Thermoplastic vs Thermoset Insulated Wire & Cable

CLASSIC WIRE & CABLE

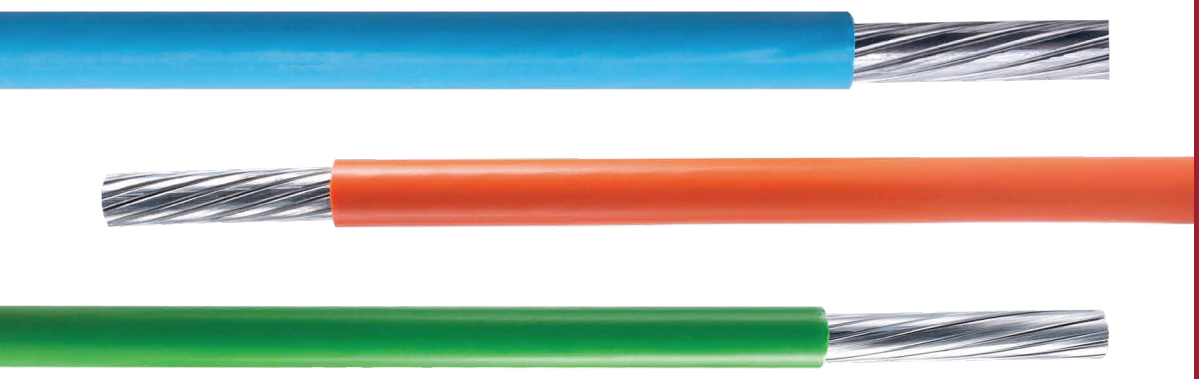
UNDERSTANDING THE DIFFERENCE BETWEEN BUILDING WIRE TYPES

There are several different types of building wire available on the market: **THHN/THWN** or **THHN/THWN-2, XHHW** or **XHHW-2** and **USE** or **USE-2.** It is important to understand the key differences between these types before selecting the correct product for your application.

The chart below breaks down the specifications for each type:

UL Type	THHN	THWN	THWN-2	XHHW	XHHW-2	USE	USE-2
UL Standard	UL 83			UL 44		UL 854	
Conductor Size Range	Copper: 14 AWG to 1000 kcmil Aluminum: 8 AWG to 1000 kcmil					Aluminum: 8 AWG to 1000 kcmil	
Voltage Rating	600 V			600 V or 1000 V (1)		600 V	
Reduced Coefficient of Friction	YES			YES		YES	
Insulation System	PVC Nylon			XLPE		XLPE	
Conductor Identification	Black or Colored PVC, Clear Nylon			Black or Colored		Black or Colored	
Insulation Type	Thermoplastic			Thermoset			
Dry Temperature	90 deg C	90 deg C	90 deg C	90 deg C	90 deg C	90 deg C	90 deg C
Wet Temperature	---	75 deg C	90 deg C	75 deg C	90 deg C	75 deg C	90 deg C
Emergency Overload Temperature	105 deg C			130 deg C			
Short-Circuit Temperature	150 deg C			250 deg C			

Note: (1) Not all manufacturers are UL listed to offer 1000 V rated and marked XHHW or XHHW-2



Acronyms:

THHN
T = Thermoplastic
HH = High Heat Resistant
N = Nylon Covered

THWN
T = Thermoplastic
H = Heat Resistant
W = Water Resistant
N = Nylon Covered

THWN-2
T = Thermoplastic
H = Heat Resistant
W = Water Resistant
N = Nylon Covered
-2 = Rated 90 degrees Celsius in wet locations

XHHW
X = Cross-linked polyethylene (XLPE)
HH = High Heat Resistant
W = Water Resistant

XHHW-2
X = Cross-linked polyethylene (XLPE)
HH = High Heat Resistant
W = Water Resistant
-2 = Rated 90 degrees Celsius in wet locations

USE
U = Underground
S = Service
E = Entrance

USE-2
U = Underground
S = Service
E = Entrance
-2 = Rated 90 degrees Celsius in wet and dry locations

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