175V80P-2
80	100	442	D3 = 87	D220458*							45AL175V80P-3	
				H220186*							45AL175V100P-3	
				K082027*	680	50	40	69	290	5,3	45AL175V125P-3	
10/24	6.3	442	D1 = 53	S209339	31	25	70	20	4.5	2.3	45DIN240V6,3P	
	10			T209340	20	50	70	42	22	2.3	45DIN240V10P	
	16			V209341	35	50	70	57	28	2.3	45DIN240V16P	
	20			W209342	52	50	70	60	31	2.3	45DIN240V20P	
	25			X209343	78	50	70	64	34	2.3	45DIN240V25P	
	31.5			Y209344	104	50	70	77	39	2.3	45DIN240V31,5P	
	40			Z209345	128	50	70	115	42	2.3	45DIN240V40P	
	50			A209346	150	50	70	118	50	2.3	45DIN240V50P	
	63			B209347	200	50	70	140	107	3.9	45DIN240V63P	
	80			H082186*	350	40	56	76	98	5,3	45AL240V80P-3	
100	T220541*								45AL240V100P-3			
50	63	537	D2=73	M209357	150	50	70	108	50	4.6	45DIN240V50P-4	
				N209358	200	50	70	130	107	4.6	45DIN240V63P-4	
				M082190*	350	40	56	73	98	6,4	45AL240V80P-4	
				N082191*	460	40	56	78	165	6,4	45AL240V100P-4	
				P082192*	480	40	56	93	210	6,4	45AL240V125P-4	
20/36	6.3	537	D1 = 53	S209362	31	25	106	32	0.9	2.7	45DIN360V6,3P	
	10			T209363	22	40	106	55	1.82	2.7	45DIN360V10P	
	16			V209364	38	40	106	82	8.3	2.7	45DIN360V16P	
	20			W209365	57	40	106	85	11	2.7	45DIN360V20P	
	25			X209366	85	40	106	87	14	2.7	45DIN360V25P	
	31.5			Y209367	102	40	106	125	19	4.6	45DIN360V31,5P	
	40			Z209368	135	40	106	164	25	4.6	45DIN360V40P	

\* For indoor use only

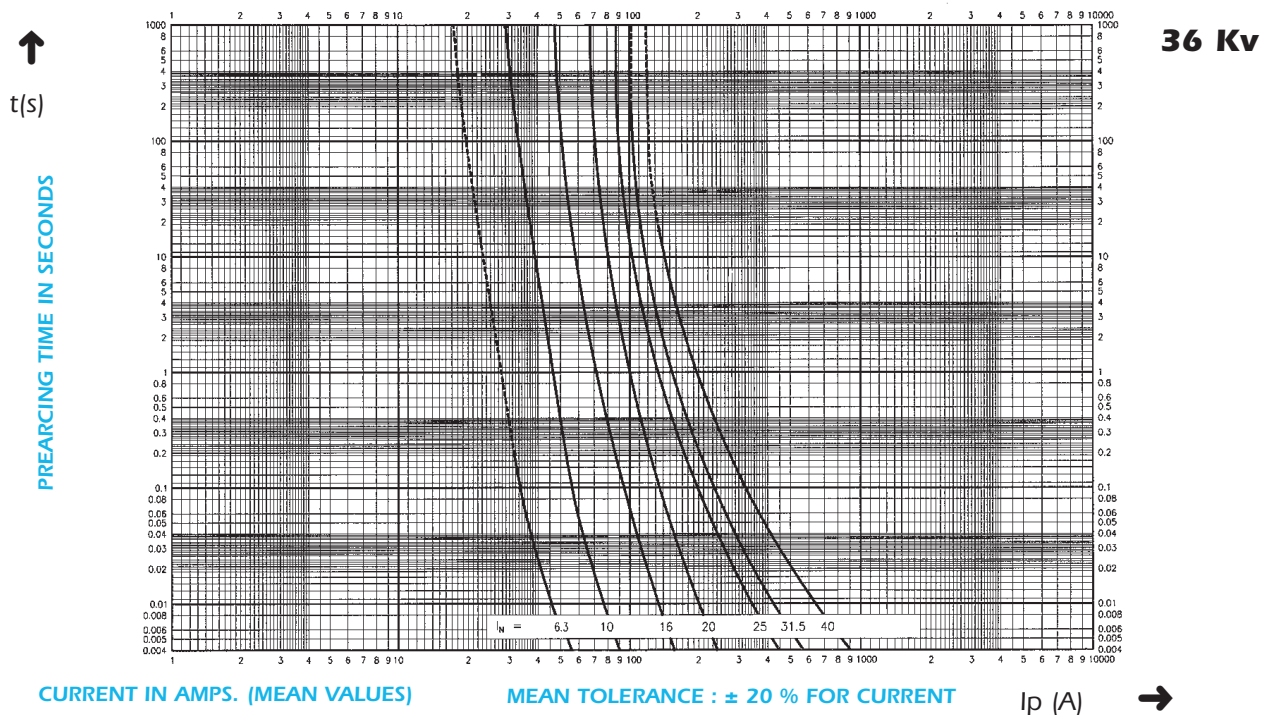
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## Main characteristics

