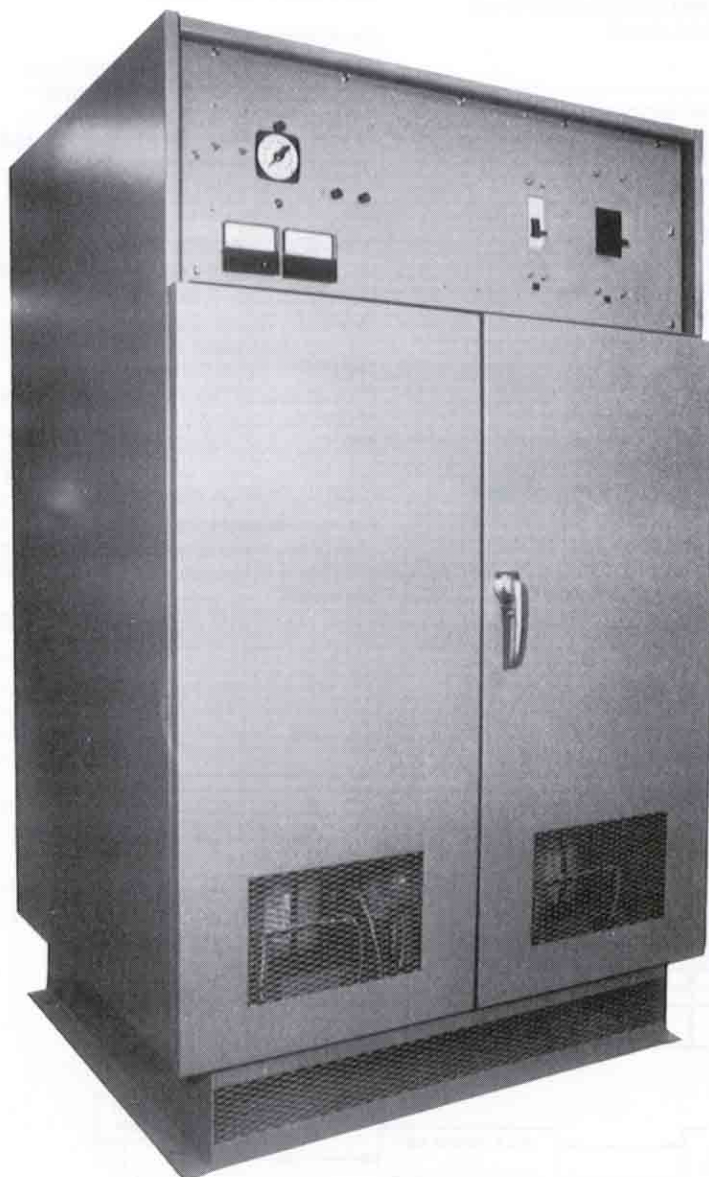


C&D TECHNOLOGIES

Power Solutions

Three-phase, silicon-controlled
FLOAT RECTIFIERS

for utility, UPS and
other standby applications



**THE ARR
SERIES**

ARR SERIES FLOAT RECTIFIERS

Simplified operation . . . minimum maintenance . . . long, economical service . . . these are just a few of the advantages you get with a three-phase, high-power ARR rectifier. Electrical and mechanical design features make it ideal for a wide variety of utility, UPS and other standby power supply applications. The C&D label assures you of the factory-trained personnel from coast-to-coast to help with your particular application and to provide the technical back-up needed to assure maximum performance.

INPUT AND OUTPUT RATINGS

Three-phase ARR rectifiers have 208-, 240- or 480-volt input. DC outputs are either 130 volts at 50 to 500 amps or 260 volts at 100 to 200 amps. Other input and output ratings are available on other C&D rectifiers.

ELECTRICAL FEATURES

Standard control modules

All three-phase ARR rectifiers, regardless of size, use the same plug-in printed circuit modules. This minimizes parts inventory and simplifies maintenance.

