Complementary technical information
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Fuse and circuit breakers selectivity and cascading

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Fuse and circuit breakers selectivity and cascading

Introduction

This guide shows the coordination of gG fuse ranges with Schneider Electric MCB type circuit breakers (In < 125 A).

Fuse types

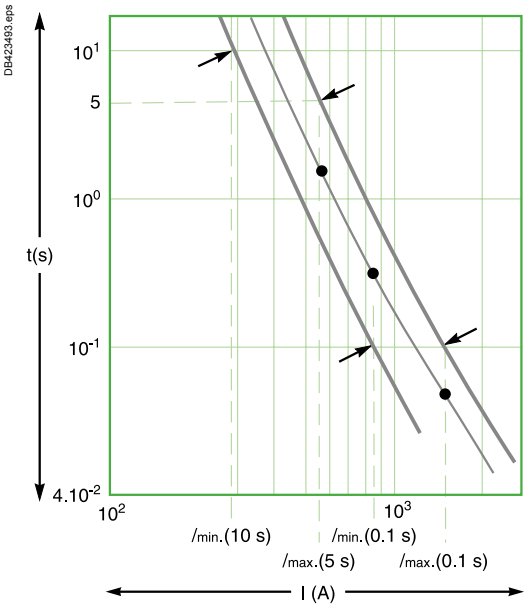
General information on fuses and their tripping curve. Here we will only talk about gG fuses. There are also gM and aM fuses. gG fuses are generally used for Electricity Distribution applications.

The main electric fuse parameters are:

Conventional non-fusing current Inf
Value of current specified as that which the fuse-link is capable of carrying for a specified time (conventional time) without melting, expressed as a multiple of In (e.g. Inf = 1.25 In).

Conventional fusing current If
Value of current specified as that which causes operation of the fuse-link within a specified time (conventional time), expressed as a multiple of In (e.g. If = 1.6 In).

Time-current characteristic
Curve giving the pre-arcing time or operating time as a function of the prospective current under stated conditions of operation.



63 A fuse-link, ↗↙: gates and test on gate currents.
Curve Î = f (t) for gG.

Characteristics I = f(t)

The manufacturer provides a curve for the pre-arcing or total fusing time that is a function of the fault current, with a tolerance of ±30 %. This curve must respect the following standardised rules.

gG fuse-links

■ **Asymptotes**

They are determined by the conventional non-fusing current and the conventional fusing current.

Conventional currents and times for "gG" fuse-links

Rated current I_n for gG (A)	Conventional time (h)	Conventional current (I_{nf})	(I_f)
$16 \leqslant I_n \leqslant 63$	1	1.25 I_n	1.6 I_n
$63 < I_n \leqslant 160$	2		
$160 < I_n \leqslant 400$	3		
$400 < I_n$	4		

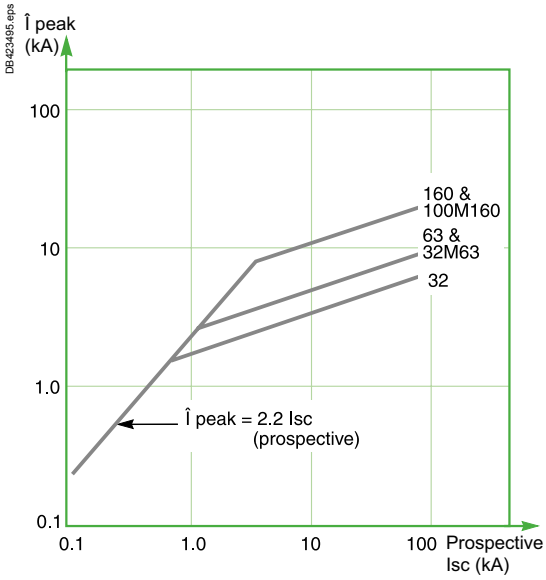
■ **Gates**

The time-current characteristics for the fuse-link must lie within the zone determined by the gates.
The table below indicates the gates for specified pre-arcing times of gG fuse-links.

I_n for gG (A)	I_{min} (10 s) [1] (A)	I_{max} (5 s) [2] (A)	I_{min} (0.1 s) (A)	I_{max} (0.1 s) (A)
16	33	65	85	150
20	42	85	110	200
25	52	110	150	260
32	75	150	200	350
40	95	190	260	450
50	125	250	350	610
63	160	320	450	820
80	215	425	610	1100
100	290	580	820	1450
125	355	715	1100	1910
160	460	950	1450	2590
200	610	1250	1910	3420
250	750	1650	2590	4500
315	1050	2200	3420	6000
400	1420	2840	4500	8060
500	1780	3800	6000	10600
630	2200	5100	8060	14140
800	3060	7000	10600	19000
1000	4000	9500	14140	24000
1250	5000	13000	19000	35000

[1] Imin (10 s) is the minimum value of current for which the pre-arcing time is not less than ten seconds.
[2] Imax (5 s) is the maximum value of current for which the operating time is not more than five seconds.

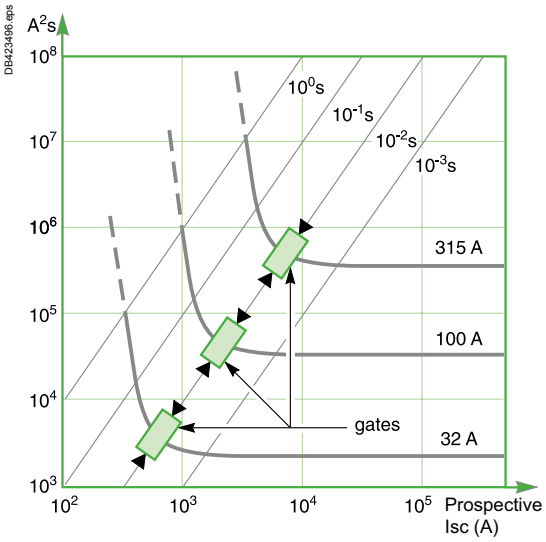
Fuse and circuit breakers selectivity and cascading



Î = f (I) curve.

Limiting

Current limiting
Limiting of the prospective fault current I_l occurs as soon as the pre-arcing time T_p is less than 10 ms (I_p of approximately 30 In).



Typical $I^2t = f (I)$ curves for gG fuse-links.

Energy limiting $I^2t = f (I)$
The peak fault current is limited to a lesser value and the thermal stresses caused by the flowing energy (I^2t) are correspondingly reduced.

■ **gG fuse-links**
IEC 60239 standard indicates minimum and maximum gate values in energy (I^2t) for each standardised fuse-link value where t = 0.01 seconds.

Pre-arcing I^2t values at 0.01 s for "gG" fuse-links

I_n for gG (A)	I^2t_{min} 10^3 x (A^2s)	I^2t_{max} 10^3 x (A^2s)
16	0.3	1.0
20	0.5	1.8
25	1.0	3.0
32	1.8	5.0
40	3.0	9.0
50	5.0	16
63	9.0	27
80	16	46
100	27	86
125	46	140
160	86	250
200	140	400
250	250	760
315	400	1300
400	760	2250
500	1300	3800
630	2250	7500
800	3800	13600
1000	7840	25000
1250	13700	47000

Fuse and circuit breakers selectivity and cascading

Types of fuses

DB428183

Diazed D

The sizes D IV and D V are rarely used.
D I and D V are not part of IEC 60269 (meet outdated national standards).

