

Russellstoll®

Russellstoll® Pin & Sleeve Power Connectors

In this section...



Russellstoll® Pin & Sleeve Power Connectors

Overview/Application Guide	H-294–H-295
MaxGard® Interconnection Systems	H-296–H-343
J-Line™ Interconnection Systems.....	H-344–H-356
DuraGard® Waterproof Connections	H-357–H-375
FS/FD™ Metallic Connections	H-376–H-388
UniGard® Pin and Sleeve IEC Connections.....	H-389–H-408
DuraTite® and Ever-Lok® Locking Connections	H-409–H-432
Control Circuit Connections.....	H-433–H-443
Industrial Interlocked Receptacles.....	H-444–H-452
Hazardous Location Plugs, Receptacles and Interlocks.....	H-453–H-459
Safe Ground Indicator System.....	H-460–H-462
Computer System Interconnections.....	H-463–H-473
Mipco™ Connections for Refrigerated Containers	H-474–H-490

Thomas&Betts

www.tnb.com

Overview/Application Guide

This catalog has been divided into sections based on standard application groups. Below is a description of each of the six general categories in which Russellstoll products appear. Applications are not limited to those listed below.

Heavy Industrial/Marine Applications: Outdoor, Severe or High Abuse Environments



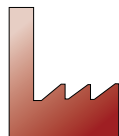
- Industrial hook-ups
- Shore-to-ship power connections stations
- Portable generator sets
- Mills and process plants
- Agriculture
- Portable power connections
- Aerospace manufacturing and airports
- Lift stations
- Irrigation and wastewater equipment
- Industrial and shipyard welding
- Power distribution centers
- Job site power: For telephone power and communications equipment

Washdown and Light Marine Applications: Watertight/Waterproof



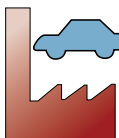
- Food processing plants
- Pharmaceutical manufacturing
- Bottling and beverage plants
- Barge and workboat applications
- Pulp and paper factories
- Outdoor construction sites

Industrial and Commercial Applications



- Entertainment (lighting and sound systems)
- Machinery
- Computer-related equipment
- Welding installations
- Construction sites
- Facilities' electrical power

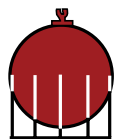
Control Circuit and Industrial Interlock Applications



Automotive/Industrial Interlock systems were designed for the needs of the manufacturing industry. These devices are used where safety requirements mandate a mechanically interlocked system for connection and removal of plugs under full load.

- Automatic press
- Heavy-duty portable welding
- Portable systems
- Machine tool control or Servo systems
- Shipyard maintenance power
- Battery chargers
- Automated welder applications
- Food processing
- Temporary power connections

Hazardous Location Applications: Class I, Div. 1/Class II, Div. 1



- Aerospace
- Steel mills and mining
- Petroleum
- Chemical
- Food processing
- Waste treatment

Computer Systems: Data Center and OEM Products



- Raised floor applications
- Main power connections
- Critical power for test, instrumentation, telephone and medical equipment

Overview/Application Guide



Heavy Industrial/Marine (pages H-296–H-356)

	AMPERAGE						
	20	30	50	60	100	200	400
MaxGard®	—	✓	—	✓	✓	✓	✓
J-Line™	—	✓	—	✓	✓	✓	—



Washdown and Light Marine (pages H-357–H-408)

DuraGard®	✓	✓	✓	✓	—	—	—
FS/FD™	✓	✓	—	—	—	—	—
Mechanically Interlocked Receptacles	✓	✓	✓	—	—	—	—
UniGard® (IEC 309) IP67	✓	✓	—	✓	✓	—	—



Industrial and Commercial (pages H-409–H-432)

DuraTite™	✓	✓	—	—	—	—	—
Standard Ever-Lok® (+Midget)	✓	✓	✓	—	—	—	—
Heavy Service Ever-Lok®	—	✓	—	✓	✓	—	—
UniGard® (IEC 309) IP44	✓	✓	—	✓	✓	—	—



Control Circuit and Industrial Interlock (pages H-433–H-452)

Control Circuit Connectors	✓	—	—	—	—	—	—
Industrial Interlock Systems (Custom Products)	✓	✓	—	✓	✓	✓	✓



Hazardous Location (pages H-453–H-462)

MaxGard®	—	✓	—	✓	✓	—	—
Interlocked Switch Receptacles	✓	✓	—	—	—	—	—
Delayed Action Circuit Breaking Receptacles	✓	✓	—	—	—	—	—
Safe Ground Indicator System	—	—	—	—	—	—	—