Regulation

DC float voltage is maintained within ± 0.50 percent from no load to full load with input frequency variations of ± 5 percent and with ac input voltage variation as shown.*

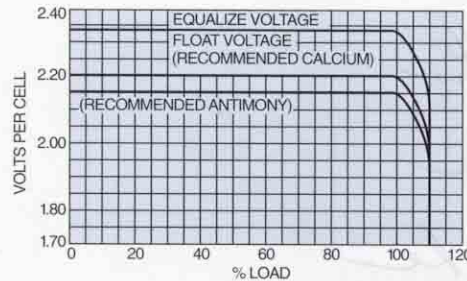
During operation, the maximum voltage transient does not exceed ± 6 percent of the initial steady state voltage for sudden load changes between 20 percent and 100 percent of rated output. Recovery takes less than 200 milliseconds, and all transient behavior disappears within 500 milliseconds.

INPUT VOLTAGE RANGE*

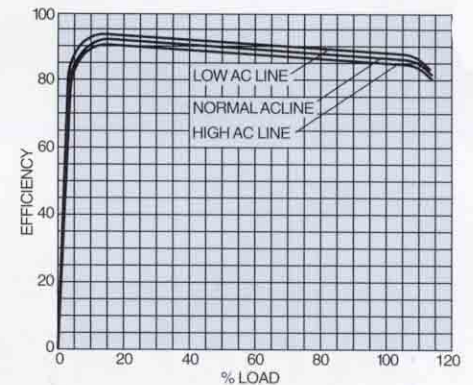
Nominal Voltage	Minimum	Maximum
208V	184V	220V
240V	212V	254V
480V	424V	508V

*Latest NEMA Standards

REGULATION CURVE



TYPICAL ARR EFFICIENCY CURVE



Off-battery operation

All three-phase filtered ARR rectifiers can be operated on a principally resistive load with the battery disconnected for maintenance purposes. The RMS ripple will be greater than with the battery connected.

Paralleling

All three-phase ARR rectifiers can be operated in parallel with other constant potential rectifiers having similar regulation characteristics of the same nominal dc output voltage.

Circuit protection

A three-pole ac input circuit breaker is provided on all models. A two-pole dc circuit breaker is provided in the output circuit.

AC power failure alarm relay

Closes a single-pole Form C contact to operate a variety of local or remote alarms in the event of an ac failure.

High dc voltage shutdown

An adjustable dc high-voltage shutdown relay shuts down the charger if it senses a voltage above its set value.

Current limiting

The current limiting circuit is factory set at 105 percent and is adjustable. It will hold down to short circuit.

Power factor

The typical power factor varies from 66 percent at +10 percent ac line to 80 percent at -10 percent ac line under full load conditions.