Size	Designated current (A)	Thread
D II	2 , 4 , 6 , 10 , 13 , 16 , 20 , 25	E27
D III	35 , 40 , 50 , 63	E33
D IV	80 , 100	G 1¼"

DB428184

Neozed D0

Fuses of the D0 system (read as D zero) or Neozed are smaller than the Diazed fuses. Neozed fuses are divided into three sizes.
The D03 size is used very rarely, because with these high currents NH fuses have proven to be more reliable. In circuits with a high short-circuit current level, D-fuses cannot be used and type NH fuses are used instead.

Size	Rated current (A)	Thread
D01	2 , 4 , 6 , 10 , 13 , 16	E14
D02	20 , 25 , 32 , 35 , 40 , 50 , 63	E18
D03	80 , 100	M 30 × 2

PB117726_L16

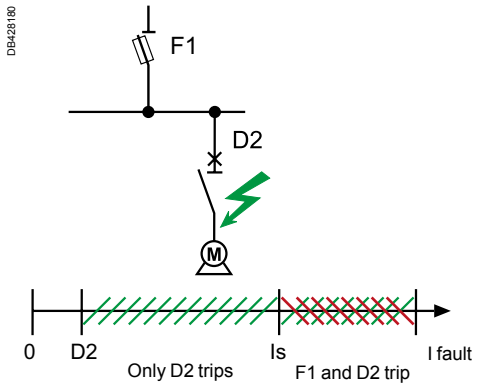
NH

NH fuses are manufactured in several current rating ranges.

Size	Current range (A)	Approx. blade length (mm)
00/000	6–160	78
0	6–160	125
1	80–250	135
2	125–400	150
3	315–630	150
4	500–1,000	200
4a	500–1,250	200

Fuse and circuit breakers selectivity and cascading

Fuse/MCB selectivity



Ammetric selectivity

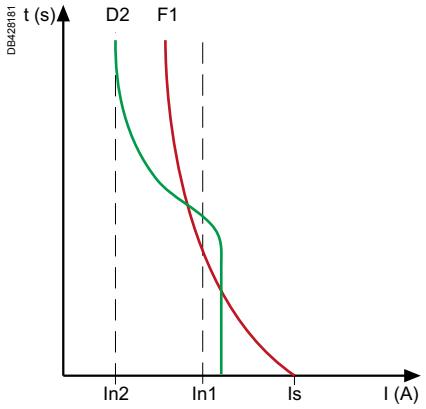
Selectivity involves ensuring coordination between a fuse and a circuit breaker placed in series so that, in the event of a fault, only the circuit breaker located immediately upstream of the fault is tripped. A selectivity current Is is defined such that:

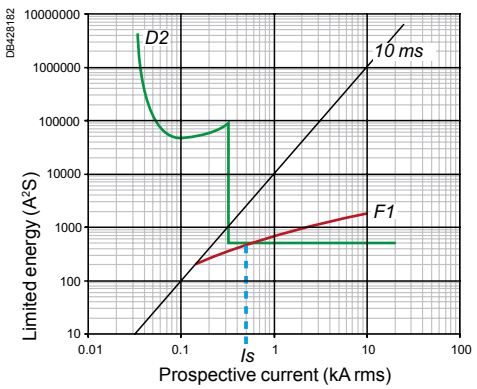
- I fault < Is: only D2 eliminates the fault; selectivity is ensured,
- I fault > Is: both devices can be tripped; selectivity is not ensured.

Small overcurrent or overload

Due to an abnormal inrush current, for example, with an increase in the opposing torque on a motor, the current flowing in the circuit is greater than the rated current. Such currents can damage the installation (risk of fire of electrical origin).
Overcurrent protective devices can be characterized by their operating curves as a function of the presumed current Ip:

- The operating curve is in the time domain when the cutoff time exceeds 50 ms (t curve = f(Ip)). Selectivity is obtained if the ratio between the In upstream/In downstream operating thresholds > 1.3 and if the amperage difference between the magnetic curves is complied with.





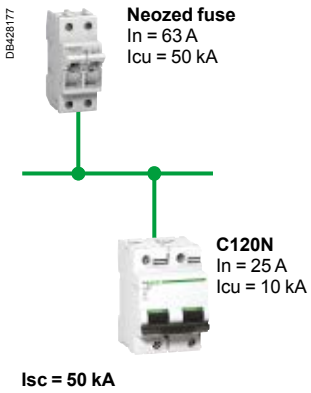
Energy selectivity

Short-circuit

In the event of contact between two phases we are faced with a severe fault which could possibly damage the installation.
The function which provides protection against this type of fault is magnetic protection.
To ensure selectivity we must comply with a ratio between upstream and downstream protective devices. This is energy selectivity.

- Energy: when the operating times become less than 50 ms and, in particular, less than the duration of a current half-wave (10 ms) with current-limiting circuit breakers.

Fuse and circuit breakers selectivity and cascading



Cascading

Cascading means using the protective devices' limiting power, which allows circuit breakers of lower performance to be installed downstream.
The upstream devices then act as a barrier to high short-circuit currents. They thus enable circuit breakers of breaking capacity lower than the presumed short-circuit current (at their point of installation) to be loaded in their normal breaking conditions.
Since current limiting takes place all along the circuit controlled by the upstream current-limiting device, cascading concerns all the equipment located downstream of that device. It is not restricted to two consecutive equipment items.

Conventional use of cascading

- Cascading can be performed with equipment installed in different switchboards.

Thus, the term cascading refers in general to any combination of protective devices making it possible to install at a point of an installation a circuit breaker of breaking capacity less than the presumed Isc. Of course, the breaking capacity of the upstream equipment must be greater than or equal to the presumed short-circuit current at the point where it is installed. The combination of two devices in cascading is provided for by the standards for:

- construction and manufacturing of circuit breakers (IEC 60947-2, Appendix A),
- electricity distribution systems (IEC 60364-4-43 § 434.5.1).

Combination

The use of a protective device having a breaking capacity lower than the presumed short-circuit current at its point of installation is possible if another device with the required breaking capacity is installed upstream.
In this case, the characteristics of these two devices must be such that the energy left by the upstream device is not greater than that which can be withstood by the downstream device and such than the cables protected by these devices incur no damage.
Cascading can be checked only by laboratory tests and the possible combinations can be specified only by the circuit-breaker manufacturer.

Cascading tables

The Schneider Electric cascading tables are produced by calculation (comparison of the energy limited by the upstream device with the maximum thermal stress acceptable by the downstream device), and are verified experimentally in accordance with the IEC 60947-2 standard.

Fuse and circuit breakers selectivity tables

Upstream: fuses Diazed D1, D2, D3
Downstream: iC60N/H/L curve B, C, D

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)

Selectivity

Selectivity between MCB iC60 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and a MCB iC60 downstream.

