# Walther
## Electrotechnical Systems

**Walther Electric** is an international company that is committed to outstanding service and providing electrical interconnect products and power distribution systems to customers & industries around the world. Walther Corporate Headquarters is located in Eisenberg, Germany with full service subsidiaries in The United States, The United Kingdom, France and Austria. Our “Global Team” is made up of highly respected and industry qualified representative agents in more than 70 countries.

Established in 1897 - and from the very beginning Walther has been known for its progressive engineering and innovative product designs and manufacturing capabilities. All Walther products are designed and manufactured to not only meet but to exceed industry requirements for greater safety and customer performance demand.

Walther Electric’s innovative and technical product portfolio includes IEC 60309 Pin & Sleeve interconnect devices, Procon ”Heavy Duty” rectangular connectors, power distribution units and systems, motor disconnect and switched safety devices, ”e-Mobility” electric vehicle charging interconnect devices and charging stations.

At our North American Headquarters located in Somerset, New Jersey we are proud of our “Engineering and Technical Team” coupled with a talented inside support staff that is always ready to assist you “Our Customer” in the design/specification process and in the manufacturing of “YOUR” power distribution or control system requirements.

When you are in need of quality electrical interconnects, power distribution systems, and industry knowledgeable service, call Walther Electric, ***“WE ARE”*** your complete solution provider.

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## IEC-309-1 and IEC-309-2 Mechanical Interlocks



## WORLDWIDE INTERCHANGEABILITY

Walther's pin & sleeve devices are built to IEC60309-1 and 309-2 specifications and are interchangeable with other manufacturers who conform to these IEC standards and color coding system... anywhere in the world. Manufacturers that do not comply with these standards have their own proprietary configurations and are not plug compatible with other pin & sleeve products. Once you have selected a proprietary configuration you are locked in to a single source. Specifying IEC60309-1 & 309-2 devices provides convenience and flexibility that users have come to accept almost without thinking.

## SAFETY

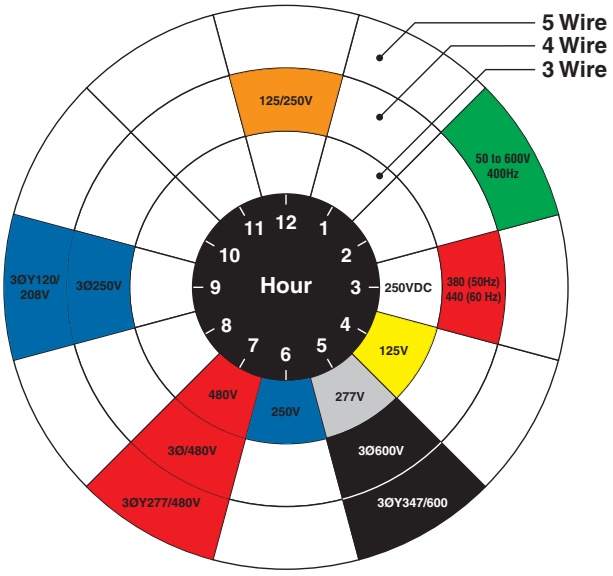
IEC60309-2 configurations for plugs (or inlets) and receptacles (or connectors) are single-rated which assures proper mating of devices with the same voltage and amperage. It is virtually impossible to couple a plug and receptacle of different voltage and /or amperage ratings.

The size of the device is determined by the amperage rating. Plugs and receptacles of different amperage ratings are not compatible because of the size variance.

