Temperature derating

Ambient temperature

EasyPact devices are equipped with fixed thermal-magnetic trip units.

■ EasyPact has been particularly designed to hold 100 % In at 50 °C without tripping in normal condition (except for earth-leakage circuit breakers).

■ EasyPact circuit breakers may be used between -25 °C and +70 °C.

■ EasyPact circuit breakers should be put into service under normal ambient operating temperature conditions. Exceptionally, the circuit breaker may be put into service when the ambient temperature is between -35 °C and -25 °C.

■ the permissible storage-temperature range for EasyPact circuit breakers in the original packing is -35 °C to +85 °C.

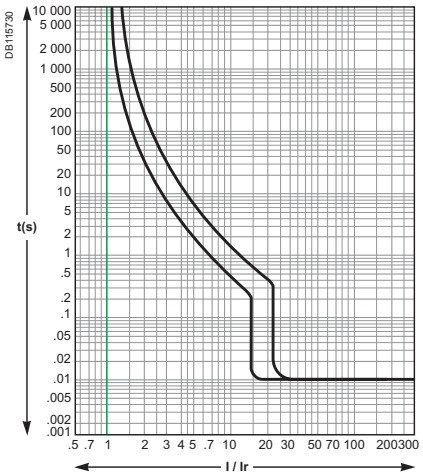
To determine tripping times using time/current curves, use Ir values corresponding to the thermal setting on the device, corrected as indicated in the tables below.

Rated current (A)	25°C	40°C	45°C	50°C	55°C	60°C	65°C	70°C
EZC100								
15	17.0	15.7	15.3	15.0	14.7	14.6	14.2	13.8
16	18.1	16.7	16.3	16.0	15.7	15.6	15.1	14.7
20	21.8	20.4	20.2	20.0	19.7	19.2	18.9	18.5
25	26.9	25.7	25.3	25.0	24.7	24.5	24.3	24.0
30	34.5	31.4	30.7	30.0	29.4	29.1	28.5	28.0
32	36.8	33.5	32.7	32.0	31.4	31.0	30.4	29.9
40	42.8	40.9	40.4	40.0	39.5	38.0	37.6	37.1
45	48.8	46.9	45.9	45.0	44.4	43.3	42.6	41.9
50	54.2	52.1	51.0	50.0	49.3	48.1	47.3	46.6
60	64.4	61.8	60.9	60.0	59.0	57.5	56.6	55.7
63	67.6	64.9	63.9	63.0	62.0	60.4	59.4	58.5
75	78.6	76.8	75.9	75.0	73.5	70.4	69.8	69.1
80	84.4	82.2	81.1	80.0	78.6	77.3	76.7	76.1
100	109	103	101	100	99	94	94	93
EZC250								
63	77	69	66	63	60	56	53	49
80	93	86	83	80	77	74	71	68
100	115	106	103	100	96	93	89	85
125	148	135	130	125	120	114	109	103
150	174	160	155	150	145	139	134	128
160	186	171	166	160	154	148	142	136
175	207	188	182	175	168	161	153	145
200	236	215	208	200	192	184	175	166
225	268	244	235	225	215	205	194	182
250	297	270	260	250	239	228	215	203
EZCV250								
63	72	63	60	56	53	49	44	39
80	89	80	77	73	70	66	62	58
100	113	100	95	91	86	80	74	68
125	140	125	120	114	108	102	95	88
150	163	150	145	141	136	131	125	120
160	177	160	154	148	141	135	127	120
175	194	175	168	161	154	146	138	126
200	223	200	192	183	175	165	155	144
225	245	225	218	211	203	196	180	162
250	277	250	240	230	220	209	198	180
EZC400								
250	293	268	260	250	240	228	218	208
300	351	321	312	300	288	273	261	249
320	374	342	333	320	307	291	278	266
350	410	375	364	350	336	319	305	291
400	468	428	416	400	384	364	348	332