### Time vs. current characteristics



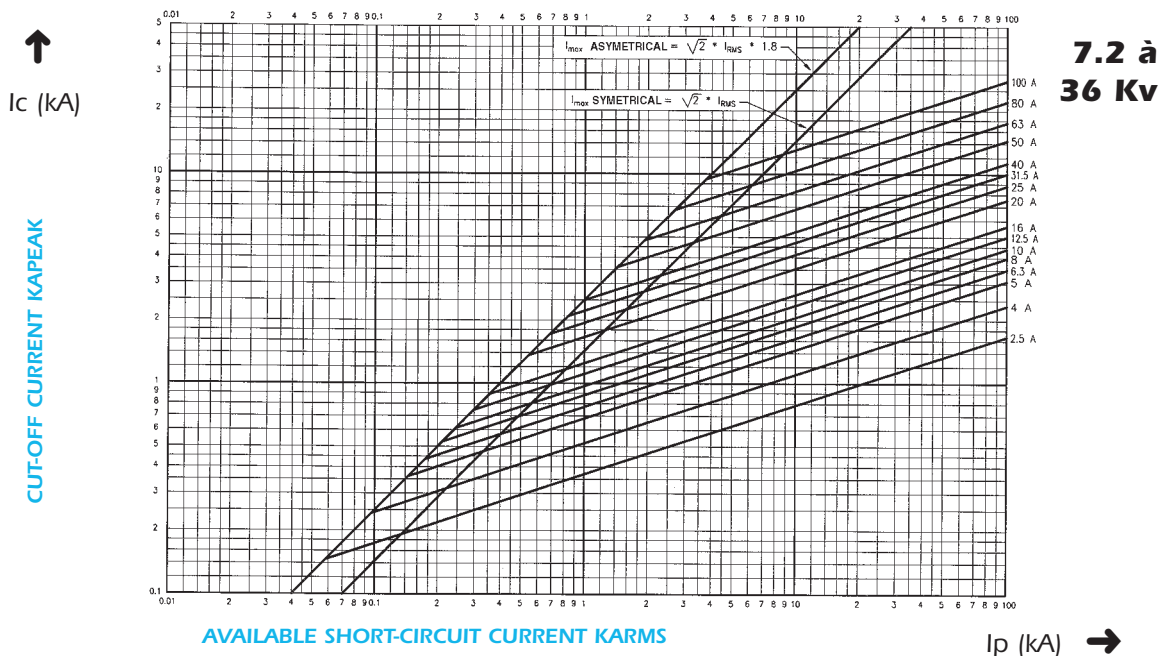
### Time vs. current characteristics



# Medium voltage fuses

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### Cut-off current characteristics



### Selection guide

The selection of fuses for the protection of HV/LV transformers must take into account:

- transient currents occurring in the installation when the transformer power is switched on
- overload currents related to normal operation of the transformer and liable to cause premature aging.

As a rule of thumb:  
Fuse rating  $\Delta 1.7 \times$  transformer rated current

This relationship is given for an ambient temperature not exceeding 40°C. Beyond this, a derating factor A1 must be used

$$A1 = \frac{\sqrt{120-\theta}}{80}$$

with  $\theta$  = ambient temperature in °C.

E.g., a 40A rated fuse installed under 60°C ambient must be treated as a 34A rated fuse.

$$A1 = \frac{\sqrt{120-60}}{80} = 0.86$$

The table, opposite, may also be used. It has been computed using peak transient currents from 8 to 15 times the transformer current rating and a 130% overload rate.

Using this table also means applying the temperature derating factor A1 to the selected rating when ambient exceeds 40°C in the fuse environment.

Transformer power (kVA)	Operating voltage (kV)							
	3.3	5/5.5	6/6.6	10/11	13.8	15	20/22	30/33
25	16	10	10	6.3	6.3	6.3	6.3	6.3
50	25	16	16	10	10	10	6.3	6.3
63	25	20	20	16	10	10	6.3	6.3
80	31.5	25	25	16	16	10	10	6.3
100	40	31.5	25	20	16	16	10	6.3
125	50	31.5	31.5	25	16	16	16	10
160	50	40	31.5	25	20	16	16	10
200	63	50	40	31.5	20	20	16	16
250	80	63	50	40	25	25	20	16
315	100	100	63	50	31.5	25	25	16
400	-	100	80	63	40	31.5	25	20
500	-	-	100	63	50	40	31.5	25
630	-	-	-	80	50	50	40	31.5
800	-	-	-	100	63	63	50	31.5
1000	-	-	-	-	80	80	50	40
1250	-	-	-	-	100	100	63	-
1600	-	-	-	-	-	-	80	-
2000	-	-	-	-	-	-	100	-