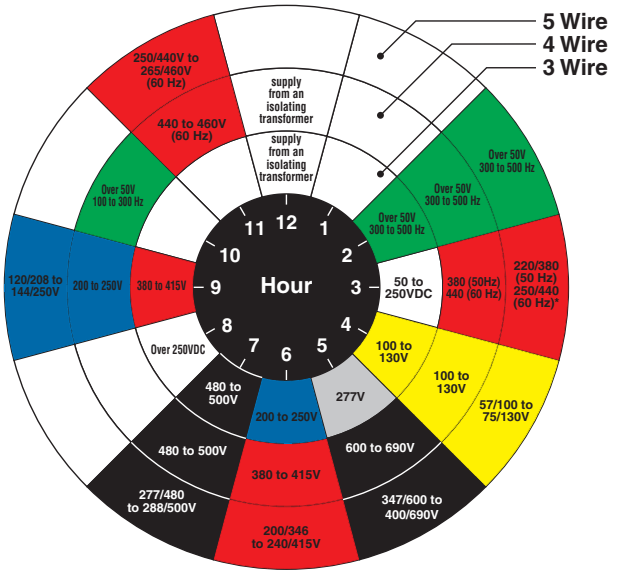
Many proprietary pin & sleeve configurations, that do not conform to the IEC standards, are designed to accommodate multiple voltage systems. A plug wired to a piece of equipment designed to operate at one voltage system could unintentionally be plugged into a receptacle wired with an unlike voltage. Mismatching voltages could cause damage to the equipment or even personal injury and is not considered safe electrical practice.

The voltage, of single rated Pin & Sleeve devices of the IEC 309-2 type, is determined by the location of the oversized female ground contact relative to the key-way located at the bottom of the housing. A clock face is used to represent the location of the ground sleeve for a specific voltage system. For example, a 480 VAC receptacle or connector will have the oversized ground sleeve located in the 7 o'clock position. The corresponding grounding pin location on the plug or inlet is a mirror image of the female device. Devices of mismatched voltage systems simply cannot be mated. Each device is clearly marked with the voltage system for which it is intended to be used. The diagram below shows the keying position and the color coding that is associated with each voltage system.

Walther CEEtyp Female Ground Clockface Positions in Accordance with IEC60309-2 and UL 1686



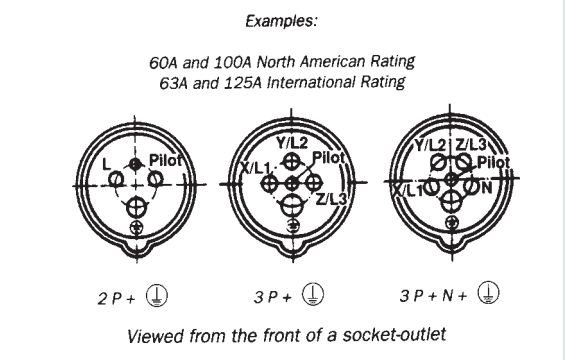

North American Rating
Voltage AC (Except where noted)




International Rating
Voltage AC (Except where noted)

The insulated housing is made from a high impact, nylon material. The nonmetallic device, while abuse and corrosion resistant, is also nonconductive, which enhances the safety of the product.

## ELECTRICAL INTERLOCK




Plugs and receptacles rated 60 amps and above, feature an "electrical interlock" by way of a pilot pin on the plug and female sleeve on the receptacle that is shorter than the main pins. The pilot pin and female sleeve make contact last, and break contact first. This sequence turns the power on when the pilot pin and sleeve mate, and turns the power off before the phase contacts are disengaged. This prevents making or breaking the circuit under load.

## RELIABILITY

Walther offers the widest variety of plugs, receptacles, connectors and inlets, made of the highest quality and design integrity in both splashproof and watertight versions.

Watertight (IP67) devices are designed for use in the most demanding environments that require safety, ease of use, reliability and durability. These devices can withstand impact and vibration and provide complete protection against dirt, dust, water jets and even temporary flooding. Watertight devices are available in 20, 30, 60 and 100 amp (North American) ratings and 16, 32, 63 and 125 amp (International) ratings.

Splashproof (IP44) devices are suitable and recommended for use in a variety of light industrial environments and provide complete protection against contact with live parts, damaging deposits of dirt and dust and splashing water. Splashproof devices provide many of the heavy duty construction features found in the watertight products, but at a more economical cost. Splashproof devices are available in 20, 30 and 60 amp (North American) ratings and 16, 32 and 63 amp (International) ratings.

