

NEMA Configurations

Confused about the multitudes of plug, connector and receptacle combinations? This page will help. The National Electrical Manufacturers Association (NEMA) has assigned designations to the various configurations. The purpose of so many different types is to prevent the wrong combinations of electrical systems from being plugged together, thereby avoiding potentially dangerous conditions.

Terminology

Here is the distinction between plugs, receptacles, inlets and connectors.








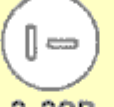
















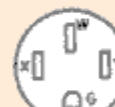


	Flange or Box Mounted	Cord Mounted
Connected to live source of electricity (female)	Receptacle - A female flange mounted wiring device with the conducting elements recessed behind the mating surface. Often referred to as an outlet. This type of device is normally wired to be live when nothing is plugged in to it. Therefore, receptacles are wired to the source of power.	Connector - A female cord mounted wiring device with the conducting elements recessed behind the mating surface. This type of device is normally wired to be live when nothing is plugged in to it. Therefore, connectors are wired to the source of power.
Connected to load (male)	Inlet - A male flange mounted wiring device with the conducting pins protruding and exposed. This type device should never be wired to make the exposed pins live while the mating device is unplugged.	Plug - A male cord mounted wiring device with the conducting pins protruding and exposed. This type device should never be wired to make the exposed pins live while unplugged. Therefore, plugs are always dead until they are plugged into a power source such as a wall outlet or generator outlet.

NEMA Configurations

This chart shows the most common NEMA configurations in use in North America for 125ac and 250Vac single phase systems. This covers most residential applications.

Twist-lock devices have the advantage of locking in the mating position. This is useful in applications where the connection experiences vibration or the associated cord is hanging or subject to accidental unplugging.

Additional configurations are defined in the ANSI/NEMA WD 6 standard which cover higher voltages, 3 phase applications, and specific purposes such as travel trailers, marine ship-to-shore and more.

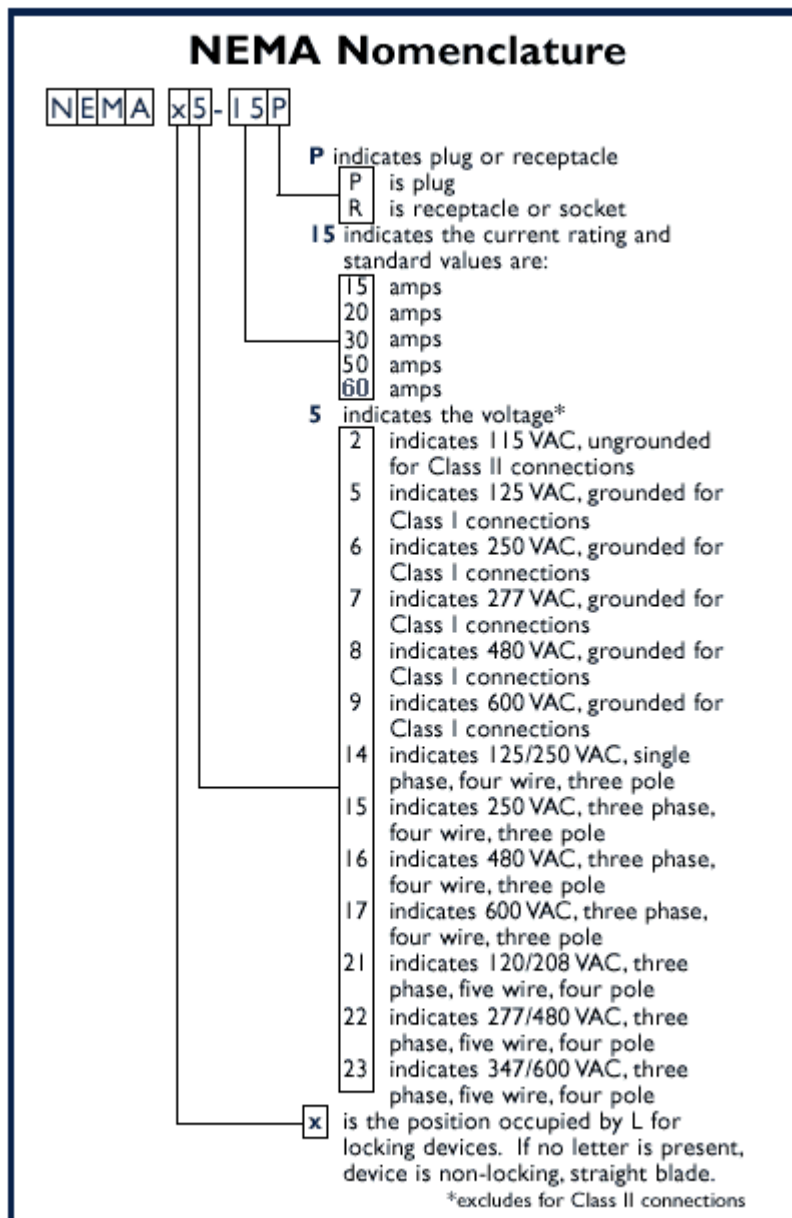
CURRENT RATING	TYPE	2 POLE - 2 WIRE NO GROUND		2 POLE - 3 WIRE GROUNDING		3 POLE 4 WIRE GROUNDING
		125V	250V	125V	250V	125/250V
15A	STRAIGHT BLADE	 1-15R	 2-15R	 5-15R	 6-15R	
	TWIST-LOCK	 L1-15R		 L5-15R	 L6-15R	
20A	STRAIGHT BLADE		 2-20R	 5-20R	 6-20R	 14-20R
	TWIST-LOCK		 L2-20R	 L5-20R	 L6-20R	 L14-20R
30A	STRAIGHT BLADE		 2-30R	 5-30R	 6-30R	 14-30R
	TWIST-LOCK			 L5-30R	 L6-30R	 L14-30R
50A	STRAIGHT BLADE			 5-50R	 6-50R	 14-50R
	TWIST-LOCK					 CS6364/65
60A	STRAIGHT BLADE					 14-60R
	TWIST-LOCK					

