Arktite® Heavy Duty Circuit Breaking Plugs and Receptacles

NEMA 4 Watertight

Industrial Heavy Duty Non-Hazardous Areas

Application:

Arktite 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 *Arktite* 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 200 ampere rating may be disconnected under load; 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 mismate, 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) *Arktite* plug and receptacle interiors are interchangeable using a screwdriver. This makes it possible to feed a normally deenergized receptacle from an energized plug with usual *Arktite* safety; no energized contacts are exposed.
- Additional features are indicated in the view at right:

❶ Grounding contact in Style 2 is bonded to the receptacle housing.

❷ Easily wired interior assemblies in receptacles and plugs. See table on page 938 for type of contacts in units.

❸ *Arktite* Style 2, illustrated here, has an extra grounding contact which forms a parallel circuit with the circuit formed by the plug sleeve and receptacle detent spring, and assures continuity of the grounding safety circuit under severe service. Grounding contact is no longer than the others, so grounding circuit is made first and broken last.

❹ The arc formed by pulling the plug is instantly snuffed in the deep, confined insulated arcing chamber while the plug contact is still a considerable distance inside. The arc cannot travel over to the other side of the circuit or to the housing.

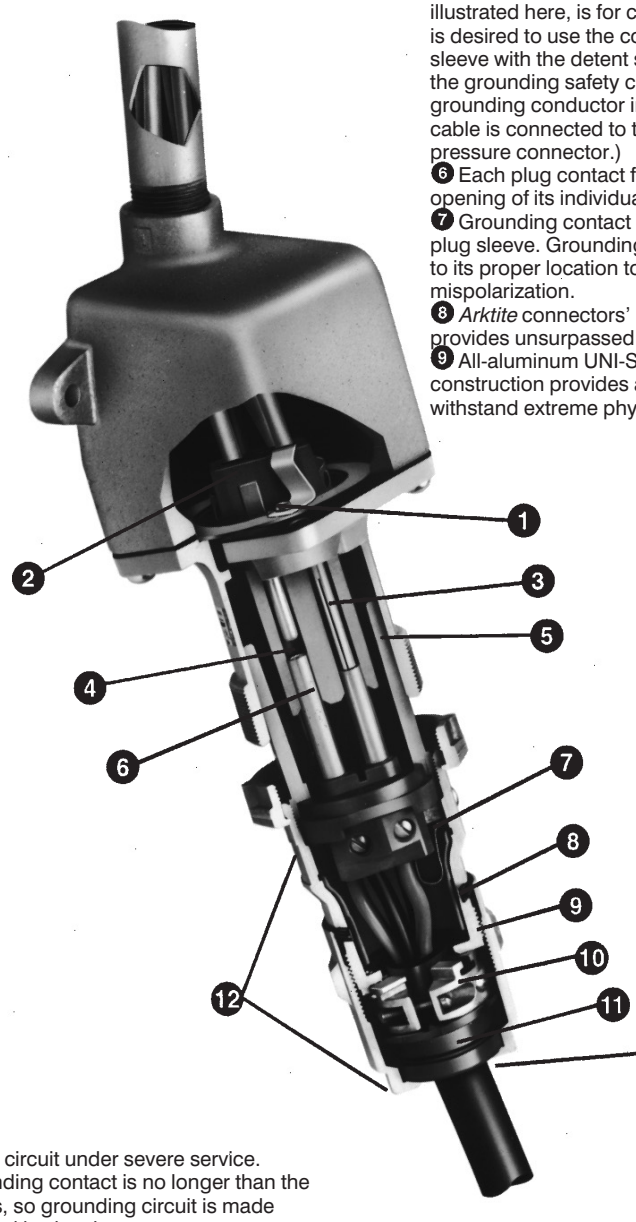
❺ Detent spring forms a grounding path from plug sleeve to receptacle housing. *Arktite* plugs and receptacles are made in two styles. With either style, the portable appliance is grounded before it is energized and remains grounded until after it is deenergized. (*Arktite* Style 1, not illustrated here, is for conditions where it is desired to use the contact of the plug sleeve with the detent spring to complete the grounding safety circuit. The extra grounding conductor in the portable cable is connected to the plug sleeve by a pressure connector.)

