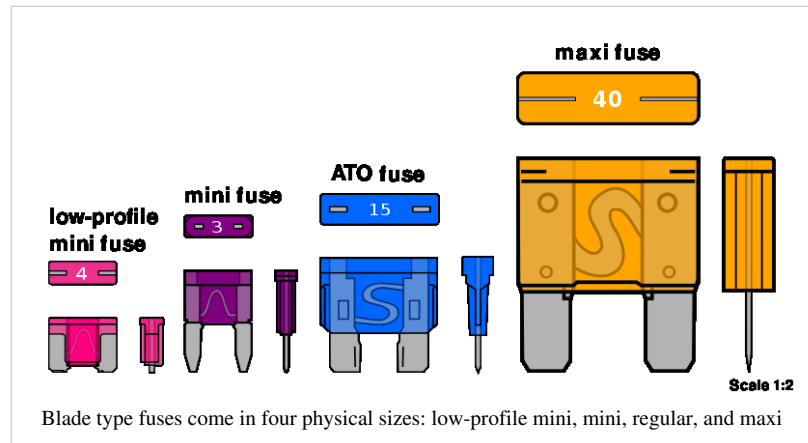


Fuse (automotive)

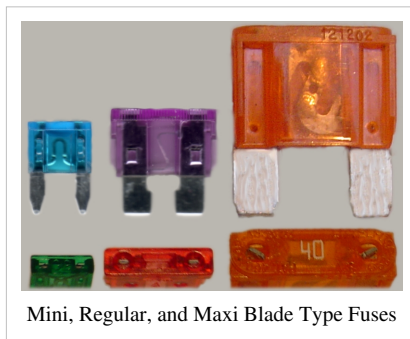
Automotive fuses are a class of fuses used to protect the wiring and electrical equipment for vehicles. They are generally rated for circuits no higher than 24 volts direct current, but some types are rated for 42-volt electrical systems. They are occasionally used in non-automotive electrical products.



Blade type

Blade fuses (also called spade or plug-in fuses), with a plastic body and two prongs that fit into sockets, are mostly used in automobiles. Each fuse is printed with the numerical ampere rating on the top. These types of fuses come in four different physical dimensions: low-profile mini (APS), mini (APM / ATM), regular (APR / ATC / ATO), and maxi (APX) heavy-duty. Unofficially, the APS fuse is sometimes called "micro" since the term means smaller than mini. Regular blade type fuses, also known as standard fuse, were developed in 1976 for low-voltages use in motor vehicles. The mini fuses were developed in the 1990s. Blade type fuses can be mounted in fuse blocks, in-line fuse holders, or fuse clips.

Size groups



Blade Size	Blade Group	Dimensions L x W x H	Common Ampere Ratings
Low-Profile Mini	APS	10.9 x 3.81 x 8.73 mm	2, 5, 7.5, 10, 15, 20, 25, 30
Mini	APM, ATM	10.9 x 3.6 x 16.3 mm	2, 3, 4, 5, 7.5, 10, 15, 20, 25, 30
Regular	APR, ATC, ATO	19.1 x 5.1 x 18.5 mm	1, 2, 3, 4, 5, 7.5, 10, 15, 20, 25, 30, 35, 40
Maxi	APX	29.2 x 8.5 x 34.3 mm	20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 120

Where space permits, a miniature circuit breaker is sometimes used to replace a blade-type fuse in the same fuse holder.

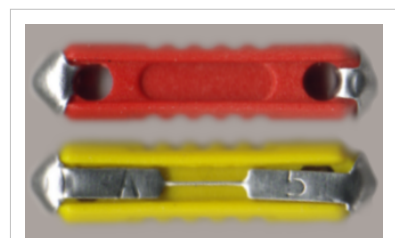
Color coding

Blade fuses use a common coloring scheme for the low-profile mini / mini / regular size fuses, and a partial color similarity with the maxi size fuses. The following table shows the commonly available fuses for each size group.

Color	Ampere	Low	Mini	Reg	Maxi
DarkBlue	0.5
Black	1	.	.	X	.
Gray	2	X	X	X	.
Violet	3	.	X	X	.
Pink	4	.	X	X	.
Tan	5	X	X	X	.
Brown	7.5	X	X	X	.
Red	10	X	X	X	.
Blue	15	X	X	X	.
Yellow	20	X	X	X	X
Clear	25	X	X	X	Gray
Green	30	X	X	X	X
BlueGreen	35	.	.	X	Brown
Orange	40	.	.	X	X
Red	50	.	.	.	X
Blue	60	.	.	.	X
Amber/Tan	70	.	.	.	X
Clear	80	.	.	.	X
Violet	100	.	.	.	X
Purple	120	.	.	.	X

Bosch type

Bosch type fuses (also known as torpedo or ATS type fuses) are used in old (often European) automobiles. The physical dimension of this type of fuse is 6x25 mm with conical ends. Bosch type fuses usually use the same color coding for the rated current. The DIN standard is 72581/1. The size of the fuse is: 6x25 mm.



