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AR642 60 Amp Pin & Sleeve Recept 3-W 4-P 250VDC/600vac *Cooper Crouse-Hinds*

Catalog Number	AR642
Manufacturer	Cooper Crouse-Hinds
Description	Receptacle, Polarized; Weather Proof; 4 Pole; 3 Wire; 600 Vac At 50 to 400 HZ/250 VDC; 60 Ampere; Grounding Style 2, Shell, Extra Pole; Spring Door; Natural High Impact Strength Copper Free Aluminum; Industrial Grade; Approval Csa C22.2; Arktite[R] Brand
Weight per unit	2.7 (lbs/each)
Product Category	Pin & Sleeve Devices
Approval	UL, CSA, CE
Brand	PLUGS & RECEPTACLES
Category Description	Pin & Sleeve Devices
Commodity Description	PIN & SLEEVE DEVICES
Current Rating	60 AMPERE
Description	60 AMP PIN & SLEEVE RECPT 3-W 4-P 250VDC/600VAC
Documents	Yes
Door Type	SPRING DOOR
Grade	INDUSTRIAL
Grounding Style	2, SHELL, EXTRA POLE
Long Description	RECEPTACLE, POLARIZED; WEATHER PROOF; 4 POLE; 3 WIRE; 600 VAC AT 50 TO 400 HZ/250 VDC; 60 AMPERE; GROUNDING STYLE 2, SHELL, EXTRA POLE; SPRING DOOR; NATURAL HIGH IMPACT STRENGTH COPPER FREE ALUMINUM; INDUSTRIAL GRADE; APPROVAL CSA C22.2; ARKTITE[R] BRAND
Manufacturers Part Number	AR642
Material	NATURAL HIGH IMPACT STRENGTH COPPER FREE ALUMINUM
Model	AR
Number of Wires	3
Picture	Yes
Poles	4
Product Type	Receptacle Housing
Type	POLARIZED
Voltage Rating	600 VAC AT 50 TO 400 HZ/250 VDC

Industrial Heavy Duty Non-hazardous Areas

Applications:

Arktime circuit breaking plugs and receptacles are used:

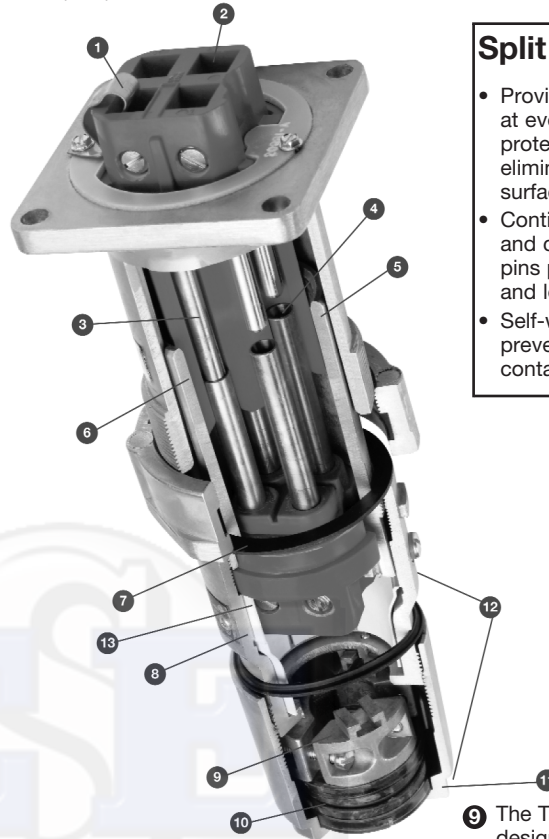
- To supply power to portable electrically operated devices such as motor-generator sets, compressors, heating and cooling units, welders, conveyors, lighting systems and similar equipment
- Where temporary power is needed, such as at trailers, building units, heavy machinery and similar equipment
- Wherever electrical loads must be quickly disconnected from power source
- In a typical installation, where a large machine utilizes a number of electrical motor drives and for ease of adjustment, removal, maintenance and replacement, each motor is connected by portable cord and Arktime receptacles rather than permanently wired
- In areas where dust, dirt, moisture and corrosion are a problem
- Indoors and outdoors in non-hazardous areas of chemical plants, process industry facilities, meat packing plants, manufacturing plants and similar industrial locations