Upstream		Diazed D1, D2, D3								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iC60 Curve B	**0.5**	1	3	T	T	T	T	T	T	T
	1		2	6	T	T	T	T	T	T
	1.6		1.2	2	12	T	T	T	T	T
	2		0.9	1.4	4	15	T	T	T	T
	3		0.7	1.05	2.6	9	T	T	T	T
	4			0.85	1.7	4	7.7	T	T	T
	6			0.7	1.3	2.8	4.4	9	11.5	T
	10			0.6	1	2	2.6	4.9	6	13
	13				0.9	1.7	2.3	4.2	5	10
	16				0.85	1.5	2	3.2	4.2	8
	20					1.3	1.7	2.7	3.5	6.5
	25						1.5	2.4	3.1	5.7
	32						1.4	2.1	2.8	5
	40							2	2.7	4.6
	50								2.5	4.4
	63									4.2
iC60 Curve C	**0.5**	1	3	T	T	T	T	T	T	T
	1		1.3	6	T	T	T	T	T	T
	1.6		0.9	2	12	T	T	T	T	T
	2		0.5	1.4	4	12	T	T	T	T
	3			1.05	2.6	4	T	T	T	T
	4			0.85	1.7	2.6	7.7	T	T	T
	6			0.7	1.3	1.7	4.4	9	11.5	T
	10				1	1.3	2.6	4.9	6	13
	13				0.9	1	2.3	4.2	4.9	10
	16					1.5	2	3.2	4.1	7.9
	20						1.7	2.7	3.4	6.3
	25						1.5	2.4	3	5.6
	32							2.1	2.7	4.9
	40								2.6	4.5
	50									4.4
	63									4.2
iC60 Curve D	**0.5**		3	T	T	T	T	T	T	T
	1		1.3	6	T	T	T	T	T	T
	1.6		0.9	2	12	T	T	T	T	T
	2		0.5	1.4	4	12	T	T	T	T
	3			1	2.6	4	T	T	T	T
	4			0.8	1.7	2.6	7.7	T	T	T
	6			0.65	1.3	1.7	4.4	9	11.5	T
	10				1	1.3	2.6	4.9	6	13
	13					1	2.3	4.2	4.9	10
	16						2	3.2	4.1	7.9
	20						1.6	2.7	3.4	6.3
	25							2.4	3	5.6
	32								2.7	4.9
	40									4.5
	50									
	63									

1.7 Selectivity limit (kA) = 1.7 kA.

T Total selectivity.

No selectivity.

Example:

Combination of a fuse 63 A upstream with a MCB iC60 of 25 A, B curve downstream, selectivity up to a short-circuit current of 2.4 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Diazed D1, D2, D3
Downstream: iC60 RCBO curve B, C

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)

Selectivity

Selectivity between iC60 RCBO and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an iC60 RCBO downstream.

Upstream		Diazed D1, D2, D3								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iC60 RCBO Curves B, C	**10**			0.6	0.85	1.3	1.8	3.4	3.5	T
	13				0.75	1.25	1.7	3.2	3.3	5.3
	16				0.65	1.2	1.6	3.1	3.2	5
	20					1	1.3	2.6	2.4	4.3
	25						1.2	2.4	2.3	3.9
	32							2.2	2.7	3.7

1.3 Selectivity limit (kA) = 1.3 kA.

T Total selectivity.

No selectivity.

Example:
Combination of a fuse 63 A upstream with an iC60 RCBO of 25 A downstream, selectivity up to a short-circuit current of 2.4 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Diazed D1, D2, D3
Downstream: Acti9 iC40, iC40N, iCV40N/H

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)

Selectivity

Selectivity between Acti9 iC40, iC40N, iCV40N/H and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an Acti9 iC40, iC40N or iCV40N/H downstream.

Upstream		Diazed D1, D2, D3								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40N** **Acti9 iCV40H** Curve B	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	9.2	T	T	T	T
	4			0.8	1.5	7	T	T	T	T
	6			0.7	1.2	3.1	4.8	T	T	T
	10			0.5	1	2.2	3.5	7.5	9.3	T
	13				0.9	1.8	3	6	7.5	T
	16				0.8	1.6	2.4	4.3	5.6	9.9
	20					1.5	2.2	3.9	5.1	8.8
	25						1.8	3	4.1	7.5
	32						1.8	3	4.1	7.5
	40							2.7	3.6	6.5
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40N** **Acti9 iCV40H** Curve C	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.85	T	T	T	T
	4			0.8	1.55	7	T	T	T	T
	6			0.7	1.2	3.1	5.15	T	T	T
	10				0.9	2	3.1	6.5	8.4	T
	13					1.8	2.5	5	6.4	T
	16					1.45	2.15	3.8	5	9.2
	20					0.75	2.05	3.55	4.7	8.2
	25						0.9	2.9	3.95	7.25
	32							1.5	3.75	6.95
	40								1.8	6.1
Acti9 iC40 **Acti9 iC40N** Curve D	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.5	T	T	T	T
	4			0.8	1.6	7	T	T	T	T
	6			0.7	1.2	3.1	5.5	T	T	T
	10				0.8	1.8	2.7	5.5	7.5	T
	13					1.6	2.5	4	6	9.5
	16					1.3	1.9	3.3	4.4	8.5
	20						1.9	3.2	4.3	7.6
	25							2.8	3.8	7
	32								3.4	6.4
	40									5.7

1.6 Selectivity limit (kA) = 1.6 kA.

T Total selectivity.

No selectivity.

Example:

Combination of a fuse 63 A upstream with an Acti9 iC40N of 25 A, B curve downstream, selectivity up to a short-circuit current of 3 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Diazed D1, D2, D3
Downstream: iDPN N Vigi, iDPN H Vigi, iDPN, iDPN N

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Selectivity

Selectivity between iDPN Vigi and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an iDPN Vigi downstream.

Upstream		Diazed D1, D2, D3								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve B	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	9.2	T	T	T	T
	4			0.8	1.5	7	T	T	T	T
	6			0.7	1.2	3.1	4.8	T	T	T
	10			0.5	1	2.2	3.5	7.5	9.3	T
	13				0.9	1.8	3	6	7.5	T
	16				0.8	1.6	2.4	4.3	5.6	9.9
	20					1.5	2.2	3.9	5.1	8.8
	25						1.8	3	4.1	7.5
	32						1.8	3	4.1	7.5
	40							2.7	3.6	6.5
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve C	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.85	T	T	T	T
	4			0.8	1.55	7	T	T	T	T
	6			0.7	1.2	3.1	5.15	T	T	T
	10				0.9	2	3.1	6.5	8.4	T
	13					1.8	2.5	5	6.4	T
	16					1.45	2.15	3.8	5	9.2
	20					0.75	2.05	3.55	4.7	8.2
	25						0.9	2.9	3.95	7.25
	32							1.5	3.75	6.95
	40								1.8	6.1
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve D	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.5	T	T	T	T
	4			0.8	1.6	7	T	T	T	T
	6			0.7	1.2	3.1	5.5	T	T	T
	10				0.8	1.8	2.7	5.5	7.5	T
	13					1.6	2.5	4	6	9.5
	16					1.3	1.9	3.3	4.4	8.5
	20						1.9	3.2	4.3	7.6
	25							2.8	3.8	7
	32								3.4	6.4
	40									5.7

1.6 Selectivity limit (kA) = 1.6 kA.

T Total selectivity.

No selectivity.

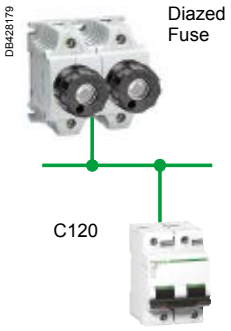
Example:

Combination of a fuse 63 A upstream with an iDPN N Vigi of 25 A, B curve downstream, selectivity up to a short-circuit current of 3 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Diazed D1, D2, D3
Downstream: C120N/H and NG125N/H/L curve B, C, D

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)



Selectivity

Selectivity between MCB C120/NG125 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and a MCB C120/NG125 downstream.