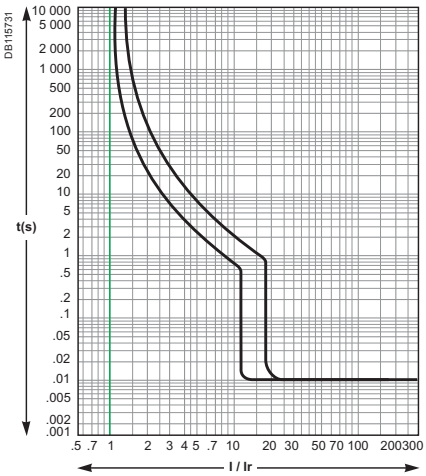
Tripping curves

EasyPact 100 TM trip units

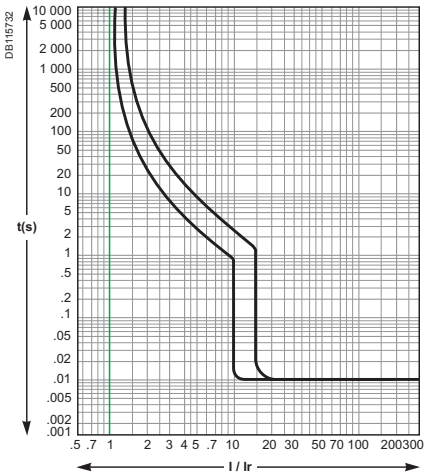
15-16 A



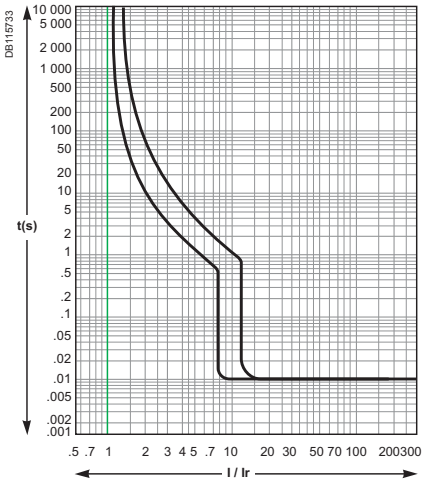
20 A



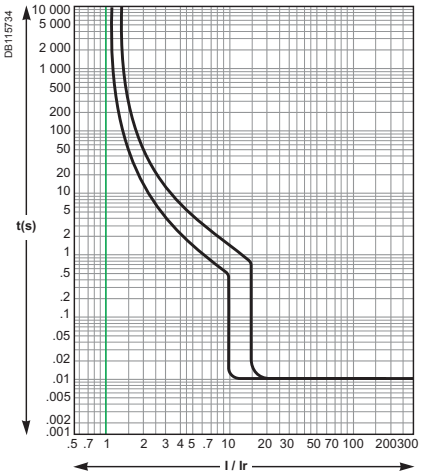
25 A



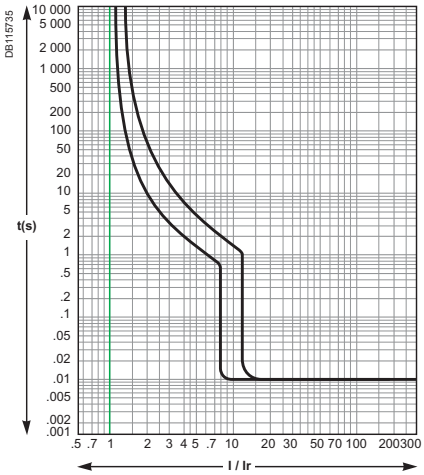
30-32 A