Features:

- Circuit breaking: plugs through 100 ampere rating may be disconnected under load; 150-400 ampere units are for service disconnect use only.
- Receptacles accept only plugs of the same amperage rating, style and number of poles, making it impossible to mismatch, and provides for positive polarization.
- Extra wide electrical spacing allows for maximum safety.
- Insulator materials are the result of intensive testing. Selection has been made based on highest dielectric strength, maximum mechanical and impact resistance, lowest moisture absorption and highest arc tracking resistance.
- A variety of installations is possible due to the availability of several types of back boxes.
- Designed to withstand rough usage and the effects of adverse environments.
- Reversible interiors, 30, 60 and 100 ampere (except 30 and 60 ampere, 5-pole) Arktime plug and receptacle interiors are interchangeable using a screwdriver. This makes it possible to feed a normally de-energized receptacle from an energized plug with usual Arktime safety; no energized contacts are exposed.

Certifications and Compliances:

- UL Standards: 1203*; 1682, 1686
- CSA Standard: C22.2 No. 182.1
- CE (LVD) 2006/95/EEC**



Split Pin Contact Design:

- Provides nearly 360° of contact at every insertion, ensuring protection against heat rise and eliminating arcing on critical surfaces
- Continuous contact over length and circumference of mated pins provides superior safety and long-term performance
- Self-wiping at every insertion to prevent environmental contamination build-up



• The additional features below are called out in the illustration on this page

- 1 The ground contact is bonded to the receptacle housing (Style 2)
- 2 Unimpeded, easy-access phase and ground terminals make wire termination quick and easy
- 3 Grounding contacts that make-first and break-last in the unlikely event of keyway failure
- 4 An arc formed when the plug is being removed is instantly snuffed in the deep confined insulated arcing chamber
- 5 A detent spring forms a parallel grounding path through the metallic plug sleeve and receptacle housing and is the first contact to make and the last to break
- 6 The plug sleeve is keyed to the receptacle to prevent mispolarization
- 7 The gasketing system provides unsurpassed watertight integrity (NEMA 4)
- 8 All aluminum Uni-Shell™ construction provides superior strength in abusive environments
- 9 The Tri-Lock™ cable grip has 3-piece design that equally distributes gripping power around perimeter of cable. Cord jacket does not get pinched, eliminating potential for damage to both internal conductors and external cable jacket. Cable grip is located inside plug housing, eliminating corrosion of vital hardware and making plug maintenance easy.
- 10 The unique Sure-Seal™ cable gland has two gasket sizes which fit entire range of cable diameters, reducing risk of improper assembly. The gasket ratchets into the Tri-lock™ cable grip to prevent plug from turning or loosening in high vibration areas.
- 11 Wrenching surfaces make Arktime plugs quick and easy to assemble
- 12 Smooth and contoured design of plug housing eliminates occurrence of cable grip snagging or breaking off. Tri-Lock™ screws are captive so cable grip cannot come apart during assembly. Prevents critical screws from getting lost during installation.
- 13 Plastic sleeve between insulator body and housing minimizes possibility of electrical shock in event of ground failure. Increases creepage and clearance protection.

* APJ and NPJ plugs only

** Excludes 200A and 400A APR Connectors

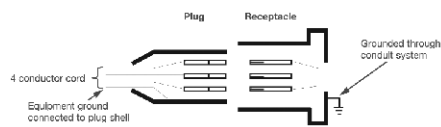
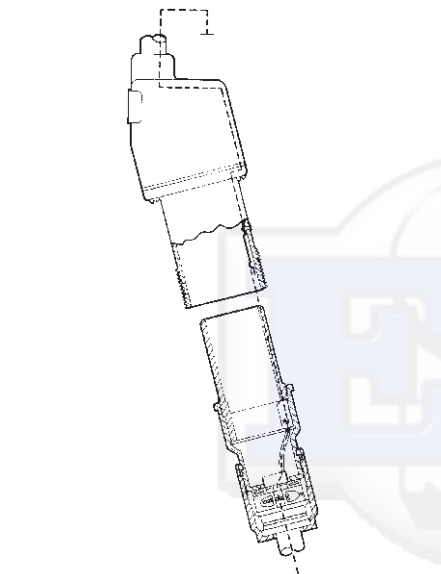
Industrial Heavy Duty Non-hazardous Areas