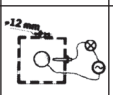
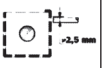
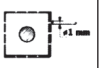
Watertight and splashproof devices provide exceptional UV stability for superior outdoor performance.

All Walther plugs and connectors are supplied with an internal cord clamp designed to firmly grip not only the outer cable jacket but also the internal conductors. The internal cord clamp eliminates strain on the terminals while providing high pull-out values without external protrusions to snag adjacent wiring or the installer.

In addition to the internal cord clamp, Watertight plugs and connectors are also supplied with an external cable gland. This cable gland serves as a secondary method of eliminating strain on the terminals and conductors while assuring watertight performance. Standard splashproof plugs and connectors are also supplied with the same external gland as the watertight devices. However, a cable sleeve, designed to speedup installation, is provided with a lower cost splashproof alternative.

All Walther plugs and connectors, furnished with either a cable gland or cable sleeve, meet the cord and cable secureness requirements defined in UL 1682, Section 33.

## TABLE 1 - CHARACTERISTICS DEFINED BY THE CEI 70-1 - IEC 529 - IEC 144 - UTE C 20-010 - DIN 40050 STANDARDS

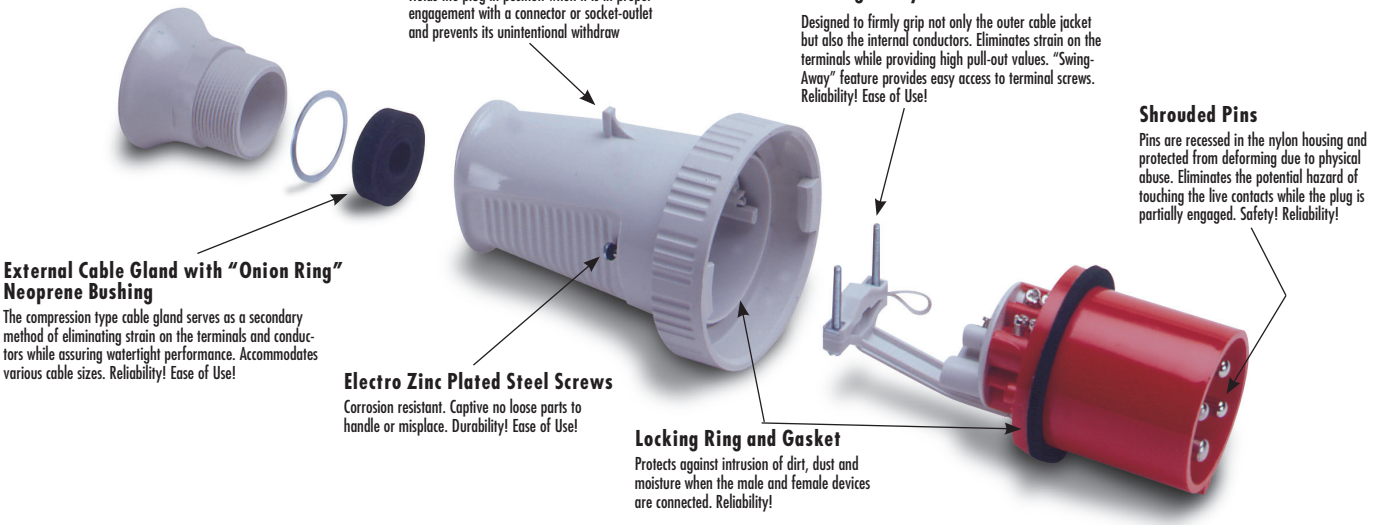
| First Digit - Protection against persons - touching and ingress of solid foreign objects | | | Second Digit - Protection against the penetration of liquids | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | IP_0 | IP_1 | IP_2 | IP_3 | IP_4 | IP_5 | IP_6 | IP_7 | IP_8 |
| | | | |  |  |  |  |  |  |  | |
| | | | Non protected | Protection against vertical falling of water drops | Protection against falling of water drops at an angle up to 15° from the vertical | Protection against spraying water (rain) at an angle up to 60° from the vertical | Protection against splashing water from any direction (360°) | Protection against water jets from any direction (360°) | Protection against heavy seas (waves) | Protection against effects of immersion in water under defined conditions of pressure and time | Protection against continuous submersion in water |
| | | | |  | |  |  |  | |  | |
| IP 0_ | | Without protection | IP 00 | | | | | | | | |
| IP 1_ |  | Protection against touching with the hand and solid objects greater than 50mm dia. | IP 10 | IP 11 | IP 12 | | | | | | |
| IP 2_ |  | Protection against touching with the finger and solid objects greater than 12mm dia. | IP 20 | IP 21 | IP 22 | IP 23 | | | | | |
| IP 3_ |  | Protection against touching with tools, wires, etc. more than 2.5mm thick and solid objects greater than 2.5mm dia. | IP 30 | IP 31 | IP 32 | IP 33 | IP 34 | | | | |
| IP 4_ |  | Protection against touching with tools, wires, etc. more than 1mm thick and solid objects greater than 1mm dia. | IP 40 | IP 41 | IP 42 | IP 43 | IP 44 | | | | |
| IP 5_ |  | Unlimited protection against contact with live parts and damaging deposits of dust | IP 50 | | | | IP 54 | IP 55 | | | |
| IP 6_ |  | Unlimited protection against contact with live parts and any penetration of dust | IP 60 | | | | | IP 65 | IP 66 | IP 67 | IP 68 |