Upstream		Diazed D1, D2, D3					
	In (A)	25	35	50	63	80	100
Downstream	**Rating (A)**						
		Selectivity limit (kA)					
C120 NG125 Curve B	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20		1	1.35	1.95	2.5	4.25
	25		0.95	1.25	1.8	2.35	3.85
	32			1.2	1.7	2.3	3.4
	40				1.6	2.1	3.3
	50					2.1	3.2
	63						3.1
	80						
	100						
	125						
C120 NG125 Curve C	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20		1	1.35	1.95	2.5	4.2
	25			1.25	1.8	2.35	3.75
	32				1.7	2.3	3.7
	40					2.1	3.3
	50						3.1
	63						
	80						
	100						
	125						
C120 NG125 Curve D	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20			1.35	1.95	2.5	4.2
	25				1.8	2.35	3.75
	32					2.3	3.7
	40						3.3
	50						
	63						
	80						
	100						
	125						

1.4 Selectivity limit (kA) = 1.4 kA.

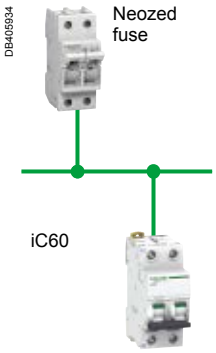
No selectivity.

Example:
Combination of a fuse 63 A upstream with a C120 of 32 A, B curve downstream, selectivity up to a short-circuit current of 1.7 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Neozed D01, D02, D03
Downstream: iC60N/H/L curve B, C, D

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)



Selectivity

Selectivity between MCB iC60 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and a MCB iC60 downstream.

Upstream		Neozed D01, D02, D03								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iC60 Curve B	**0.5**	1	3	T	T	T	T	T	T	T
	1		2	10	T	T	T	T	T	T
	1.6		1.2	2.2	12	T	T	T	T	T
	2		0.9	1.4	4	T	T	T	T	T
	3		0.7	1.05	2.6	9	T	T	T	T
	4			0.85	1.7	4	7.5	T	T	T
	6			0.7	1.3	2.8	4.4	8.5	T	T
	10			0.6	1	1.9	2.8	4.7	6.8	12
	13				0.9	1.6	2.3	3.9	5.6	9
	16				0.8	1.4	2	3.2	4.6	7.5
	20					1.2	1.7	2.7	3.8	6.1
	25					1.1	1.5	2.4	3.1	5.4
	32						1.4	2.1	2.8	4.7
	40							2	2.7	4.4
	50								2.5	4.2
	63									4
iC60 Curve C	**0.5**	1	3	T	T	T	T	T	T	T
	1		1.3	8	T	T	T	T	T	T
	1.6		0.9	2	10	T	T	T	T	T
	2		0.5	1.4	3	T	T	T	T	T
	3			1.05	2.1	8	T	T	T	T
	4			0.85	1.4	3.7	6.8	T	T	T
	6			0.7	1.1	2.5	4	8.5	11.2	T
	10				0.9	1.7	2.6	4.6	5.9	11.5
	13				0.8	1.5	2.2	3.8	4.9	9
	16					1.3	2	3.2	4.1	7.4
	20						1.7	2.6	3.5	5.9
	25						1.5	2.3	3.1	5.3
	32							2.1	2.8	4.6
	40								2.6	4.3
	50									4
	63									
iC60 Curve D	**0.5**		3	T	T	T	T	T	T	T
	1		1.3	7	T	T	T	T	T	T
	1.6		0.9	2	9	T	T	T	T	T
	2		0.5	1.4	3	T	T	T	T	T
	3			1	2	7	T	T	T	T
	4			0.8	1.3	3.7	6.8	T	T	T
	6			0.65	1	2.5	3.8	8.5	11	T
	10				0.8	1.8	2.5	4.6	5.7	11.3
	13					1.5	2.1	3.6	4.8	8.8
	16						1.9	3	4	7.1
	20						1.6	2.5	3.5	5.7
	25							2.2	3	5
	32								2.7	4.3
	40									4.1
	50									
	63									

1.6 Selectivity limit (kA) = 1.6 kA.

T Total selectivity.

No selectivity.

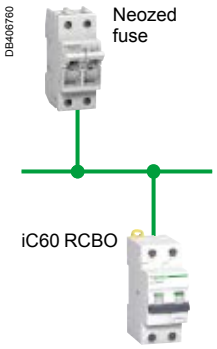
Example:

Combination of a fuse 63 A upstream with a MCB iC60 of 25 A, B curve downstream, selectivity up to a short-circuit current of 2.4 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Neozed D01, D02, D03
Downstream: iC60 RCBO curve B, C

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)



Selectivity

Selectivity between iC60 RCBO and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an iC60 RCBO downstream.

Upstream		Neozed D01, D02, D03								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iC60 RCBO Curves B, C	**10**			0.6	0.85	1.35	1.8	2.7	3.5	5.5
	13				0.75	1.25	1.7	2.6	3.3	5.3
	16				0.65	1.2	1.6	2.5	3.2	5
	20					1	1.3	2	2.4	4.3
	25						1.2	1.8	2.3	3.9
	32							1.7	2.7	3.7

2.5 Selectivity limit (kA) = 2.5 kA.

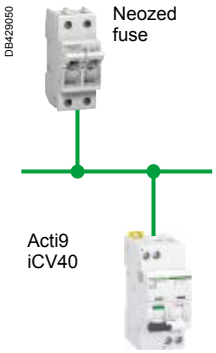
No selectivity.

Example:
Combination of a fuse 63 A upstream with an iC60 RCBO of 25 A downstream, selectivity up to a short-circuit current of 1.8 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Neozed D01, D02, D03
Downstream: Acti9 iC40, iC40N, iCV40N/H

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)



Selectivity

Selectivity between Acti9 iC40, iC40N, iCV40N/H and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an Acti9 iC40, iC40N or iCV40N/H downstream.

Upstream		Neozed D01, D02, D03								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40N** **Acti9 iCV40H** Curve B	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	9.2	T	T	T	T
	4			0.8	1.5	7	T	T	T	T
	6			0.7	1.2	3.1	4.8	T	T	T
	10			0.5	1	2.2	3.5	5.5	9.3	T
	13				0.9	1.8	3	6	7.5	T
	16				0.8	1.6	2.4	4.3	5.6	9.9
	20					1.5	2.2	3.3	5.1	8.8
	25						1.8	3.1	4.1	7.5
	32						1.8	3	4.1	7.5
	40							2.7	3.6	6.5
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40N** **Acti9 iCV40H** Curve C	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.85	T	T	T	T
	4			0.8	1.55	7	T	T	T	T
	6			0.7	1.2	3.1	5.15	T	T	T
	10				0.9	2	3.1	5.5	8.4	T
	13					1.8	2.5	5	6.4	T
	16					1.45	2.15	3.8	5	9.2
	20					0.75	2.05	3.25	4.7	8.2
	25						0.9	2.95	3.95	7.25
	32							1.5	3.75	6.95
	40								1.8	6.1
Acti9 iC40 **Acti9 iC40N** Curve D	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.5	T	T	T	T
	4			0.8	1.6	7	T	T	T	T
	6			0.7	1.2	3.1	5.5	T	T	T
	10				0.8	1.8	2.7	5.5	7.5	T
	13					1.6	2.5	4	6	9.5
	16					1.3	1.9	3.3	4.4	8.5
	20						1.9	3.2	4.3	7.6
	25							2.8	3.8	7
	32								3.4	6.4
	40									5.7

1.6 Selectivity limit (kA) = 1.6 kA.

T Total selectivity.

No selectivity.

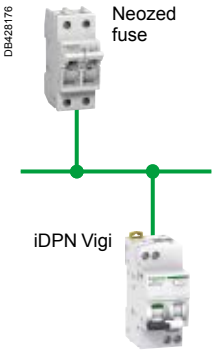
Example:

Combination of a fuse 63 A upstream with an Acti9 iCV40N of 25 A, B curve downstream, selectivity up to a short-circuit current of 3.1 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Neozed D01, D02, D03
Downstream: iDPN N Vigi, iDPN H Vigi, iDPN, iDPN N

Ue=380-415 V Ph/Ph (220-240 V Ph/N)



Selectivity

Selectivity between iDPN Vigi and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an iDPN Vigi downstream.