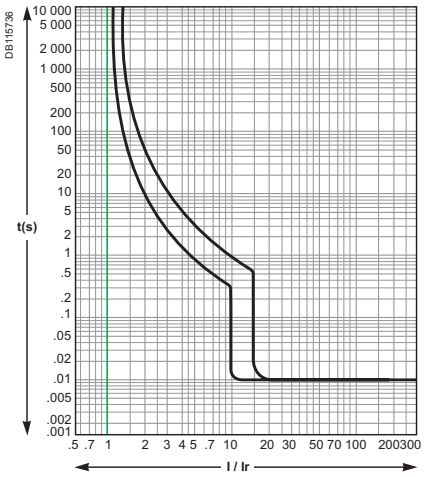
40 A



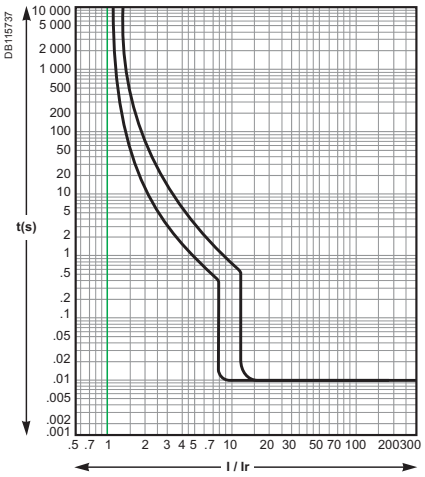
45-50 A



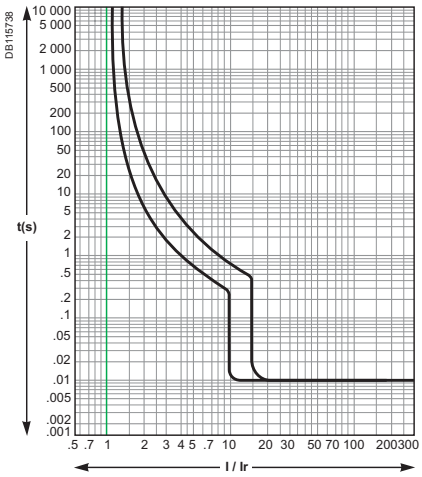
60-63 A



75 A



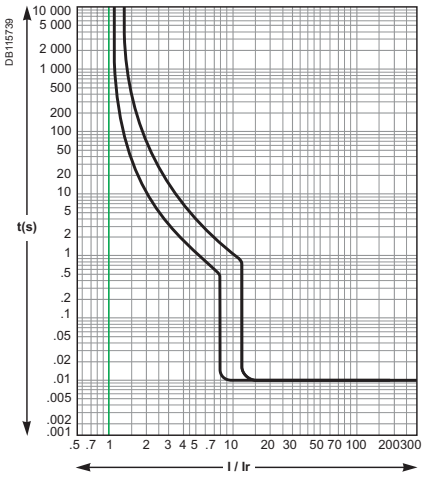
80 A



Tripping curves (cont.)

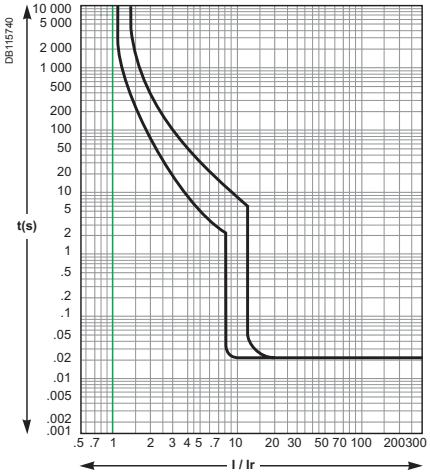
EasyPact 100 TM trip units (cont.)