Grounding: Style 1 vs. Style 2

Cooper Crouse-Hinds Arktite devices utilize two methods, or styles, for completing the grounding circuit in plugs and receptacles. NEC reference 250.138 (A) & (B).

Style 1 – Metallic

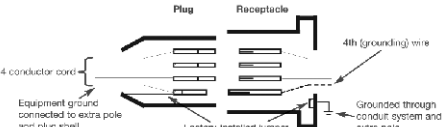
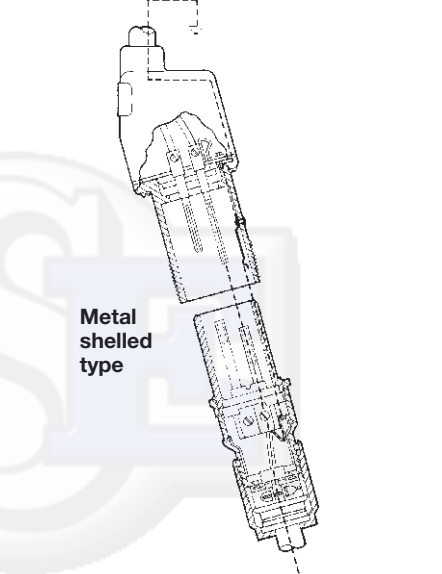
A Style 1 plug is one in which the grounding conductor in the flexible cable is bonded to the plug sleeve by a pressure connector. A Style 1 receptacle is one which is grounded by virtue of the fact that it is an integral part of a grounded conduit system. On insertion, the plug sleeve makes contact with detent springs of the grounded receptacle housing before line and load poles engage, and on withdrawal, remains in contact until after line and load poles disengage. Therefore, exposed metal parts of the portable equipment or plug are suitably grounded.



Style 1
Ground conductor attaches to shell.

Style 2 – Metallic

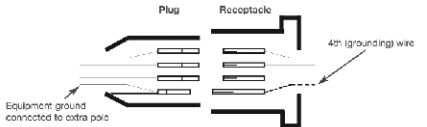
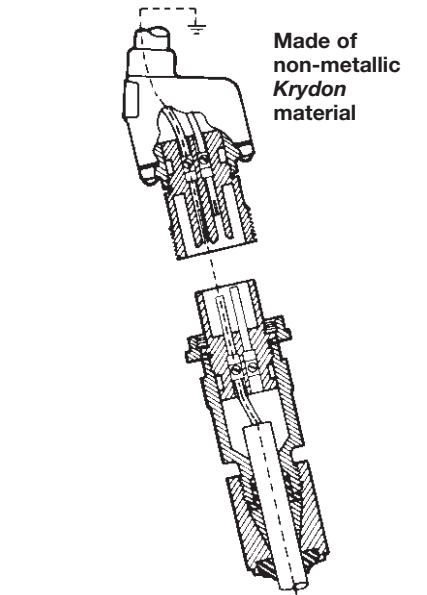
A Style 2 metallic housing plug is one in which the grounding conductor in the flexible cable is bonded to the extra (grounding) pole and metal plug sleeve by a pressure connector. A Style 2 metallic housing receptacle is one in which the extra (grounding) pole is electrically connected to the equipment grounding conductor and the metal receptacle housing which itself is grounded by virtue of the fact that it is an integral part of a grounded conduit system. In Style 2, non-metallic housing plugs and receptacles, the extra pole is used for grounding since the housings are non-conductive.



Style 2
Ground conductor attaches to contact, which is bonded to shell.