Upstream		Neozed D01, D02, D03								
	In (A)	10	16	20	25	35	50	63	80	100
Downstream	**Rating (A)**									
		Selectivity limit (kA)								
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve B	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	9.2	T	T	T	T
	4			0.8	1.5	7	T	T	T	T
	6			0.7	1.2	3.1	4.8	T	T	T
	10			0.5	1	2.2	3.5	5.5	9.3	T
	13				0.9	1.8	3	6	7.5	T
	16				0.8	1.6	2.4	4.3	5.6	9.9
	20					1.5	2.2	3.3	5.1	8.8
	25						1.8	3.1	4.1	7.5
	32						1.8	3	4.1	7.5
	40							2.7	3.6	6.5
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve C	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.85	T	T	T	T
	4			0.8	1.55	7	T	T	T	T
	6			0.7	1.2	3.1	5.15	T	T	T
	10				0.9	2	3.1	5.5	8.4	T
	13					1.8	2.5	5	6.4	T
	16					1.45	2.15	3.8	5	9.2
	20					0.75	2.05	3.25	4.7	8.2
	25						0.9	2.95	3.95	7.25
	32							1.5	3.75	6.95
	40								1.8	6.1
iDPN N Vigi **iDPN H Vigi** **iDPN** **iDPN N** Curve D	**1**	0.5	T	T	T	T	T	T	T	T
	2		0.8	1.3	5	T	T	T	T	T
	3		0.6	0.9	1.9	8.5	T	T	T	T
	4			0.8	1.6	7	T	T	T	T
	6			0.7	1.2	3.1	5.5	T	T	T
	10				0.8	1.8	2.7	5.5	7.5	T
	13					1.6	2.5	4	6	9.5
	16					1.3	1.9	3.3	4.4	8.5
	20						1.9	3.2	4.3	7.6
	25							2.8	3.8	7
	32								3.4	6.4
	40									5.7

1.6 Selectivity limit (kA) = 1.6 kA.

T Total selectivity.

No selectivity.

Example:

Combination of a fuse 63 A upstream with an iDPN N Vigi of 25 A, B curve downstream, selectivity up to a short-circuit current of 3.1 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses Neozed D01, D02, D03
Downstream: C120N/H and NG125N/H/L curve B, C, D

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)

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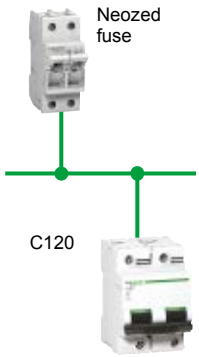


Selectivity

Selectivity between MCB C120/NG125 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and a MCB C120/NG125 downstream.

Upstream		Neozed D01, D02, D03					
	In (A)	25	35	50	63	80	100
Downstream	**Rating (A)**						
		Selectivity limit (kA)					
C120 NG125 Curve B	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20		1	1.35	1.95	2.5	4.25
	25		0.95	1.25	1.8	2.35	3.85
	32			1.2	1.7	2.3	3.4
	40				1.6	2.1	3.3
	50					2.1	3.2
	63						3.1
	80						
	100						
	125						
C120 NG125 Curve C	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20		1	1.35	1.95	2.5	4.2
	25			1.25	1.8	2.35	3.75
	32				1.7	2.3	3.7
	40					2.1	3.3
	50						3.1
	63						
	80						
	100						
	125						
C120 NG125 Curve D	**10**	0.6	1.05	1.45	2.1	2.9	5
	16		1	1.4	2	2.6	4.3
	20			1.35	1.95	2.5	4.2
	25				1.8	2.35	3.75
	32					2.3	3.7
	40						3.3
	50						
	63						
	80						
	100						
	125						

1.4 Selectivity limit (kA) = 1.4 kA.

No selectivity.

Example:
Combination of a fuse 63 A upstream with a C120 of 32 A, B curve downstream, selectivity up to a short-circuit current of 1.7 kA.

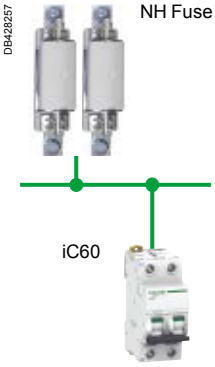
Complementary technical information

Fuse and circuit breakers selectivity tables

Upstream: fuses NH000/NH00/NH0/NH1

Downstream: iC60N/H/L curve B, C, D

Ue=380-415 V Ph/Ph (220-240 V Ph/N)



Selectivity

Selectivity between MCB iC60 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and a MCB iC60 downstream.

Upstream		NH000/NH00/NH0/NH1													
	In (A)	16	20	25	32	35	40	50	63	80	100	125	160	200	250
Downstream	**Rating (A)**														
		Selectivity limit (kA)													
iC60 Curve B	**0.5**	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1	1.6	4.5	T	T	T	T	T	T	T	T	T	T	T	T
	1.6	0.8	1.7	5	T	T	T	T	T	T	T	T	T	T	T
	2	0.65	1.2	2.7	5.1	7.5	15	T	T	T	T	T	T	T	T
	3		1	1.9	3.3	4.5	8	T	T	T	T	T	T	T	T
	4		0.75	1	2	2.7	4	7.5	9.5	T	T	T	T	T	T
	6			0.8	1.5	2	2.7	4.5	7.2	8.5	T	T	T	T	T
	10			0.6	1.1	1.5	1.9	2.9	5.4	5	12	13	T	T	T
	13			0.55	0.9	1.4	1.7	2.5	3.5	4.2	9.5	9.9	T	T	T
	16				0.8	1.2	1.5	2.2	3	3.6	7.8	8	T	T	T
	20					1	1.3	1.8	2.5	3.1	6	6.5	T	T	T
	25						1	1.7	2.2	2.8	5.4	5.7	15	T	T
	32							1.5	2	2.6	4.5	4.9	11.7	T	T
	40								1.9	2.4	4	4.6	10.2	T	T
	50									2.3	3.7	4.4	9.7	T	T
	63										3.5	4.2	9	T	T
iC60 Curve C	**0.5**	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1	1.6	4.5	T	T	T	T	T	T	T	T	T	T	T	T
	1.6	0.8	1.7	5	T	T	T	T	T	T	T	T	T	T	T
	2	0.65	1.2	2.7	5.1	7.5	15	T	T	T	T	T	T	T	T
	3		1	1.9	3.3	4.5	8	T	T	T	T	T	T	T	T
	4		0.75	1	2	2.7	4	7.5	9.5	T	T	T	T	T	T
	6			0.8	1.5	2	2.7	4.5	7.2	8.5	T	T	T	T	T
	10			0.6	1.1	1.5	1.9	2.9	5.4	5	12	13	T	T	T
	13			0.55	0.9	1.4	1.7	2.5	3.5	4.2	9.5	9.9	T	T	T
	16				0.8	1.2	1.5	2.2	3	3.6	7.8	8	T	T	T
	20						1.3	1.8	2.5	3.1	6	6.5	T	T	T
	25							1.7	2.2	2.8	5.4	5.7	15	T	T
	32								2	2.6	4.5	4.9	11.7	T	T
	40									2.4	4	4.6	10.2	T	T
	50										3.7	4.4	9.7	T	T
	63											4.2	9	T	T
iC60 Curve D	**0.5**	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	1	1.5	4.4	T	T	T	T	T	T	T	T	T	T	T	T
	1.6	0.7	1.7	4.9	T	T	T	T	T	T	T	T	T	T	T
	2	0.6	1.2	2.7	5	7.3	14.8	T	T	T	T	T	T	T	T
	3		0.9	1.9	3.3	4.5	8	T	T	T	T	T	T	T	T
	4		0.75	1	2	2.7	4	7.5	9.5	T	T	T	T	T	T
	6			0.8	1.5	2	2.7	4.5	7.2	8.5	T	T	T	T	T
	10			0.6	1.1	1.5	1.9	2.9	5.4	5	12	13	T	T	T
	13				0.9	1.4	1.7	2.5	3.5	4.2	9.5	9.9	T	T	T
	16					1.2	1.5	2.2	3	3.6	7.8	8	T	T	T
	20						1.3	1.8	2.5	3.1	6	6.5	T	T	T
	25							1.7	2.2	2.8	5.4	5.7	15	T	T
	32								2	2.6	4.5	4.9	11.7	T	T
	40									2.4	4	4.6	10.2	T	T
	50												9.7	T	T
	63													T	T