Computer Systems (pages H-463–H-473)

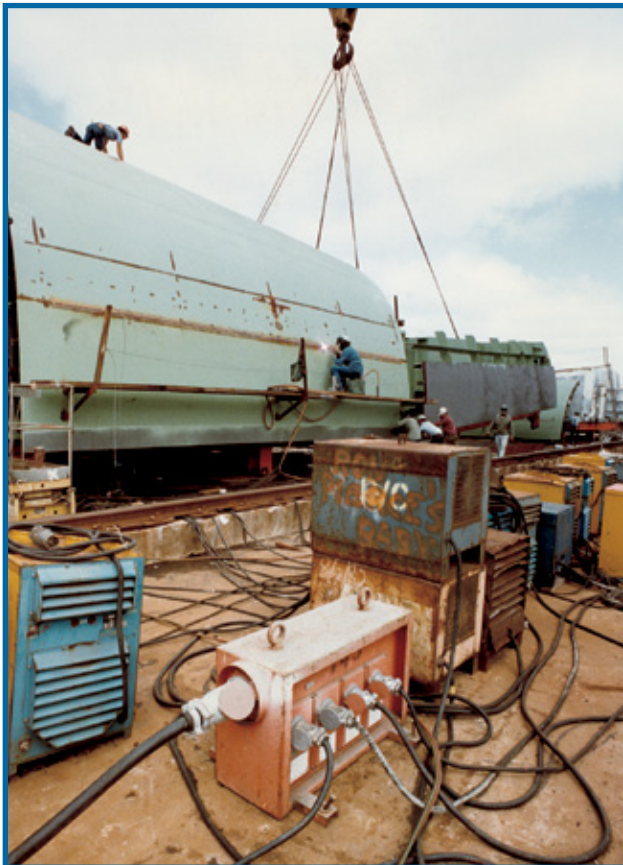
FS/FD™ and Angle Type DP	✓	✓	✓	✓	—	—	—
Spec Grade	✓	✓	✓	—	—	—	—
DuraGard®	✓	✓	✓	✓	—	—	—
UniGard® (IEC)	✓	✓	—	✓	—	—	—

MaxGard® Interconnection Systems

Russellstoll Line Selections for Outdoor (and Indoor) Applications

MaxGard®
4P5W + 2 Opt.
30 through 400A

The widest range and toughest construction. Safety, durability and performance by design in copper-free, cast aluminum, epoxy powder-coated housings. Built to last, from 30- through 400-amp application, with a full interlock line, too. Optional 2-control contacts and more than 200 individual voltage polarization options through 600VAC/250VDC, 4P5W. O-ringed sealed pins, sleeves and interiors.



Usage

- Any application where electrical connections need protection from water and/or dust ingress to contacts or wiring compartment
- Cable-to-connector sealing and watertight device locking designs are critical
- Metal connectors are usually preferred for long service life

Typical Application Groups

Marine

- Lighting Systems
- Shore-to-Ship Power
- Welding Stations
- Power Distribution Centers
- Shipboard Power Outlets
- Barge Power Connection

Construction and Agricultural

- Generator Sets and Systems
- Portable Tools and Equipment
- Irrigation Systems Panels
- Portable Lighting and Equipment

Government Municipal and Utilities

- Portable Building Power
- Army Corps of Engineers
- Utilities Panels
- Emergency Power Systems
- Sewage Pumping Stations
- Light and Controls
- Telephone Vault Systems
- Cellular Telephone Masts

OEMs

- GenSet and Welding Systems
- Transportable Equipment

Screw Cap = NEMA 4X

Flip Lid = NEMA 3R

MaxGuard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Benefits

Russellstoll® builds a variety of benefits into one plug, receptacle and interlock system for your application. The MaxGuard® system: **Maximum Safety, Durability and Performance** in electrical interconnections.