In some countries a third digit (for mechanical security) is added.

## TABLE 2

| Designation | Intended Use and Description | Construction Requirements |
|---|---|---|
| 3 | Outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and damage from external ice formation. | Splashproof (IP44) |
| 4 | Indoor and outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water and damage from external ice formation. | Watertight (IP67) |
| 4X | Indoor and outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation. | Watertight (IP67) |
| 6 | Indoor and outdoor use primarily to provide a degree of protection against hose-directed water, and the entry of water during occasional temporary submersion at a limited depth and damage from external ice formation. | Watertight (IP67) |
| 12, 12K | Indoor use primarily to provide a degree of protection against circulating dust, falling dirt, and dripping non-corrosive liquids. | Splashproof (IP44) |

This information is provided only as a general guide. No specific recommendation is intended. As each application may vary, testing should be conducted by the user in the intended environment.



**Retaining Device**
Holds the plug in position when it is in proper engagement with a connector or socket-outlet and prevents its unintentional withdraw

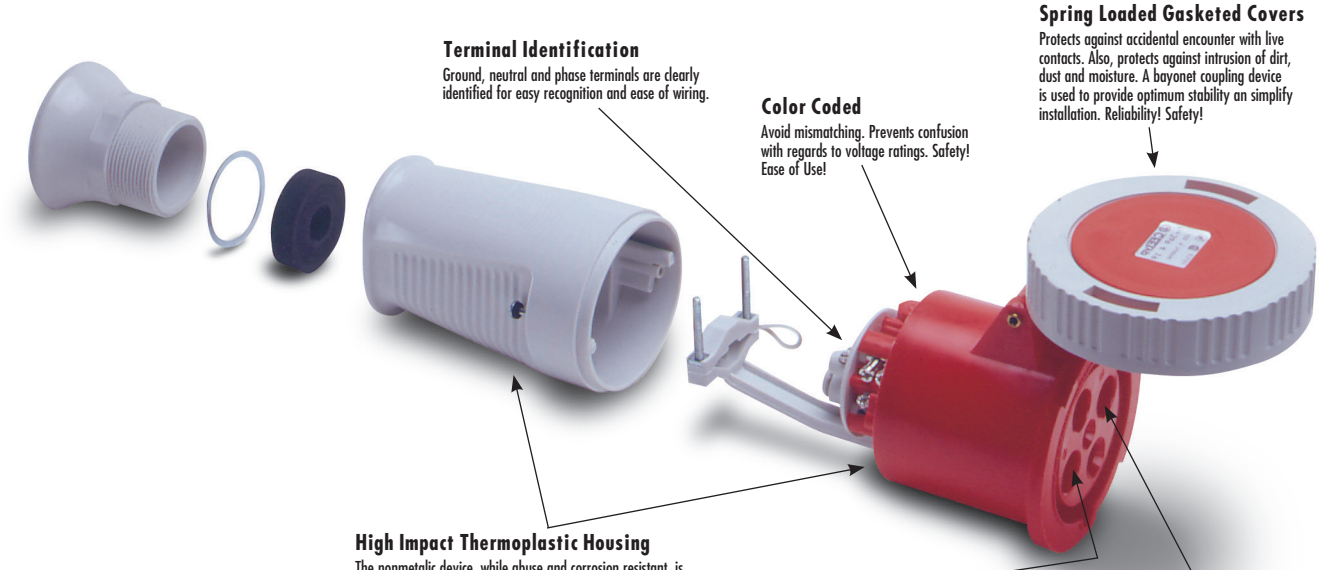
**Internal Strain Relief with "Swing-Away" Feature**
Designed to firmly grip not only the outer cable jacket but also the internal conductors. Eliminates strain on the terminals while providing high pull-out values. "Swing-Away" feature provides easy access to terminal screws. Reliability! Ease of Use!