1.7 Selectivity limit (kA) = 1.7 kA.

T Total selectivity.

No selectivity.

Example:

Combination of a fuse 63 A upstream with a MCB iC60 of 25 A, B curve downstream, selectivity up to a short-circuit current of 2.2 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses NH000/NH00/NH0/NH1
Downstream: iC60 RCBO curve B, C

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Selectivity

Selectivity between iC60 RCBO and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in A, with a fuse upstream and an iC60 RCBO downstream.

Upstream		NH000/NH00/NH0/NH1													
	In (A)	16	20	25	32	35	40	50	63	80	100	125	160	200	250
Downstream	**Rating (A)**														
		Selectivity limit (kA)													
iC60 RCBO Curves B, C	**10**		0.6	0.75	0.9	1.2	1.3	1.85	2.1	2.9	5.1	T	T	T	T
	13			0.65	0.85	1.1	1.25	1.8	2.05	2.8	5	T	T	T	T
	16			0.6	0.75	1	1.1	1.7	2	2.7	4.8	5.5	T	T	T
	20				0.6	0.85	1	1.4	1.7	2.3	4.3	5.3	T	T	T
	25					0.75	0.9	1.3	1.6	2.1	3.9	5	T	T	T
	32						0.85	1.2	1.45	2	3.8	4.8	T	T	T

1.7 Selectivity limit (kA) = 1.7 kA.

T Total selectivity.

No selectivity.

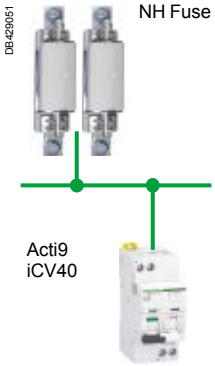
Example:
Combination of a fuse 63 A upstream with an iC60 RCBO of 25 A downstream, selectivity up to a short-circuit current of 1.6 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses NH000/NH00/NH0/NH1

Downstream: Acti9 iC40, iC40N, iCV40, iCV40N/H

Ue=380-415 V Ph/Ph (220-240 V Ph/N)



Selectivity

Selectivity between Acti9 iC40, iC40N, iCV40, iCV40N/H and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in kA, with a fuse upstream and an Acti9 iC40, iC40N, iCV40 or iCV40N/H downstream.

Upstream		NH000/NH00/NH0/NH1													
	In (A)	16	20	25	32	35	40	50	63	80	100	125	160	200	250
Downstream	**Rating (A)**														
		Selectivity limit (kA)													
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40** **Acti9 iCV40N** **Acti9 iCV40H** Curve B	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			1	1.4	2.5	3.5	4.7	8.5	T	T	T	T	T	T
	10			0.75	1.1	2	2.5	3.1	3.6	5.4	T	T	T	T	T
	13			0.7	1	1.8	2	2.7	3	5	T	T	T	T	T
	16			0.6	0.9	1.55	1.7	2.2	3	4.4	T	T	T	T	T
	20				0.8	1.4	1.6	2	2.45	3.5	T	T	T	T	T
	25					1.2	1.4	1.7	2.35	3.3	8	T	T	T	T
	32							1.5	2.3	3.2	7.5	T	T	T	T
	40									2.9	6.6	T	T	T	T
Acti9 iC40 **Acti9 iC40N** **Acti9 iCV40** **Acti9 iCV40N** **Acti9 iCV40H** Curve C	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			0.9	1.4	2.5	3.5	4.65	8.5	T	T	T	T	T	T
	10			0.375	1.025	1.8	2.5	2.8	3.6	5.4	T	T	T	T	T
	13					1.5	2	2.2	3	5	T	T	T	T	T
	16					0.775	1.7	2	3	4.4	T	T	T	T	T
	20						1.6	1.875	2.45	3.5	T	T	T	T	T
	25							0.85	2.35	3.3	8	T	T	T	T
	32								2.3	3.2	7.5	T	T	T	T
	40										6.6	T	T	T	T
Acti9 iC40 **Acti9 iC40N** Curve D	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			0.8	1.4	2.5	3.5	4.6	8.5	T	T	T	T	T	T
	10				0.95	1.6	2.5	2.5	3.6	5.4	T	T	T	T	T
	13						2	2.1	3	5	T	T	T	T	T
	16						1.7	1.8	3	4.4	T	T	T	T	T
	20							1.75	2.45	3.5	T	T	T	T	T
	25								2.35	3.3	8	T	T	T	T
	32									3.2	7.5	T	T	T	T
	40										6.6	T	T	T	T

2.6 Selectivity limit (kA) = 2.6 kA.

T Total selectivity.

No selectivity.

Example:

Combination of a fuse 63 A upstream with an Acti9 iCV40N of 25 A, B curve downstream, selectivity up to a short-circuit current of 2.35 kA.

Fuse and circuit breakers selectivity tables

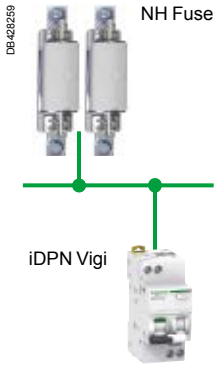
Upstream: fuses NH000/NH00/NH0/NH1
Downstream: iDPN N Vigi, iDPN H Vigi

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Selectivity

Selectivity between iDPN Vigi and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in A, with a fuse upstream and an iDPN Vigi downstream.