Safety

- **Waterproof construction:** Standard Neoprene O-ringed interior components provide environmental separation at the front of each device; they are watertight even when not mated (or engaged)
- **Different power supply ratings can't mix:** 24 single-rate device polarizations ensure exact voltage, frequency and phase differentiation plus a few specials, too. Available in every current range
- **Plugs stay in:** Standard delayed action pull and turn withdrawal offers all plugs an XP rating (30–100 amps). All system components use mating screw collars
- **Foreign objects stay out:** All receptacles and connectors have a gated rotating disk on the face of the interior, which engages upon insertion

Durability

- **At last — durability:** Rugged cast aluminum housings with two layers of electrostatic epoxy coating are standard, along with stainless steel hardware. Available with flap or screw covers. Interiors are molded from a tough reinforced UL94-V0 thermoset polyester

- **The best connections for life:** Pins and sleeves are made from CDA 360 and Marine-grade CDA 485 brass; 200- and 400-amp lines are silver-plated as well
- **The most power available in the most packages:** 30-, 60-, 100-, 200- and 400-amp lines in one system with cast aluminum NEMA 4X interlocks; steel 30-, 60- and 100-amp NEMA 12 interlocks or cast aluminum XP interlocks in 30-, 60- and 100-amp ranges

Performance

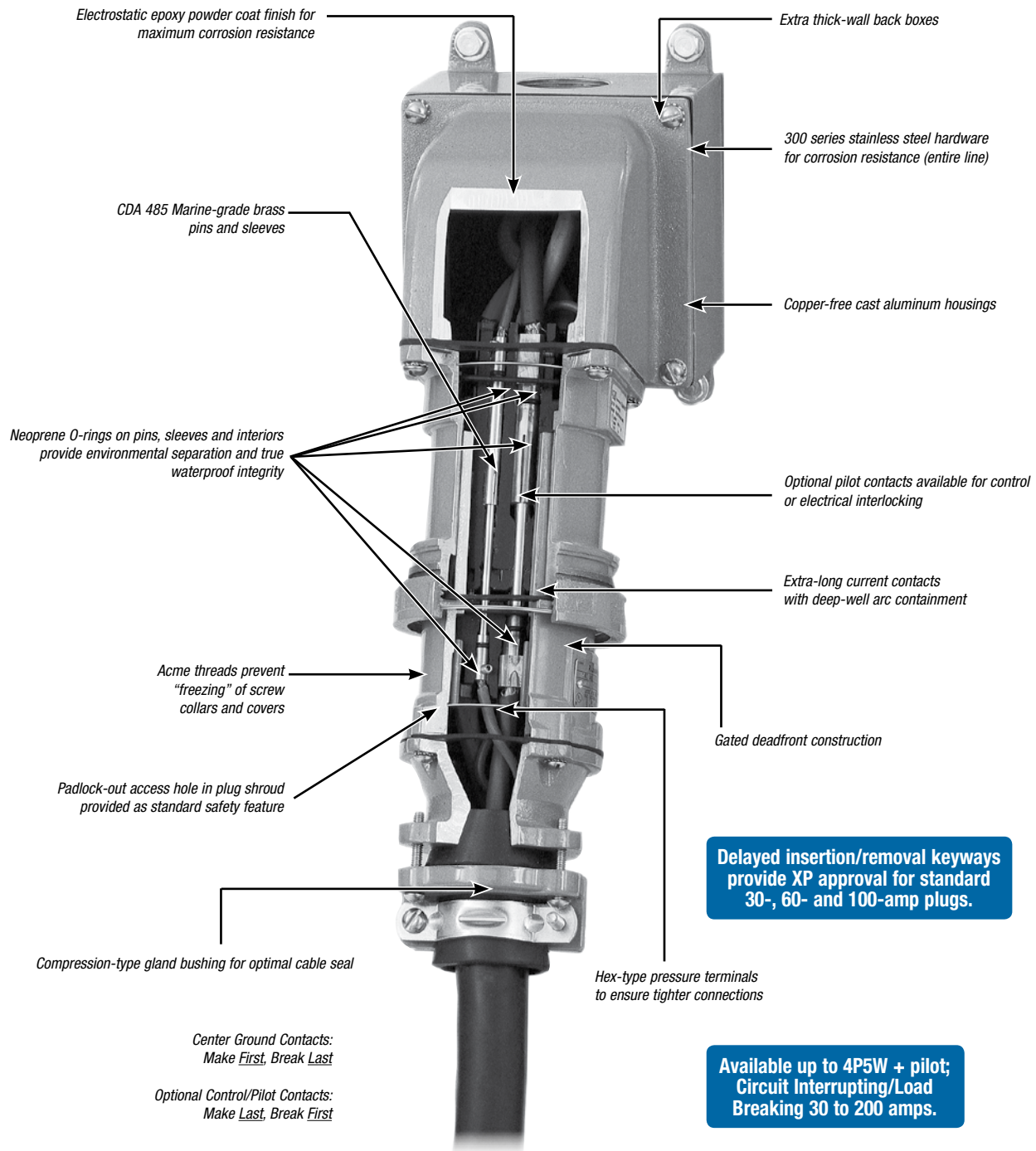
- **Any configuration you need:** Through 4-pole 5-wire configurations, all have a safety center earth ground pin design that makes first and breaks last. This feature applies to all of our plugs, connectors, receptacles, male inlets and interlock systems
- **More control available:** Two optional pilot/control pins for contactors, load monitor circuits, shunt trip or any other communication functions you need
- **Ease of assembly:** Solderless pressure-type screw terminals with hex socket heads and rear-access, take-apart housings provide quick wiring access. No interior removal required for wiring receptacles and connectors
- **More power:** 150% non-UL ratings allow extending MaxGuard® installations to 600-amp custom loads, with separate disconnect service