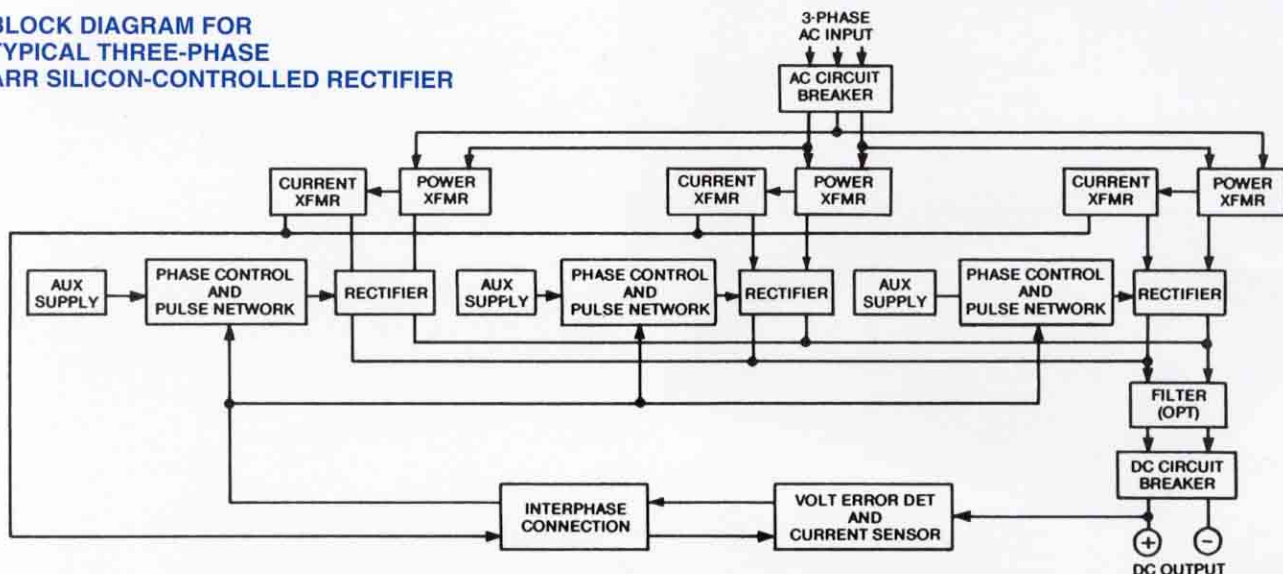
Electrical noise—filtered rectifiers

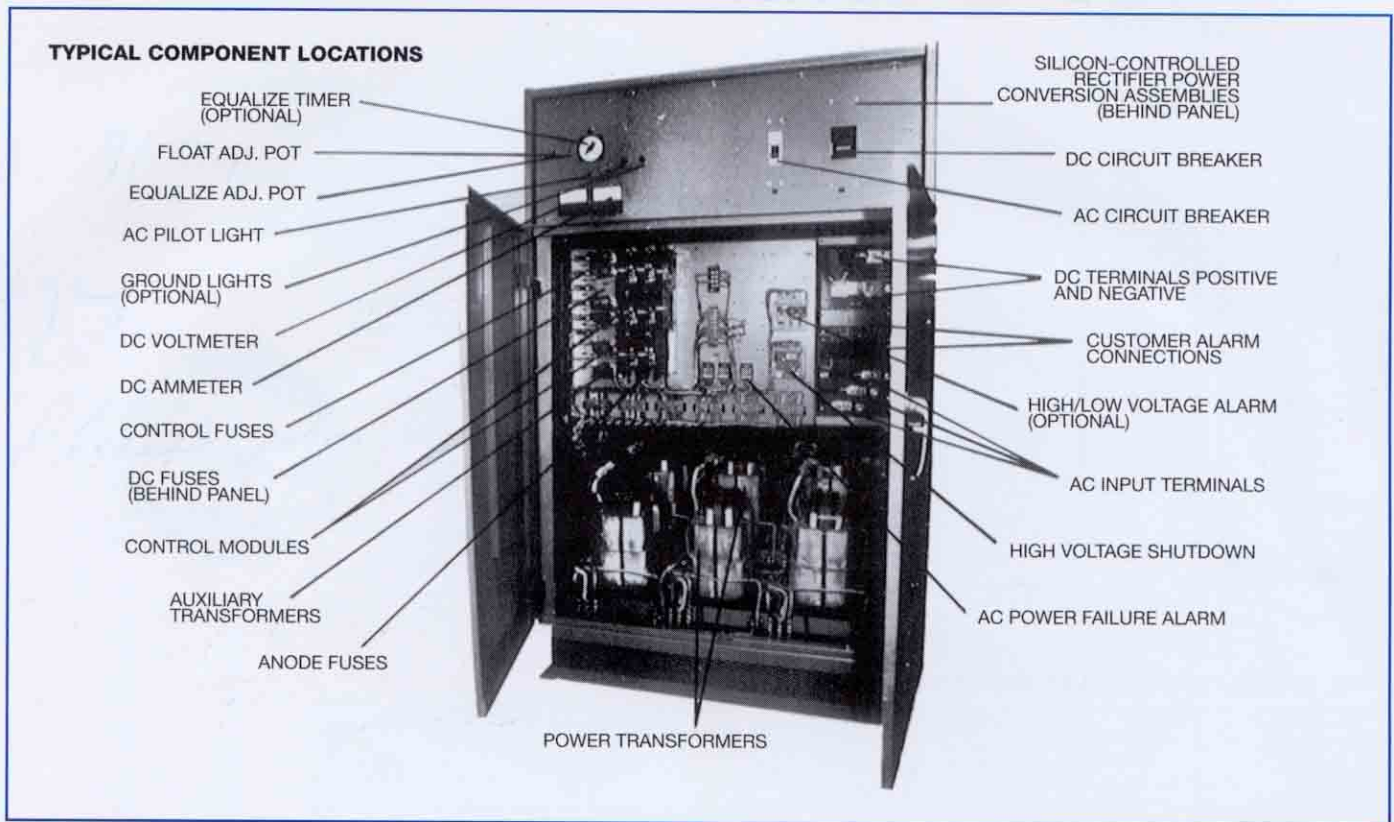
Filtered to 100 millivolts RMS when connected to a battery with an eight-hour capacity rating of four times the charger dc current rating.