**Shrouded Pins**
Pins are recessed in the nylon housing and protected from deforming due to physical abuse. Eliminates the potential hazard of touching the live contacts while the plug is partially engaged. Safety! Reliability!

**External Cable Gland with "Onion Ring" Neoprene Bushing**
The compression type cable gland serves as a secondary method of eliminating strain on the terminals and conductors while assuring watertight performance. Accommodates various cable sizes. Reliability! Ease of Use!

**Electro Zinc Plated Steel Screws**
Corrosion resistant. Captive no loose parts to handle or misplace. Durability! Ease of Use!

**Locking Ring and Gasket**
Protects against intrusion of dirt, dust and moisture when the male and female devices are connected. Reliability!



**Spring Loaded Gasketed Covers**
Protects against accidental encounter with live contacts. Also, protects against intrusion of dirt, dust and moisture. A bayonet coupling device is used to provide optimum stability an simplify installation. Reliability! Safety!

**Terminal Identification**
Ground, neutral and phase terminals are clearly identified for easy recognition and ease of wiring.

**Color Coded**
Avoid mismatching. Prevents confusion with regards to voltage ratings. Safety! Ease of Use!

**High Impact Thermoplastic Housing**
The nonmetalic device, while abuse and corrosion resistant, is also nonconductive, which enhances the safety of the product. The insulated housing is made from a high impact, nylon material and is UV stabilized. Safety! Durability

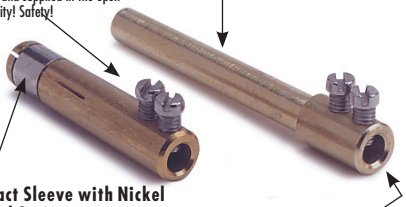
**Staggered Contacts**
Oversized ground contact is farthest forward, assuring first make and last break. Neutral is next to prevent the possibility of an "open neutral" condition. Phase contact is farthest making it last to make, first to break. Safety!

**Recessed Contacts**
Contact sleeves are recessed in the narrow contact tubes thus, providing a "finger proof" device and protecting against any accidental encounter with live contacts. Safety!

**Retaining Device**
Walther pin & sleeve devices are provided with a mechanical arrangement which holds a plug or connector in position when it is in proper engagement, and prevents its unintentional withdraw.

**Double Terminal Screws**
Maximum clamping pressure without damaging strands. Double terminal screws create a large area of safe and secure contact between conductor and terminal. Screws are captive, easily accessible and supplied in the open position. Reliability! Safety!

**Solid Brass Pins**
Low contact resistance and high conductivity. Long lasting, reliable electrical contact. Reliability!



**Split Contact Sleeve with Nickel Plated Steel Springs**
Provides optimum insertion/withdraw force and constant contact pressure Reliability!