MaxGard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Plug and Receptacle with Angle Adapter and Junction Box

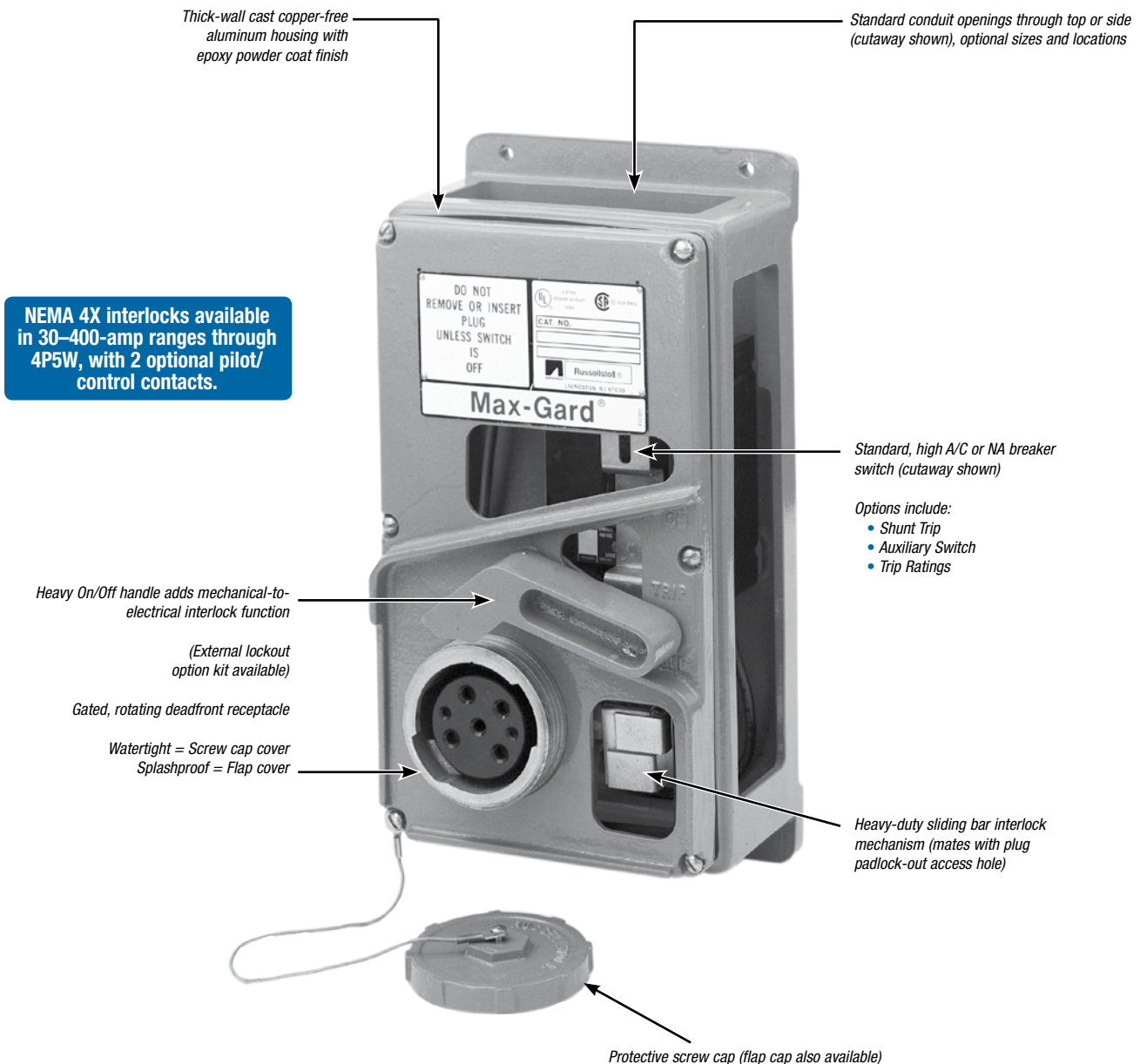


MaxGard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Cast Aluminum Circuit Breaker Interlocked Receptacle (Cutaway View)