Style 2 – Non-metallic

In a Style 2 receptacle, the grounding connection is made before line and load poles engage, and is broken after the line load poles disengage. Furthermore, upon insertion, the plug sleeve of metal shelled units makes contact with detent springs of the grounded receptacle housing before line and load poles engage, and on withdrawal, remains in contact until after line and load poles disengage. Therefore, exposed metal parts of the portable equipment or plug are suitably grounded.

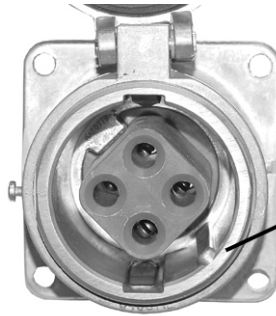


Made of non-metallic Krydon material

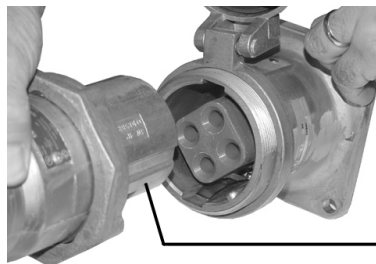
Industrial Heavy Duty Non-hazardous Areas

Standard Materials:

- Metallic receptacle housings, plug and cord connector bodies – high impact strength copper-free aluminum
- Non-metallic receptacles, plugs and cord connectors – *Krydon*® fiberglass-reinforced polyester material
- Back boxes: 20, 30, 60, 100, 150 and 200 ampere – cast aluminum; 400 ampere – *Feraloy*® iron alloy
- Insulation (metallic products): (2-, 3-, and 4-pole) 30, 60, 100, 200, 400 ampere – fiberglass-reinforced polyester; 20, 30 ampere (5-pole) – melamine
- Contacts: pressure, solder, binding screw – brass; crimp/solder 20, 30, 60, 100 ampere – leaded red brass; crimp/solder 150, 200, 400 ampere – tellurium copper



Arktime receptacles have a cast raised rib located inside the receptacle sleeve. The location of the rib is in a specific relationship to the receptacle insulator that houses the contacts.



The mating plug has a cast groove located on the outside of the plug sleeve. This groove lines up with the raised rib.

Standard Finishes:

- *Feraloy* – electrogalvanized and aluminum acrylic paint
- Aluminum – natural
- *Krydon* fiberglass-reinforced polyester material – gray
- Fiberglass-reinforced polyester insulation – (red)
- Melamine – natural (brown)
- Brass – natural
- Leaded red brass – electro-tin-plate

Accessories:

- Accessories include a variety of angle adapters, panel adapters and back boxes for *Arktime* receptacles. See pages 1284–1287.
- Included throughout 1P are wire mesh cable grips and protective caps for *Arktime* plugs.

Options:

The following special options are available from factory by adding the suffix to the Cat. #:

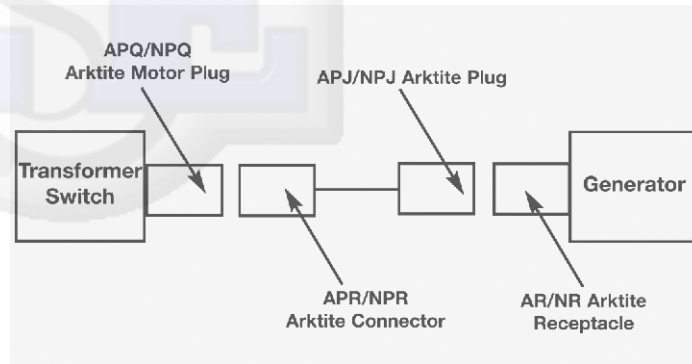
Description

- Reversed contacts. Receptacle assembled with plug interior (exposed contacts), plug assembled with receptacle interior (recessed contacts). For applications where plug is energized to feed normally de-energized receptacle. Available on 30 through 400 ampere units... **S22**
- Special polarity. For use where two or more receptacles of the same ampere rating, style and number of poles are to be installed in the same area for use on different voltages and/or frequencies. Prevents insertion of a plug in a receptacle with different electrical rating. Available on 20 through 400 ampere units as follows:

Suffix

Available on 20 through 400 ampere units as follows:

- Receptacle interior rotated 22½° to right and plug changed to match (see photo to right).....**S4**
- Corro-free™ epoxy powder finish for added corrosion resistance.....**S752**



Typical Installation

Arktite® Heavy Duty Circuit Breaking Plugs and Receptacles

NEMA 4 Watertight

1P

Industrial Heavy Duty Non-hazardous Areas

Arktite Horsepower Ratings Locked-Rotor Interrupting

Ampere Rating Plug and Receptacle	Motor Horsepower†			
	120 Volts	240 Volts	480 Volts	600 Volts
Single-phase Electrical System				
30	2	3	7.5	10
60	5	10	25	20
100	10	20		
200	15	40		
Three-phase Electrical System				
30	3	5	10	10
60	10	20	40	50
100	15	30	40	25
200	30	60	25	15

Maximum Horsepower for Plug and Receptacle Combinations by Input Voltage*

Following values are typical horsepower ratings based on NEC Article 430 tables.

HP Ratings are based on the largest conductor size for each plug and receptacle combination per the Wire Size table below.

Ampere Rating Plug and Receptacle	Motor Horsepower‡		
	240 Volts	480 Volts	600 Volts
30	15	30	40
60	20	40	50
100	30	60	75
150	40	75	100
200	60	125	150

Wire Sizes:

The table below lists the diameter of the wire recess in *Arktite* plug and receptacle contacts so that maximum size of bare conductor can be figured. Range of wire sizes shown in table is intended only as a guide. Depending on type of wire used (building wire, flexible or extra flexible cable) and its construction (number and size of strands), bare copper diameters vary widely.

Diameter of Wire Recess in Plug and Receptacle Contacts

Ampere Rating	Contact Type	Diameter of Recess	Wire Size‡	
			Building	Extra Flex
20	Binding Screw	N/A	#14-#12	#14-#12
30 (2, 3, & 4-pole)	Pressure	.281	#10-#6	#10-#8
30 (2, 3, & 4-pole)	Crimp/Solder	.180	#10-#8**	#10-#8
30 (5-pole)	Solder	.188	#12-#6	#12-#8
60 (2, 3, 4 & 5-pole)	Pressure	.312	#6-#4	#8-#4
60 (3 & 4-pole)	Crimp/Solder	.277	#6-#4**	#8-#4
100 (2, 3 & 4-pole)	Pressure	.390	#4-#1	#4-#2
100 (3 & 4-pole)	Crimp/Solder	.390	#2-#1**	#2-#2
150 (4-pole)	Pressure	.390	#2-2/0	#2-1/0
200 (3 & 4-pole)	Pressure	.687	2/0-4/0	2/0-3/0
200 (Std. 3 & 4-pole)	Crimp/Solder	.560	#1-4/0	#1-3/0
200 (Lg. 3 & 4-pole)	Crimp/Solder	.750	4/0-250MCM	3/0-250MCM
400 (Std. 3 & 4-pole)	Crimp/Solder	.840	250-500MCM	250-400MCM
400 (Lg. 3 & 4-pole)	Crimp/Solder	1.25	500-1000MCM	400-750MCM

§150A, 200A and 400A rated units are for service disconnect use only.

† Horsepower ratings are based on Cooper Crouse-Hinds testing in which locked-rotor currents were interrupted by withdrawing the plug from the receptacle. It is highly recommended, however, that such use be limited to emergency conditions only; and that a horsepower rated switch be used for motor disconnect.

* This guide is for reference only. Consult your local electrical codes before installation.

‡ Cooper Crouse-Hinds does not recommend our plug and receptacle be used for disconnect under load.

**Smaller sizes may be used with well reducers - information available upon request.

‡Do not use wire size smaller than minimum size recommended.