Electrical noise—unfiltered rectifiers

Nominal ripple is approximately 3 percent RMS on unfiltered units when connected to a battery with an eight-hour capacity of four times the charger dc current rating.

BLOCK DIAGRAM FOR TYPICAL THREE-PHASE ARR SILICON-CONTROLLED RECTIFIER





Float and equalize voltage controls

Two, eight-turn potentiometers provide a ± 10 percent adjustment range. Selection is made with a toggle switch.

Meters

The dc ammeter and dc voltmeter have 3.5-in (89-mm) cases, 2.9-in (74-mm) scales and 2 percent accuracy.

Ambient operating temperatures

Three-phase ARR rectifiers will operate at current limiting continuously in temperatures from 32F to 122F (0C to 50C). These units can be stored for up to one year at temperatures ranging from -40F to 185F (-40C to 85C).

MECHANICAL FEATURES

Durable finish

An electrostatically applied, baked epoxy powder finish (ANSI-61 gray) resists scratches, nicks, acid, and corrosive fumes.

Ventilation

All models are convection cooled.

Easily mounted

All models are floor mounted.

OPTIONAL FEATURES

Low dc voltage alarm relay

Alarm operates when the charging voltage falls below a pre-set level. Available with time delay.

High dc voltage alarm relay

Alarm operates when the charging voltage goes above a pre-set level. Available with time delay.

High-low dc voltage alarm relay

Relay eliminates the need for separate high and low voltage alarm relays.

Equalize timers

0-72 hour timer replaces float-equalize switch. Charger automatically returns to float at end of time interval. Also available with equalize indicator light.

DC no-charge alarm relay with forced load sharing

DC no-charge alarm relay with forced load sharing operates when rectifier dc output current is less than 2 percent of rated output. Provides load sharing within ± 5 percent for all three-phase ARR rectifiers with the same nominal dc output voltage and current. Recommended when rectifiers are operated in parallel.

One percent accuracy meters

Both voltmeter and ammeter have same size scale and case as standard 2 percent meters.

Summary alarm relay

The summary alarm relay combines the signals from several individual alarms and activates if one of the alarms is activated.

DC ground detection relay

Operates when resistance from output to ground is less than 10,000 ohms. Can be used for either remote or local indication.

Ground detection lights with two push-button switches

Shows whether ground is in (-) or (+) output line.

Ground detection momentary switch

Disconnects dc voltmeter from output circuit and measures voltage to common ground.

Lightning protective device

Provides added input protection against lightning-induced transients.