100 A

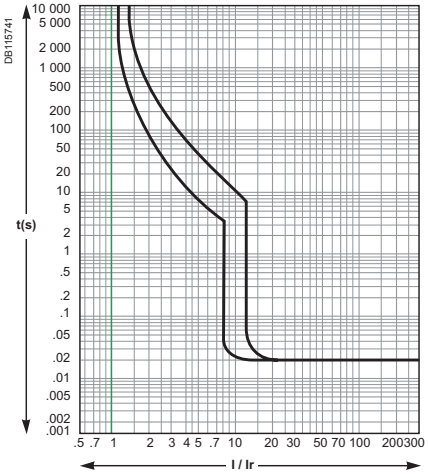


EasyPact 250 TM trip units

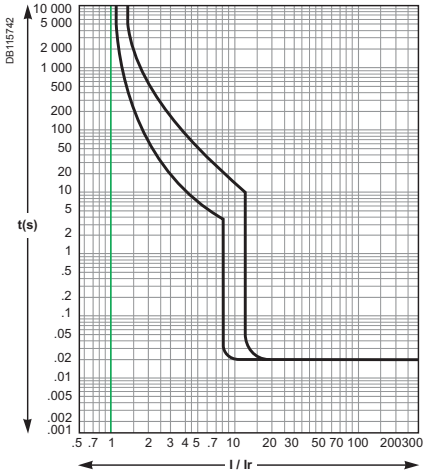
100-125 A



150-160-175-200 A

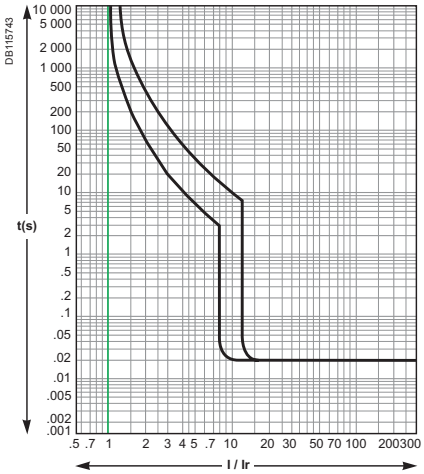


225-250 A



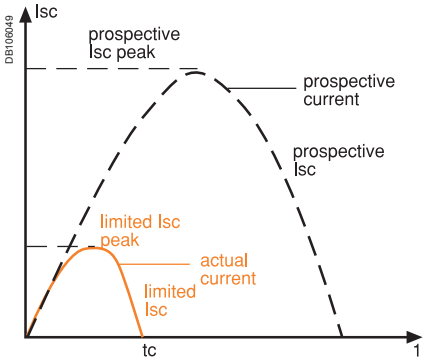
EasyPact 400 TM trip units

250-300-320-350-400 A



Current-limiting curves

The limiting capacity of a circuit breaker is its aptitude to limit short-circuit currents.



The exceptional limiting capacity of the EasyPact range greatly reduces the forces created by fault currents in devices.
The result is a major increase in breaking performance.

The Ics value, defined by IEC standard 60947-2, is guaranteed by tests comprising the following operations:
- ■ break three times consecutively a fault current equal from 25% to 100% of Icu
- ■ check that the device continues to function normally:
  - □ it conducts the rated current without abnormal temperature rises
  - □ protection functions perform within the limits specified by the standard
  - □ suitability for isolation is not impaired.

Longer service life of electrical installations

Current-limiting circuit breakers greatly reduce the negative effects of short-circuits on installations.

Thermal effects
Less temperature rise in conductors, therefore longer service life for cables.

Mechanical effects
Reduced electrodynamic forces, therefore less risk of electrical contacts or busbars being deformed or broken.

Electromagnetic effects
Less disturbances for measuring devices located near electrical circuits.

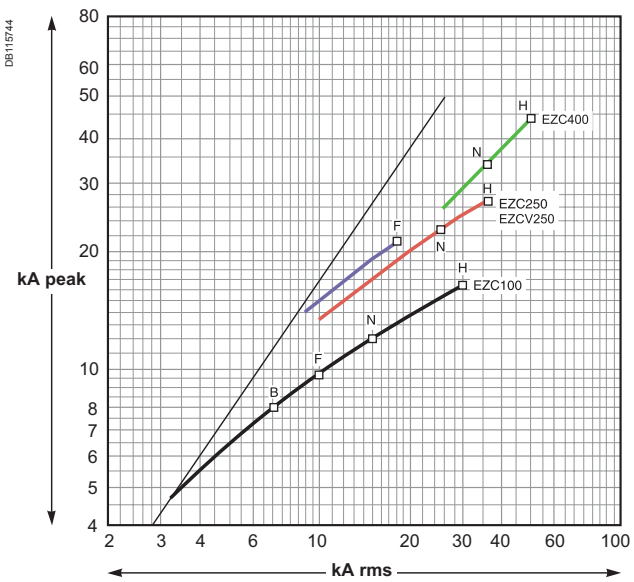
Economy by means of cascading

Cascading is a technique directly derived from current limiting. Circuit breakers with breaking capacities less than the prospective short-circuit current may be installed downstream of a limiting circuit breaker. The breaking capacity is reinforced by the limiting capacity of the upstream device.
It follows that substantial savings can be made on downstream equipment and enclosures.

Current-limiting curves

The current-limiting capacity of a circuit breaker is expressed by two curves which are a function of the prospective short-circuit current (the current which would flow if no protection devices were installed):
- ■ the actual peak current (limited current),
- ■ thermal stress (A^2s), i.e. the energy dissipated by the short-circuit in a conductor with a resistance of 1 Ω.

Current limiting curves 380/415 V AC



Thermal-stress curves 380/415 V AC