- NOTES: 1) Female receptacles shown. For male plug change suffix from "R" to "P" and mirror image.
 2) For female connectors change suffix from "R" to "C".
 3) Twist-lock 50A CS6364 connector and CS6365 plug are not NEMA.
 4) Normally G = ground (green), W = neutral (white), X & Y = hot (red & black).

NEMA Nomenclature

The NEMA nomenclature for the code numbers follows this table.

If you have a NEMA code number for a device, use this table to determine the device ratings.










Straight Blade Plugs and Connectors Tests

NEMA Configurations for
Straight Blade Plugs and Connectors

To ensure safety and reliability, Eagle straight blade plugs and connectors are tested, rated and marked according to various standards. The information below indicates the required performance tests specified by industry standards for electrical wiring devices.

Plugs and Connectors			
Classification	Standards	Devices	Tests
Standard Grade	UL498 NEMA WD-1	Connectors	10 Cycles with Standard Plug Blades
		Connectors	50 Cycles at 150% Rated Current
		Connectors	Plug Retention-Hold 3 lbs. on 2 Pole Bladed Plug
		Connectors	Plug Release-Release 15 lbs. on 2 Pole 3 Wire Plug
		Plugs & Connectors	30° Maximum Temperature Rise at Full Rated Current
		Plugs & Connectors	Strain Relief
		Plugs & Connectors	Stray Strand Dielectric
Industrial Specification Grade & Specification Grade	UL 498 NEMA WD-1 & Fed. Spec. WC 596 (GSA)		All the Requirements of Standard Grade Plus:
		Connectors	Total of 20 Cycles with Oversized Blades
		Connectors	Contact Retention-1 1/2 lbs. on Single Undersized Power Blade, 4 oz. on Undersized Grounding Blade
		Connectors	Total of 250 Cycles at 200% Rated Current
		Plugs & Connectors	Dielectric. 1000 + 2 x Rated Voltage
Hospital Grade	UL 498 & 544		All the Requirements of Industrial Specification Grade Plus:
		Connectors	Ground Contact Temperature
		Connectors	Ground Contact Overstress
		Connectors	Resistance
		Plugs & Connectors	Mold Stress Relief
		Plugs & Connectors	Crush
		Plugs & Connectors	Impact Resistance
		Plugs & Connectors	Mechanical Drop
		Plugs & Connectors	Strain Relief Tests
		Connectors	Plug Connection and Separation

2 Pole 2 wire

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V	 1-15R	 1-15P								
250V		 2-15P	 2-20R	 2-20P	 2-30R	 2-30P				

E Intro

Straight
Blade
Plugs and
Connectors





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NEMA ELECTRICAL CONFIGS . pdf































2 Pole 2 WIRE

NEMA 2 Pole, 2 Wire

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V-L1	L1-15R C73.31 	L1-15P C73.31 				
250V-L2			L2-20R C73.32 	L2-20P C73.32 		

















2 Pole 3 Wire Grounding

NEMA 2 Pole, 3 Wire Grounding

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V-L5	L5-15R C73.42 	L5-15P C73.42 	L5-20R C73.72 	L5-20P C73.72 	L5-30R C73.73 	L5-30P C73.73 
250V-L6	L6-15R C73.74 	L6-15P C73.74 	L6-20R C73.75 	L6-20P C73.75 	L6-30R C73.76 	L6-30P C73.76 
277V AC-L7	L7-15R C73.43 	L7-15P C73.43 	L7-20R C73.77 	L7-20P C73.77 	L7-30R C73.78 	L7-30P C73.78 
480V-L8			L8-20R C73.79 	L8-20P C73.79 	L8-30R C73.80 	L8-30P C73.80 
600V-L9			L9-20R C73.81 	L9-20P C73.81 	L9-30R C73.82 	L9-30P C73.82 
28V DC-FSL1					FSL1R 	FSL1P 
400Hz 120V-FSL2					FSL2R 	FSL2P 

