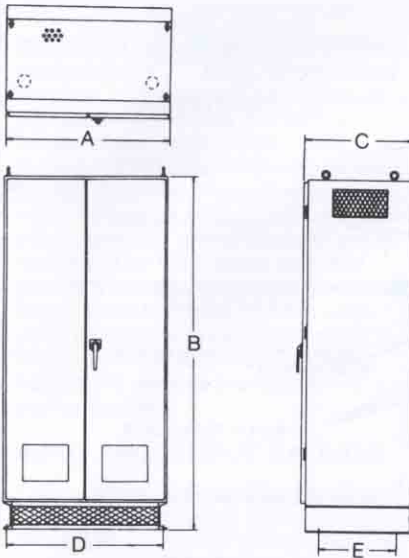
Drip shield

Protects rectifier from dripping water without interfering with convection cooling.

Other options

Fifty-hertz operation, special wiring, special voltages, blocking diodes, seismic requirements and special alarm lights all require review by the applications engineering department of C&D TECHNOLOGIES.

CABINET DIMENSIONS



Cab No.	A	B	C	D	E
4623	28 in 711 mm	58 in 1473 mm	20 in 508 mm	26.5 in 673 mm	14 in 355 mm
2391	36 in 914 mm	78 in 1981 mm	24 in 610 mm	34.12 in 867 mm	17 in 432 mm
2970	48 in 1220 mm	78 in 1981 mm	36 in 914 mm	44.75 in 1137 mm	29 in 737 mm

How to determine rectifier rating

The rectifier rating needed to assure satisfactory performance of the installation may be calculated from the following formula:

$$A = L + \frac{1.1C}{H}$$

A = DC output rating of rectifier in amperes

L = Constant load on system in amperes

C = Calculated number of ampere-hours discharged from battery

H = Number of hours recharge time available

Choose the rectifier equal to or greater than the answer derived.



ARR THREE-PHASE MODEL SUMMARY

Model	Input volts	AC amps at rated output	DC amps	Cabinet number	Approximate shipping weight	
					lbs	kgs
130-Volt output						
ARR130G50	208	32.5	50	4623	450	205
ARR130H50	240	28	50	4623	450	205
ARR130K50	480	14	50	4623	450	205
ARR130G75	208	49	75	4623	550	250
ARR130H75	240	42	75	4623	550	250
ARR130K75	480	21	75	4623	550	250
ARR130G100	208	62	100	4623	650	295
ARR130H100	240	54	100	4623	650	295
ARR130K100	480	27	100	4623	650	295
ARR130G150	208	95	150	4623	800	364
ARR130H150	240	82	150	4623	800	364
ARR130K150	480	41	150	4623	800	364
ARR130G200	208	140	200	2391	1100	500
ARR130H200	240	112	200	2391	1100	500
ARR130K200	480	56	200	2391	1100	500
ARR130G300	208	208	300	2970	1700	772
ARR130K300	480	90	300	2970	1700	772
ARR130K400	480	120	400	2970	2200	1000
ARR130K500	480	140	500	2970	3000	1364
260-Volt output						
ARR260K25	480	14	25	4623	450	205
ARR260K50	480	27	50	4623	650	295
ARR260K100	480	54	100	2391	1100	500
ARR260K150	480	90	150	2970	1700	772
ARR260K200	480	120	200	2970	2200	1000
ARR260K250	480	140	250	2970	3000	1364

POWERCOM DIVISION

1400 UNION MEETING ROAD
P.O. BOX 3053
BLUE BELL, PA 19422-0858
(215) 619-2700 • FAX (215) 619-7899
(800) 543-8630
www.cdpowercom.com

3400 EAST BRITANNIA DRIVE, SUITE 122
TUCSON, AZ 85706
(520) 295-4300 • FAX (520) 295-4091
(800) 854-2456
www.ratelco.com

Specifications are subject to change without notice. Contact your nearest C&D sales office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty, or responsibility of any kind, express or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated, or that other measures may not be required. Unless made explicitly in writing to the customer, C&D makes no representations or warranties regarding whether any product/technology purchased and/or specifications and/or literature regarding same are the most current or advanced version thereof; and C&D assumes no obligation to inform its customers of any revisions and/or improvements to such product, technology, specifications, and/or literature.

Copyright 1998 C&D TECHNOLOGIES, INC.

C&D TECHNOLOGIES, INC.