1P

60 A, 600 VAC/250 VDC, 50† – 400 hertz

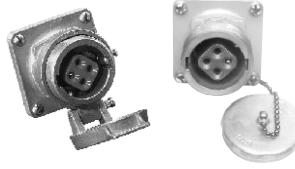
Ordering Information:



Receptacle Assembly



Receptacle



Receptacle Housing Only



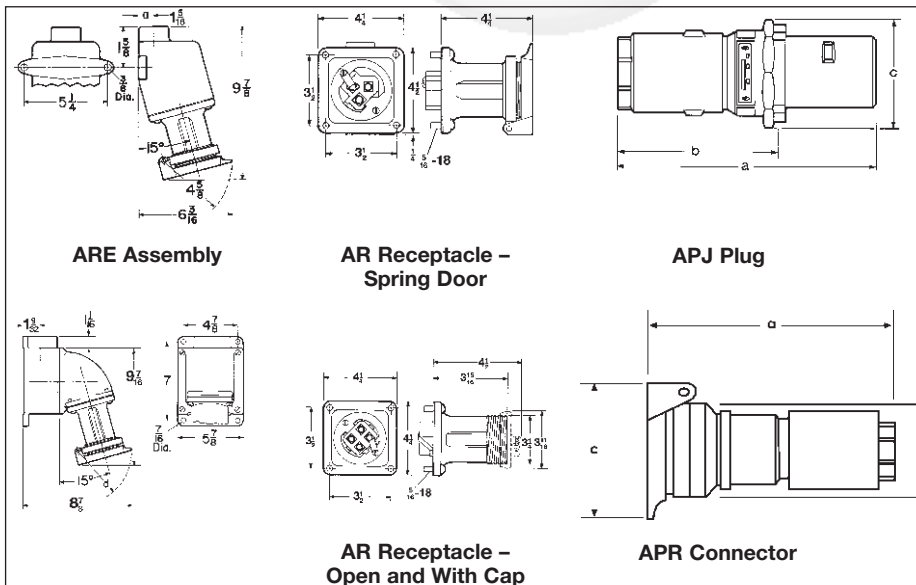
Mating Plug



Mating Connector

Description	With AJ Back Boxes and Angle Adapters		With ARE Back Boxes		Receptacle Housing Only		Cable Dia.	Cat. #	Cat. #
	Hub Size (In.)	Spring Door Cat. #	Threaded Cap Only Cat. #	Spring Door Cat. #	Spring Door Cat. #	Threaded Cap Only Cat. #			
Style 1									
2-wire, 2-pole }	1	AREA6213		ARE6213	AR621	AR627	0.50 to 1.45	APJ6275	APR6255
	1 1/4	AREA6214		ARE6214					
3-wire, 3-pole }	1	AREA6313		ARE6313	AR631	AR637	0.50 to 1.45	APJ6375	APR6355
	1 1/4	AREA6314		ARE6314					
4-wire, 4-pole }	1 1/4	AREA6414		ARE6414	AR641	AR647	0.50 to 1.45	APJ6475	APR6455
	1 1/2	AREA6415		ARE6415					
5-wire, 5-pole }	1 1/4		AREA6574			AR657	0.50 to 1.45	APJ6575	
	1 1/2		AREA6575						
Style 2									
2-wire, 3-pole }	1	AREA6323		ARE6323	AR632	AR638	0.50 to 1.45	APJ6385	APR6365
	1 1/4	AREA6324		ARE6324					
3-wire, 4-pole }	1 1/4	AREA6424		ARE6424	AR642	AR648	0.50 to 1.45	APJ6485	APR6465
	1 1/2	AREA6425		ARE6425					
4-wire, 5-pole }	1 1/4		AREA6584			AR658	0.75 to 1.45	APJ6585	APR6585
	1 1/2		AREA6585						

Dimensions (In Inches):



Config.	Plug			Connector		
	a	b	c	a	b	c
2P or 3P	8 1/2	5 3/4	3 3/8	6 1/2	3 3/8	2 15/16
4P	8 1/2	5 13/16	3 3/4	8 1/4	3 3/8	2 15/16
5P	9	6 3/16	4 7/16	8 1/4	3 3/8	3 1/4

†For use on systems less than 60 hertz the receptacles, plugs and connectors are for disconnect use only.