**Chamfered Terminals**
Funnel Entry. Guides and captures all wire strands. Ease of Use! Reliability!

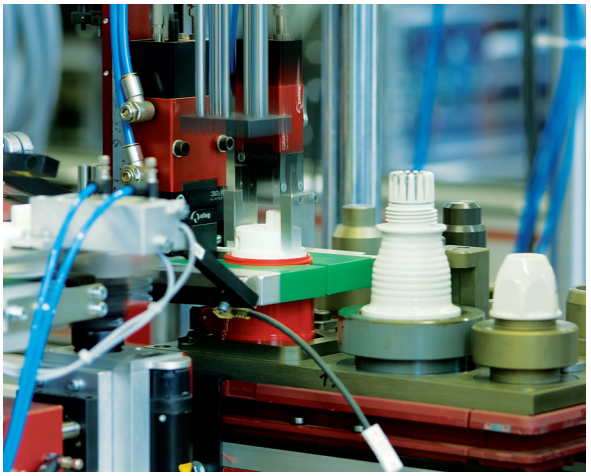
## PLUG

| | |
|---|---|
| Assembly Screws* | Steel, Electro Zinc Plated |
| Friction Ring* | Steel, Electro Zinc Plated |
| Gland Cap | Polycarbonate Blend |
| Grommet | Solid Neoprene |
| Housing (Front and Back) | Type 6 Nylon |
| Internal Cord Clamp | Type 6 Nylon |
| Locking Ring | Type 6 Nylon |
| Pins (Watertight) | Brass, Nickel Plated |
| Pins (Splashproof) | Brass |
| Sealing Gasket | Neoprene |
| Terminal Screws | Steel, Nickel Plated |

## INLET

| | |
|---|---|
| Housing | Type 6 Nylon |
| Locking Ring | Type 6 Nylon |
| Mounting Flange | Type 6 Nylon |
| Pins (Watertight) | Brass, Nickel Plated |
| Pins (Splashproof) | Brass |
| Sealing Gasket | Neoprene |
| Terminal Screws | Steel, Nickel Plated |

* Stainless steel available upon request



## CONNECTOR

| | |
|---|---|
| Assembly Screws* | Steel, Electro Zinc Plated |
| Cover | Type 6 Nylon |
| Cover Fastener | Nickel Plated Brass, Brass or Macrolon |
| Cover Spring | Stainless Steel (A2) |
| Friction Ring* | Steel, Electro Zinc Plated |
| Gland Cap | Polycarbonate Blend |
| Grommet | Solid Neoprene |
| Housing (Front and Back) | Type 6 Nylon |
| Internal Cord Clamp | Type 6 Nylon |
| Sealing Gasket | Neoprene |
| Sleeve Spring | Steel, Nickel Plated |
| Sleeves (Watertight) | Brass, Nickel Plated |
| Sleeves (Splashproof) | Brass |
| Terminal Screws | Steel, Nickel Plated |

## RECEPTACLE

| | |
|---|---|
| Cover | Type 6 Nylon |
| Cover Fastener | Nickel Plated Brass, Brass or Macrolon |
| Cover Spring | Stainless Steel (A2) |
| Housing | Type 6 Nylon |
| Mounting Flange | Type 6 Nylon |
| Sealing Gasket | Neoprene |
| Sleeve Spring | Steel, Nickel Plated |
| Sleeves (Watertight) | Brass, Nickel Plated |
| Sleeves (Splashproof) | Brass |
| Terminal Screws | Steel, Nickel Plated |

Manufacturing pin & sleeve devices, of superior quality, can only be accomplished through the use of high grade materials. That is an important part of the Walther Pin & Sleeve system — quality products you can depend on.

Male pins and female sleeves are made of high conductivity brass. Contacts used with watertight devices are nickel plated to prevent corrosion. The insulated housing is made from a high impact, nylon material. The nonmetallic device, while resistant to most solvents, chemicals and salt water, is also non-conductive, which enhances the safety of the product.

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Walther reserves the right to make technical descriptive and dimensional changes due to product changes and/or improvements.

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