


Appliance wiring material (AWM) is a large category of wire and cable that spans over different constructions. Underwriters Laboratory (UL) categorizes AWM as a Recognized Component used in Listed or Classified products. AWM is commonly used in a variety of applications such as general purpose wiring circuits, control circuits and internal wiring of appliances.

WHAT ARE UL STYLES?

Underwriters Laboratory (UL) is a third-party testing laboratory that certifies and tests products. UL assigns a different style number for each approved AWM construction and creates a style page that lists a few specifications, such as gauge size range, insulation material, temperature rating and voltage rating. Each style specifies the product's general use as determined by UL's evaluation of the product. Figure 1 is an example of a style page for UL Style 1015.



APPLIANCE WIRING MATERIAL		
Subj. 758	Section 1	Page 1015
		Issued:1959-05-01
		Revised:2013-02-22
Style 1015	Single conductor with extruded insulation	
Rating	80, 90 or 105 deg C, 600 Vac or 750 Vdc, Horizontal flame. Optional - 60 or 80 deg C Oil.	
Conductor	30 AWG - 2000 kcmil, Solid or Stranded.	
Insulation	Extruded PVC	
	<u>Conductor size</u>	<u>Minimum average thickness</u> <u>Minimum thickness at any point</u>
	30-9 AWG	30 mils 27 mils
	8-7 AWG	45 mils 40 mils
	6-2 AWG	60 mils 54 mils
	1-4/0 AWG	80 mils 72 mils
	250-500 kcmil	95 mils 86 mils
	550-1000 kcmil	110 mils 99 mils
	1100-2000 kcmil	125 mils 112 mils
Standard	Appliance Wiring Material UL 758.	
Marking	General	
Use	Internal Wiring of Appliances. Tags may also indicate the following: 2,500 V peak - for electronic use only.	
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Figure 1: UL Style page for UL Style 1015

UL HISTORY

Over the years, many different wire constructions were developed and certified as UL AWM due to the high demand from various applications and industries. The large number of AWM styles lead to different interpretations of desired performance and evaluation methods.

UL Standard 758 *Appliance Wiring Materials* was developed to consolidate general requirements for AWM, and standardize methods of evaluation. The standard includes performance requirements and methods for testing tensile strength and elongation, spark testing and dielectric voltage withstand. UL 758 also regulates marking and labeling of AWM products.

HOW DOES UL CATEGORIZE THE STYLES?

There are five sections of AWM wire. The different categorizations are based on the following criteria:

- Single conductor or multiconductor
- Thermoplastic or thermoset jacket
- Manufacturing method used to apply insulation, jacket or outer covering

UL has published a document that explains the different terminologies and associated numbers that are assigned to the different styles. For convenience, a reproduction of the table that addresses the style numbers and their use is listed below.

Appliance Wiring Material Style Number Designations	
Style Designations	Type/Use
1000-1999 and 10000- 19999	Single conductor, thermoplastic-insulated wire
2000-2999 and 20000- 29999	Multiconductor, thermoplastic-insulated and -jacketed wire
3000-3999	Single conductor, thermosetting-insulated wire
4000-4999	Multiconductor, thermosetting-insulated and -jacketed wire
5000-5999	Single and multiple conductor specialty items

Table 1: Appliance Wiring Material Style Number Designations

HOW TO FIND A UL STYLE?

UL has a useful tool available on its “iQ™” website (iq.ul.com/awm) that allows an user to access information about AWM wires.

A parametric search is one of the most helpful features when looking for a wire that meets specific application requirements. The search form allows the user to input the temperature, AWG size, material type as well as many other requirements, and it returns a list of styles that meet the input criteria. The site also allows users to search for companies that make a particular style, and it provides visibility to the style page itself.

COMMON UL STYLES

According to UL, iQ there are over 7,000 different UL Styles. Some of the more common constructions are listed in Table 2 along with basic details about the style.

Common Types	Size Range (AWG/kcmil)	Insulation Type	Shield	Jacket Type	Voltage Rating (V)	Temperature Rating (° C)
1007	32-16	PVC	None	None	300	80
1015	30-2000	PVC	None	None	600	80/90/105
1283	8-2	PVC	None	None	600	105
2464	Not Specified	Not Specified	Optional	PVC	300	80
2919	Not Specified	Not Specified	Optional	PVC	300	80
3173	26-9	XLPE	None	None	600	125
3266	32-10	XLPE	None	None	300	125
4511	Not Specified	Not Specified	Optional	Silicone Rubber	600	200
4535	Not Specified	Not Specified	Optional	Silicone Rubber	600	150

Table 2: Common UL Styles