❻ Each plug contact fits closely the opening of its individual arcing chamber.

❼ Grounding contact is bonded to the plug sleeve. Grounding contact is keyed to its proper location to prevent mispolarization.

❽ *Arktite* connectors' gasketing system provides unsurpassed watertight integrity.

❾ All-aluminum UNI-SHELL™ threaded construction provides added strength to withstand extreme physical abuse.



NEW! NEMA 4 Rating

Arktite Style 2 60 ampere

NEW! Smaller Cable Range

❿ *Arktite's* TRI-LOCK™ cable grip has three clamps that tighten around the cable to securely lock it in place, even when subjected to extreme flexing and jerking.

⓫ The unique SURE-SEAL™ cable gland provides a complete environmental seal by distributing pressure equally around the circumference of the cable.

⓬ Wrenching surfaces make *Arktite* connector quick and easy to assemble.

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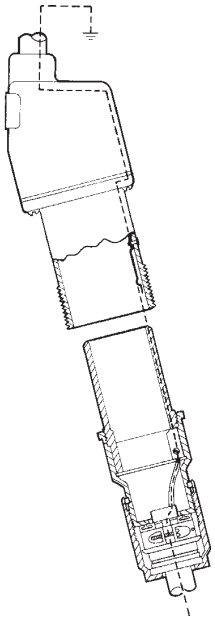
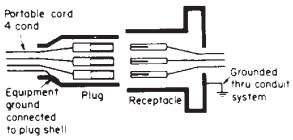
Grounding: Style 1 vs. Style 2

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.

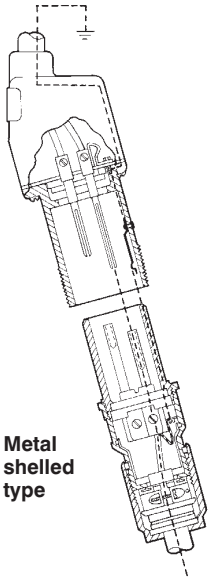




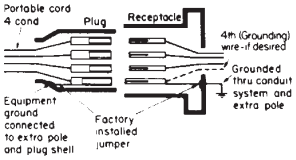
Style 1
Ground conductor attaches to shell.

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.



Metal shelled type

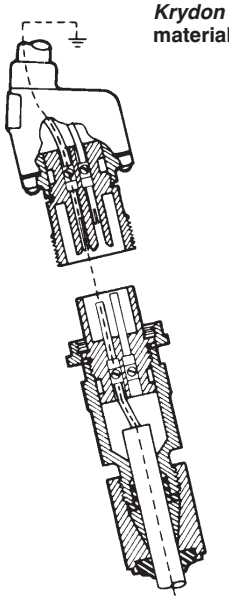


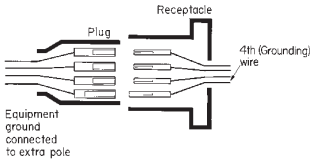
Style 2
Ground conductor attaches to contact, which is bonded to shell.

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





Arktite® Heavy Duty Circuit Breaking§ Plugs and Receptacles

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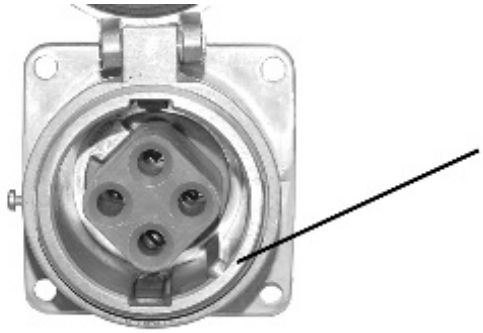
Industrial Heavy Duty Non-Hazardous Areas