Bosch type fuse (used in older cars)

Color coding

Color	Ampere
Yellow	5
White	8
Red (or Green)	16
Blue	25
Grey	40

Lucas type

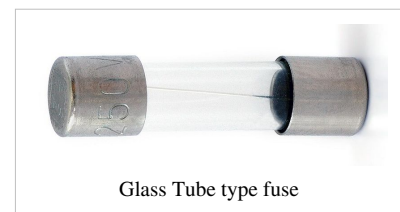
Lucas type fuses are used in old British-made or assembled automobiles. The physical length of this type of fuse is either 1 inch or 1.25 inch, with conical ends. Lucas type fuses usually use the same color coding for the rated current. Lucas fuses have three ratings; the continuous current they are designed to carry, the instantaneous current at which they will fuse, and the continuous current at which they will also fuse. The figure found on Lucas fuses is the continuous fusing current which is twice the continuous ampere rating that the system should be using; this can be a source of confusion when replacing Lucas fuses with non Lucas fuses.

Color coding

Color	Continuous ampere	Instantaneous fusing ampere	Continuous fusing ampere
Blue	1.5	3.5	3
Yellow	2.25	5	4.5
Red on Yellow	2.5	6	5
Green	3	7	6
Nut Brown	4	10	8
Red on Green	5	12	10
Green on Black	5	12	10
Red on Brown	6	14	12
Light Brown	7.5	18	15
Pink	12.5	30	25
White	17.5	40	35
Purple on Yellow	25	60	50
Yellow on Red	30	75	60

Glass Tube type

North-American built automobiles up to 1981 had electrical systems protected by glass cartridge fuses rated 32 volts and current ratings from 4 amperes to 30 amperes. The fuse dimensions and characteristics are standardized by the Society of Automotive Engineers standard J554. All fuses are 1/4 inch diameter, and the length varies according to the rating of the fuse.



A 4 Amp fuse is 5/8 of an inch long, a 20 Amp fuse is 1 1/4 inches long, and a 30 amp fuse is 1 7/16 inches long.

Limiter type

Limiter fuses consist of a metal strip from a lock plate, for currents over 40 amperes. Frequently, these are used in close proximity to starter battery fuse boxes. They are used also in electric vehicles, e.g., in forklift trucks. Because strip fuses require the use of tools for replacement they are therefore legally considered non-serviceable components for end-users.

References

External links

Automotive Fuse Selection Guides

- Cooper Bussmann - Automotive Selection Guide For Vehicles Of Years 1990-2007 (<http://www.cooperbussmann.com/pdf/96a1dc2f-f8d5-49f2-a9bf-6ca300d46bd9.pdf>)

Blade Fuses

- Cooper Bussmann - Automotive Blade Fuses (<http://www.cooperbussmann.com/pdf/1389d1ed-b82a-4bcb-a06f-c24afd4986b0.pdf>)
- Littelfuse - Low Profile Mini Blade Fuses (http://www.littelfuse.com/data/en/Data_Sheets/Littelfuse-Fuse-891.pdf)
- Littelfuse - Mini Blade Fuses (http://www.littelfuse.com/data/en/Data_Sheets/Littelfuse-Automotive-Blade-Fuse-MINI-32V.pdf)
- Littelfuse - Regular Blade Fuses (http://www.littelfuse.com/data/en/Data_Sheets/Littelfuse_BladeFuse_ATO32V.pdf)
- Littelfuse - Maxi Blade Fuses (http://www.littelfuse.com/data/en/Data_Sheets/Littelfuse-Automotive-Blade-Fuse-MAXI-32V.pdf)
- OptiFuse - Automotive Blade Fuses (<http://www.optifuse.com/fusesautoblade.php>)

Circuit Breakers

- Cooper Bussmann - Automotive Circuit Breakers (<http://www.cooperbussmann.com/pdf/383c094e-15c9-4c38-953c-6033b67204d0.pdf>)

Fusible Links

- Cooper Bussmann - Automotive High-Amp Fuses and Fusible Links (<http://www.cooperbussmann.com/pdf/01e5795a-2857-422e-85c0-62eb8b13d2c5.pdf>)

Glass Tube Fuses

- Cooper Bussmann - Glass and Ceramic Tube Fuses (<http://www.cooperbussmann.com/pdf/7e17b38e-88c4-4159-892d-ba9b51f75907.pdf>)

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