Upstream		NH000/NH00/NH0/NH1													
	In (A)	16	20	25	32	35	40	50	63	80	100	125	160	200	250
Downstream	**Rating (A)**														
		Selectivity limit (kA)													
iDPN N Vigi **iDPN H Vigi** 1P+N Curve B	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			1	1.4	2.5	3.5	4.7	8.5	T	T	T	T	T	T
	10			0.75	1.1	2	2.5	3.1	3.6	5.4	T	T	T	T	T
	13			0.7	1	1.8	2	2.7	3	5	T	T	T	T	T
	16			0.6	0.9	1.55	1.7	2.2	3	4.4	T	T	T	T	T
	20				0.8	1.4	1.6	2	2.45	3.5	T	T	T	T	T
	25					1.2	1.4	1.7	2.35	3.3	8	T	T	T	T
	32							1.5	2.3	3.2	7.5	T	T	T	T
	40									2.9	6.6	T	T	T	T
iDPN N Vigi **iDPN H Vigi** 1P+N Curve C	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			0.9	1.4	2.5	3.5	4.65	8.5	T	T	T	T	T	T
	10			0.375	1.025	1.8	2.5	2.8	3.6	5.4	T	T	T	T	T
	13					1.5	2	2.2	3	5	T	T	T	T	T
	16					0.775	1.7	2	3	4.4	T	T	T	T	T
	20						1.6	1.875	2.45	3.5	T	T	T	T	T
	25							0.85	2.35	3.3	8	T	T	T	T
	32								2.3	3.2	7.5	T	T	T	T
	40										6.6	T	T	T	T
iDPN N Vigi **iDPN H Vigi** 1P+N Curve D	**1**	2	T	T	T	T	T	T	T	T	T	T	T	T	T
	2	0.5	0.8	2.5	T	T	T	T	T	T	T	T	T	T	T
	3		0.6	1.2	2.6	5	T	T	T	T	T	T	T	T	T
	4		0.5	1.05	2	4	5	T	T	T	T	T	T	T	T
	6			0.8	1.4	2.5	3.5	4.6	8.5	T	T	T	T	T	T
	10				0.95	1.6	2.5	2.5	3.6	5.4	T	T	T	T	T
	13						2	2.1	3	5	T	T	T	T	T
	16						1.7	1.8	3	4.4	T	T	T	T	T
	20							1.75	2.45	3.5	T	T	T	T	T
	25								2.35	3.3	8	T	T	T	T
	32									3.2	7.5	T	T	T	T
	40										6.6	T	T	T	T

2.6 Selectivity limit (kA) = 2.6 kA.

T Total selectivity.

No selectivity.

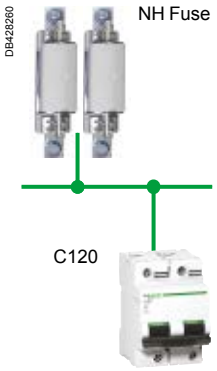
Example:

Combination of a fuse 63 A upstream with an iDPN N Vigi of 25 A, B curve downstream, selectivity up to a short-circuit current of 2.35 kA.

Fuse and circuit breakers selectivity tables

Upstream: fuses NH000/NH00/NH0/NH1
Downstream: C120N/H and NG125N/H/L curve B, C, D

Ue=380-415 V Ph/Ph
(220-240 V Ph/N)



Selectivity

Selectivity between MCB C120/NG125 and fuse upstream according to the IEC 60947-2 annexe A.

The table below shows the limits of selectivity for a short-circuit current in A, with a fuse upstream and a MCB C120/NG125 downstream.

Upstream		NH000/NH00/NH0/NH1											
	In (A)	25	32	35	40	50	63	80	100	125	160	200	250
Downstream	**Rating (A)**												
		Selectivity limit (kA)											
C120 NG125 Curve B	**10**		0.75	0.95	1.1	1.6	1.9	2.7	5.5	7.5	18.5	T	T
	16		0.55	0.8	0.95	1.4	1.7	2.3	4.6	7	12.5	T	T
	20				0.9	1.35	1.65	2.2	4.5	6.5	12	22.5	T
	25					1.15	1.45	2.05	3.8	5.8	9.5	13.5	T
	32					1.1	1.4	2	3.7	5	9	13	T
	40						1.35	1.85	3.4	4.8	7.6	10.5	T
	50								3.25	4.7	7.2	9.5	T
	63								3	4.5	7	9.3	T
	80									4.2	6.2	8.2	T
	100											7.7	T
	125											7.5	T
C120 NG125 Curve C	**10**		0.75	0.95	1.1	1.6	1.9	2.7	5.5	7.5	18.5	T	T
	16		0.55	0.8	0.95	1.4	1.7	2.3	4.6	7	12.5	T	T
	20				0.9	1.35	1.65	2.2	4.5	6.5	12	22.5	T
	25					1.15	1.45	2.05	3.8	5.8	9.5	13.5	T
	32						1.4	2	3.7	5	9	13	T
	40							1.85	3.4	4.8	7.6	10.5	T
	50								3.25	4.7	7.2	9.5	T
	63									4.5	7	9.3	T
	80											8.2	T
	100											7.7	T
	125												T
C120 NG125 Curve D	**10**		0.75	0.95	1.1	1.6	1.9	2.7	5.5	7.5	18.5	T	T
	16				0.95	1.4	1.7	2.3	4.6	7	12.5	T	T
	20					1.35	1.65	2.2	4.5	6.5	12	22.5	T
	25						1.45	2.05	3.8	5.8	9.5	13.5	T
	32							2	3.7	5	9	13	T
	40								3.4	4.8	7.6	10.5	T
	50									4.7	7.2	9.5	T
	63										7	9.3	T
	80											8.2	T
	100												T
	125												T

1.4 Selectivity limit (kA) = 1.4 kA.

T Total selectivity.

No selectivity.

Example:
Combination of a fuse 63 A upstream with a C120 of 32 A, B curve downstream, selectivity up to a short-circuit current of 1.4 kA.

Fuse and circuit breakers cascading tables

Upstream: fuses Diazed D1, D2, D3

Downstream: iC40, iDPN, iC60, C120, NG125, iCV40, iDPN Vigi, iC60 RCBO

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Cascading

The table below shows the enhanced breaking capacity thanks to cascading of the MCB and the maximum rating of the upstream fuse.

Upstream			Diazed series 50 kA			
	In (A)		⩽ 32	35-63	80	100
Downstream device						
	In max (A)	Icu (kA)	Reinforced breaking capacity (kA)			
iC40	4	6	50	6	6	6
	40	6	50	50	50	25
iC40N	4	10	50	10	10	10
	40	10	50	50	50	36
iDPN	4	6	50	6	6	6
	40	6	50	50	50	25
iDPN N	4	10	50	10	10	10
	40	10	50	50	50	36
iC60N	63	10	50	50	50	50
iC60H	63	15	50	50	50	50
iC60L	25	25	50	50	50	50
	40	20	50	50	50	50
	63	15	50	50	50	50
C120N	125	10	50	50	50	50
C120H	125	15	50	50	50	50
NG125N	125	25	50	50	50	50
NG125H	80	36	50	50	50	50
NG125L	80	50	50	50	50	50

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

Upstream			Diazed series 50 kA			
	In (A)		⩽ 32	35-63	80	100
Downstream device						
	In max (A)	Icn (kA)	Reinforced breaking capacity (kA)			
iCV40N	40	6	50	50	50	25
iCV40H	40	10	50	50	50	36
iDPN N Vigi	40	6	50	50	50	25
iDPN H Vigi	40	10	50	50	50	36
iC60 RCBO(1)	32	6	50	50	50	36
iC60 RCBO(2)	32	10	50	50	50	36

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(1) Ue=400 V AC (Ph/Ph) for 3P, 4P products.
(2) Ue=230 V AC (Ph/Ph) for 2P, 3P products.

Fuse and circuit breakers cascading tables

Upstream: fuses Neozed D01, D02, D03

Downstream: iC40, iDPN, iC60, C120, NG125, iCV40, iDPN Vigi, iC60 RCBO

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Cascading

The table below shows the enhanced breaking capacity thanks to cascading of the MCB and the maximum rating of the upstream fuse.