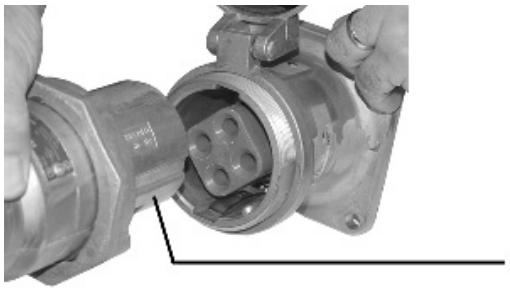
Options:

● The following special options are available from factory by adding suffix to Cat. No.:

Suffix to be Added to Cat. #	Description
S22. . . .	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 NOTE: 30 (2, 3, 4-pole), 60 and 100 ampere interiors can be interchanged in the field using a screwdriver. Factory conversion is required for 200 and 400 ampere products.
S4.	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: Receptacle interior rotated 22½ degrees to right and plug changed to match (See photo to right)



Arktite 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 Materials:

● Metallic receptacle housings, plug and cord connector bodies – high impact strength copper-free aluminum
● Nonmetallic receptacles, plugs and cord connectors – *Krydon*® fiberglass-reinforced polyester material
● Back boxes: 20, 30, 60, 100 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 – leaded red brass; 20, 30, 60, 100 ampere – telurium copper; 200, 400 ampere

Standard Finishes:

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

§ 400A rated units are for service disconnect use only.

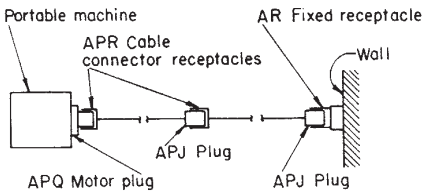
Accessories:

Accessories include a variety of angle adapters, panel adapters and back boxes for *Arktite* receptacles, listed on pages 990-993. Included throughout 1P are wire mesh cable grips and protective caps for *Arktite* plugs.

Certifications and Compliances:

● UL Standards: 1682, 514; 1010 (APJ and NPJ plugs only)
● CSA Standard: C22.2 No. 182.1

Typical installation



Arktite® Heavy Duty Circuit Breaking§ Plugs and Receptacles

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Arktite Horsepower Ratings

● Locked-Rotor Interrupting

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

● Emergency Interrupting

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

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
200 (Std. 3 & 4-pole)	Crimp/Solder	.56	#1-4/0	#1-3/0
200 (Lg. 3 & 4-pole)	Crimp/Solder	.75	4/0-250MCM	3/0-250MCM
400 (Std. 3 & 4-pole)	Crimp/Solder	.84	250-500MCM	250-400MCM
400 (Lg. 3 & 4-pole)	Crimp/Solder	1.25	500-1000MCM	400-750MCM

** Smaller sizes may be used with well reducers – information on request.

† Horsepower ratings are based on 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.

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

§ 400A rated units are for service disconnect use only.