3 Pole 3 WIRE

NEMA 3 Pole, 3 Wire

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125/250V-L10			L10-20R C73.96 	L10-20P C73.96 	L10-30R C73.97 	L10-30P C73.97 
3ø 250V-L11	L11-15R C73.98 	L11-15P C73.98 	L11-20R C73.99 	L11-20P C73.99 	L11-30R C73.100 	L11-30P C73.100 
3ø 480V-L12			L12-20R C73.101 	L12-20P C73.101 	L12-30R C73.102 	L12-30P C73.102 
3ø 600V-L13					L13-30R C73.103 	L13-30P C73.103 















2 Pole 3 Wire Grounding

NEMA 2 Pole 3 Wire Grounding

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V	 5-15R	 5-15P	 5-20R	 5-20P	 5-30R	 5-30P	 5-50R	 5-50P		
250V	 6-15R	 6-15P	 6-20R	 6-20P	 6-30R	 6-30P	 6-50R	 6-50P		
277V	 7-15R	 7-15P	 7-20R	 7-20P	 7-30R	 7-30P	 7-50R	 7-50P		





















3 Pole 3 Wire

NEMA 3 Pole 3 Wire

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V/250V			 10-20R	 10-20P	 10-30R	 10-30P	 10-50R	 10-50P		
3 ϕ Δ 250V	 11-15R	 11-15P	 11-20R	 11-20P	 11-30R	 11-30P	 11-50R	 11-50P		











3 Pole 4 Wire Grounding

NEMA 3 Pole 4 Wire Grounding

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125V/250V	 14-15R	 14-15P	 14-20R	 14-20P	 14-30R	 14-30P	 14-50R	 14-50P	 14-60R	 14-60P
3 ϕ Δ 250V	 15-15R	 15-15P	 15-20R	 15-20P	 15-30R	 15-30P	 15-50R	 15-50P	 15-60R	 15-60P



4 Pole 4 wire

NEMA 4 Pole 4 Wire

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
3 ϕ Y 120/208V	 18-15R	 18-15P	 18-20R	 18-20P	 18-30R	 18-30P	 18-50R	 18-50P	 18-60R	 18-60P

NEMA Trailer

















NEMA Trailer

	15 Ampere		20 Ampere		30 Ampere		50 Ampere		60 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
2P3W Grounding					 TT-30R	 TT-30P				

3













3 POLE 4 WIRE Grounding

NEMA 3 Pole, 4 Wire Grounding

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
125/250V-L14			L14-20R C73.83 	L14-20P C73.83 	L14-30R C73.84 	L14-30P C73.84 
3ø 250V-L15			L15-20R C73.85 	L15-20P C73.85 	L15-30R C73.86 	L15-30P C73.86 
3ø 480V-L16			L16-20R C73.87 	L16-20P C73.87 	L16-30R C73.88 	L16-30P C73.88 
3ø 600V-L17					L17-30R C73.89 	L17-30P C73.89 
400Hz 3øΔ 120V-FSL3					FSL3R 	FSL3P 















4 Pole 4 WIRE

NEMA 4 Pole, 4 Wire

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
3øY 120/208V-L18			L18-20R C73.104 	L18-20P C73.104 	L18-30R C73.105 	L18-30P C73.105 
3øY 277/480V-L19			L19-20R C73.106 	L19-20P C73.106 	L19-30R C73.107 	L19-30P C73.107 
3øY 347/600V-L20			L20-20R C73.108 	L20-20P C73.108 	L20-30R C73.109 	L20-30P C73.109 

4 Pole 5 WIRE Grounding

NEMA 4 Pole, 5 Wire Grounding

	15 Ampere		20 Ampere		30 Ampere	
	Receptacle	Plug	Receptacle	Plug	Receptacle	Plug
3øY 120/208V-L21			L21-20R C73.90 	L21-20P C73.90 	L21-30R C73.91 	L21-30P C73.91 
3øY 277/480V-L22			L22-20R C73.92 	L22-20P C73.92 	L22-30R C73.93 	L22-30P C73.93 
3øY 347/600V-L23			L23-20R C73.94 	L23-20P C73.94 	L23-30R C73.95 	L23-30P C73.95 
400Hz 3øY 120/208V-FSL4					FSL4R 	FSL4P 

4