Upstream			Neozed series 50 kA			
	In (A)		≤ 32	35-63	80	100
Downstream device						
	In max (A)	Icu (kA)	Reinforced breaking capacity (kA)			
iC40	4	6	50	6	6	6
	40	6	50	50	50	25
iC40N	4	10	50	10	10	10
	40	10	50	50	50	36
iDPN	4	6	50	6	6	6
	40	6	50	50	50	25
iDPN N	4	10	50	10	10	10
	40	10	50	50	50	36
iC60N	63	10	50	50	50	50
iC60H	63	15	50	50	50	50
iC60L	25	25	50	50	50	50
	40	20	50	50	50	50
	63	15	50	50	50	50
C120N	125	10	50	50	50	50
C120H	125	15	50	50	50	50
NG125N	125	25	50	50	50	50
NG125H	80	36	50	50	50	50
NG125L	80	50	50	50	50	50

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

Upstream			Neozed series 50 kA			
	In (A)		≤ 32	35-63	80	100
Downstream device						
	In max (A)	Icn (kA)	Reinforced breaking capacity (kA)			
iCV40N	40	6	50	50	50	25
iCV40H	40	10	50	50	50	36
iDPN N Vigi	40	6	50	50	50	25
iDPN H Vigi	40	10	50	50	50	36
iC60 RCBO(1)	32	6	50	50	50	36
iC60 RCBO(2)	32	10	50	50	50	36

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(1) Ue=400 V AC (Ph/Ph) for 3P, 4P products.
(2) Ue=230 V AC (Ph/Ph) for 2P, 3P products.

Fuse and circuit breakers cascading tables

Upstream: fuses NH000/NH00/NH0/NH1

Downstream: iC40, iDPN, iC60, C120, NG125, iCV40, iDPN Vigi, iC60 RCBO

Ue=380-415 V Ph/Ph (220-240 V Ph/N)

Cascading

The table below shows the enhanced breaking capacity thanks to cascading of the MCB and the maximum rating of the upstream fuse.

Upstream			NH series(1)							
	In (A)		⩽ 32	35-63	80	100	125	160	200	250
Downstream device										
	In max (A)	Icu (kA)	Reinforced breaking capacity (kA)(2)							
iC40	4	6	100	6	6	6	6	6	6	6
	40	6	100	50	50	25	25	10	10	10
iC40N	4	10	100	10	10	10	10	10	10	10
	40	10	100	100	100	36	36	15	15	15
iDPN	4	6	100	6	6	6	6	6	6	6
	40	6	100	50	50	25	25	10	10	10
iDPN N	4	10	100	10	10	10	10	10	10	10
	40	10	100	100	100	36	36	15	15	15
iC60N	4	50	100	100	100	100	50	50	50	50
	63	10	100	100	100	100	36	15	10	10
iC60H	4	70	100	100	100	100	70	70	70	70
	63	15	100	100	100	100	50	20	15	15
iC60L	4	100	100	100	100	100	100	100	100	100
	25	25	100	100	100	100	50	25	25	25
	40	20	100	100	100	100	50	25	20	20
	63	15	100	100	100	100	50	20	15	15
C120N	125	10	100	100	100	100	100	50	25	10
C120H	125	15	100	100	100	100	100	50	25	15
NG125N	125	25	100	100	100	100	100	50	36	25
NG125H	80	36	100	100	100	100	100	100	60	36
NG125L	80	50	100	100	100	100	100	100	60	50

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(1) The NH series comprises NH000, NH00, NH0, NH1 and NH2 fuses. The minimum energy limiting values I^2t were determined with Mersen and Bussmann fuses.
(2) The maximum reinforced breaking capacity is limited to 100 kA, but it can be up to 120 kA for other fuse brands. This 120 kA value can be used if the minimum energy limiting values I^2t comply with the characteristics of Mersen and Bussmann fuses.

Upstream			NH series							
	In (A)		⩽ 32	35-63	80	100	125	160	200	250
Downstream device										
	In max (A)	Icn (kA)	Reinforced breaking capacity (kA)(2)							
iCV40N	40	6	100	100	50	25	25	6	6	6
iCV40H	40	10	100	100	70	36	36	10	10	10
iDPN N Vigi	40	6	100	100	50	25	25	6	6	6
iDPN H Vigi	40	10	100	100	70	36	36	10	10	10
iC60 RCBO(3)	32	6	100	100	70	36	36	6	6	6
iC60 RCBO(4)	32	10	100	100	70	36	36	10	10	10

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(3) Ue=400 V AC (Ph/Ph) for 3P, 4P products.
(4) Ue=230 V AC (Ph/Ph) for 2P, 3P products.

Fuse and circuit breakers cascading tables

Upstream: fuses NH000/NH00/NH0/NH1

Downstream: iDPN, iC60, C120, NG125, iDPN Vigi, iC60 RCBO

Ue=220-240 V Ph/Ph
(110-130 V Ph/N)

Cascading

The table below shows the enhanced breaking capacity thanks to cascading of the MCB and the maximum rating of the upstream fuse.

Upstream			NH series(1)							
		In (A)	⩽ 32	35-63	80	100	125	160	200	250
Downstream device										
	In max (A)	Icu (kA)	Reinforced breaking capacity (kA)(2)							
iDPN	4	10	100	10	10	10	10	10	10	10
	40	10	100	50	50	25	25	10	10	10
iDPN N	4	15	100	15	15	15	15	15	15	15
	40	15	100	100	100	70	70	15	15	15
iC60N	4	50	100	100	100	100	50	50	50	50
	63	10	100	100	100	100	70	30	20	20
iC60H	4	70	100	100	100	100	70	70	70	70
	63	15	100	100	100	100	100	40	30	30
iC60L	4	100	100	100	100	100	100	100	100	100
	25	25	100	100	100	100	100	50	50	50
	40	20	100	100	100	100	100	50	40	40
	63	15	100	100	100	100	100	80	30	30
C120N	125	10	100	100	100	100	100	100	50	20
C120H	125	15	100	100	100	100	100	100	50	30
NG125N	125	25	100	100	100	100	100	100	70	50
NG125H	80	36	100	100	100	100	100	100	100	70
NG125L	80	50	100	100	100	100	100	100	100	100

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(1) The NH series comprises NH000, NH00, NH0, NH1 and NH2 fuses. The minimum energy limiting values I^2t were determined with Mersen and Bussmann fuses.
(2) The maximum reinforced breaking capacity is limited to 100 kA, but it can be up to 120 kA for other fuse brands. This 120 kA value can be used if the minimum energy limiting values I^2t comply with the characteristics of Mersen and Bussmann fuses.

Upstream			NH series							
		In (A)	⩽ 32	35-63	80	100	125	160	200	250
Downstream device										
	In max (A)	Icn (kA)	Reinforced breaking capacity (kA)(2)							
iDPN N Vigi	40	6	100	100	100	50	50	6	6	6
iDPN H Vigi	40	10	100	100	100	70	70	10	10	10
iC60 RCBO(3)	32	6	100	100	100	70	70	6	6	6
iC60 RCBO(4)	32	10	100	100	100	70	70	10	10	10

The enhanced breaking capacity is indicated in kA according to IEC 60947-2 annex A.

(3) Ue=400 V AC (Ph/Ph) for 3P, 4P products.
(4) Ue=230 V AC (Ph/Ph) for 2P, 3P products.

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3.2	11/06/2018	Add Acti9 iC40, iC40N, iCV40N/H RCBO values	Sonovision
3.1	14/12/2017	Change Icu values for iDPN & iDPN N pages 19, 20, 21	Sonovision
3.0	6/12/2017	All new pages	Sonovision
2.2	01/12/2017	Changed (1) and (2) pages 21-22	Sonovision
2.1	5/07/2017	Changed tables pages 2-4, added fuses tables pages 3-5	Sonovision
2.0	03/04/2017	New charte	Sonovision
1.2	12/01/2015	Add type gG BS88 and NH fuse cascading table page 2	Sedoc
1.1	19/05/2014	Add fuse gG BS88 and NH page	Sedoc
1.0	07/09/2012	Creation	Sedoc
Indice	**Date**	**Modification**	**Name**