Arktite® Heavy Duty Circuit Breaking Receptacle Assemblies and Housings

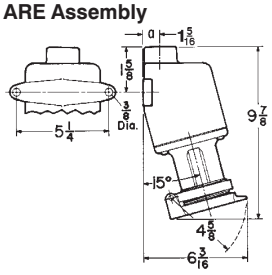
NEMA 4 Watertight

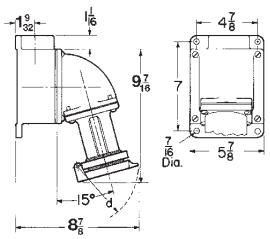
60 A, 600 VAC/250 VDC, 50**-400 hertz

Style 1		With AJ Back Boxes and Angle Adapters		with ARE Back Boxes	Receptacle Housing Only				
Description	Hub Size	Spring Door Cat. #	Threaded Cap Only Cat. #	Spring Door Cat. #	Spring Door Cat. #	Threaded Cap Only Cat. #	Cable Dia.	Cat. #	Cat. #
2-wire, 2-pole	1 1¼	AREA6213 AREA6214		ARE6213 ARE6214	AR621	AR627	0.50 to 1.45	APJ6275	APR6255
3-wire, 3-pole	1 1¼	AREA6313 AREA6314		ARE6313 ARE6314	AR631	AR637	0.50 to 1.45	APJ6375	APR6355
4-wire, 4-pole	1¼ 1½	AREA6414 AREA6415		ARE6414 ARE6415	AR641		0.50 to 1.45	APJ6475	APR6455
5-wire, 5-pole	1¼ 1½		AREA6574 AREA6575			AR657	0.50 to 1.45	APJ6575	
Style 2									
2-wire, 3-pole	1 1¼	AREA6323 AREA6324		ARE6323 ARE6324	AR632	AR638	0.50 to 1.45	APJ6385	APR6365
3-wire, 4-pole	1¼ 1½	AREA6424 AREA6425		ARE6424 ARE6425	AR642	AR648	0.50 to 1.45	APJ6485	APR6465
4-wire, 5-pole	1¼ 1½		AREA6584 AREA6585			AR658	0.75 to 1.45	APJ6585	APR6585 APR6567

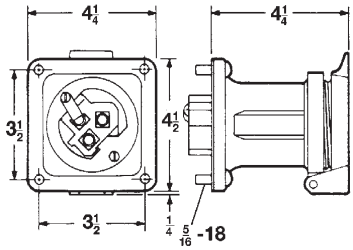
Dimensions

ARE Assembly

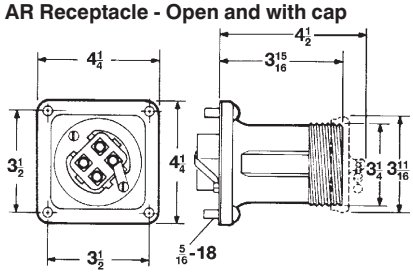




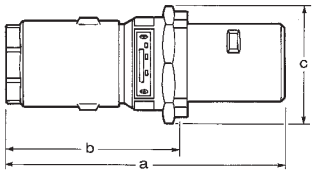
AR Receptacle - Spring Door



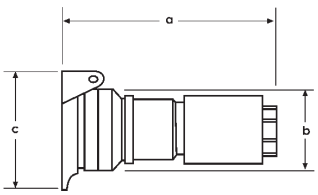
AR Receptacle - Open and with cap



APJ Plug



APR Connector



Config	Plug			Connector		
	a	b	c	a	b	c
2P or 3P	8½	5¾	3⅝	6½	3⅝	2 15/16
4P	8½	5 13/16	3¾	8¼	3⅝	2 15/16
5P	9	6 3/16	4 7/16	8¼	3⅝	3¼

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

Arktite® Heavy Duty Circuit Breaking Receptacle Assemblies and Housings

NEMA 4 Watertight

60 A, 600 VAC/250 VDC, 50-400 hertz**

Plug Closure Caps:

Application:

CPK caps for *Arktite* plugs are used:
- where portable equipment is on a standby basis and plugs are not in use
- to effectively protect insulation and contacts from excessive moisture, dirt, dust and corrosion
- with 30, 60, 100 and 200 ampere plugs with fastening ring and standard 200 ampere plugs for the clamp door housing

Config.	Cat No. #
2P & 3P	**CPK32**
4P	**CPK34**

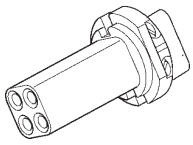
Standard Materials:

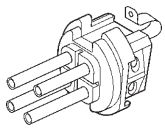
- Copper-free aluminum

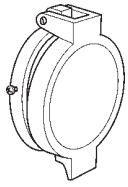
Standard Finishes:

- Natural

Replacement Parts:







Config.	Receptacle Interior	Plug Interior	Spring Door	Screw Cap
2W 2P	ATP295	ATP290	QE51	QE32
2W 3P	ATP298	ATP293		
3W 3P	ATP296	ATP291		
3W 4P	ATP299	ATP294	QE52	QE34
4W 4P	ATP297	ATP292		
4W 5P	ATP385	ATP387	N/A	AR:11393B
5W 5P	ATP384	ATP386	N/A	

Replacement Pin & Sleeve Contacts:

Description	Recep	Plug
Available as a kit only. 5 phase contacts & 1 ground contact included	AR60CONKIT	AP60CONKIT

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