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

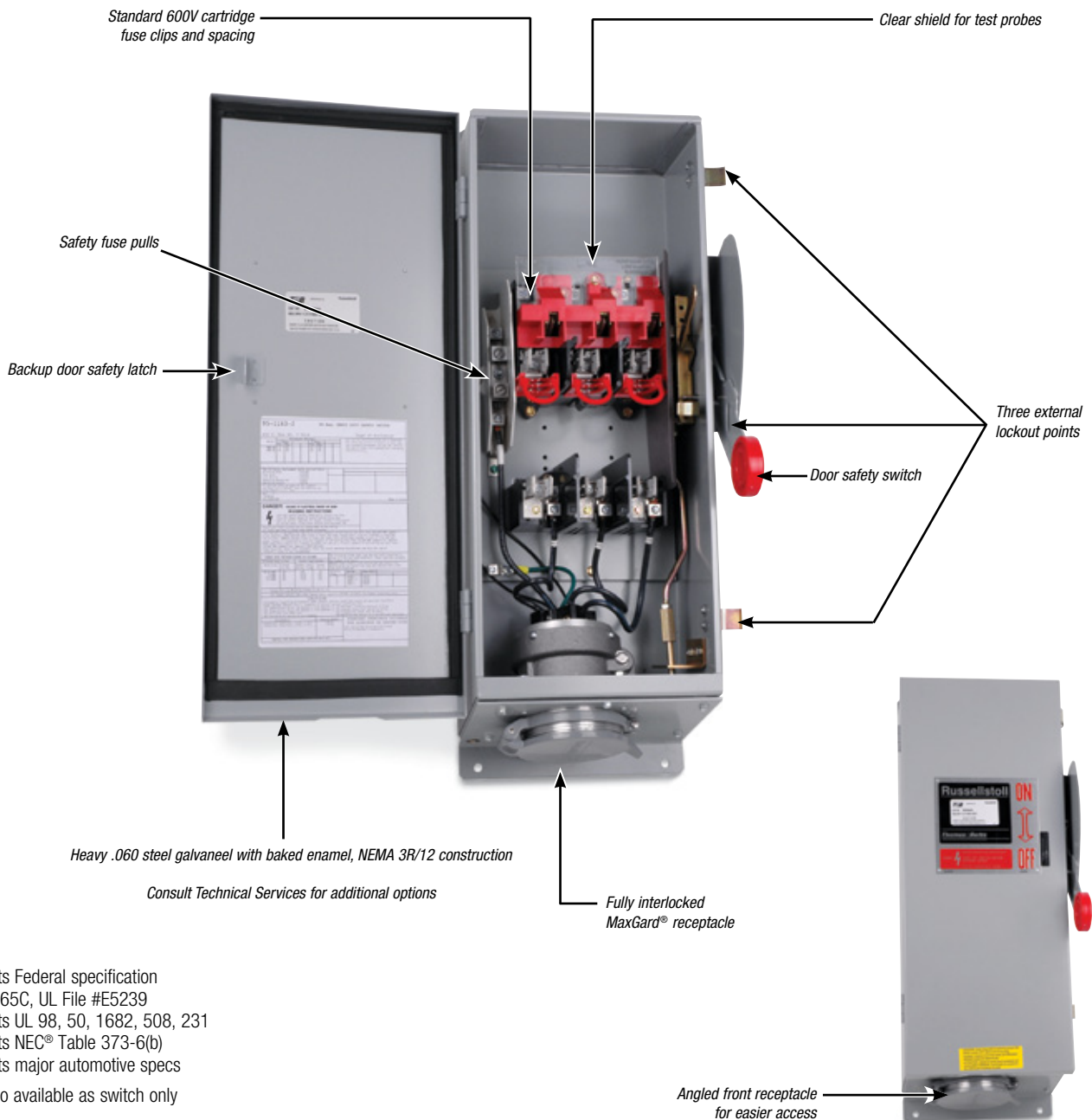


MaxGard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC
Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Fused-Disconnect Switch* Interlocked Receptacle

Available in 30-, 60- and 100-amp sizes, all polarizations through 600VAC.



Meets Federal specification
WS865C, UL File #E5239
Meets UL 98, 50, 1682, 508, 231
Meets NEC® Table 373-6(b)
Meets major automotive specs

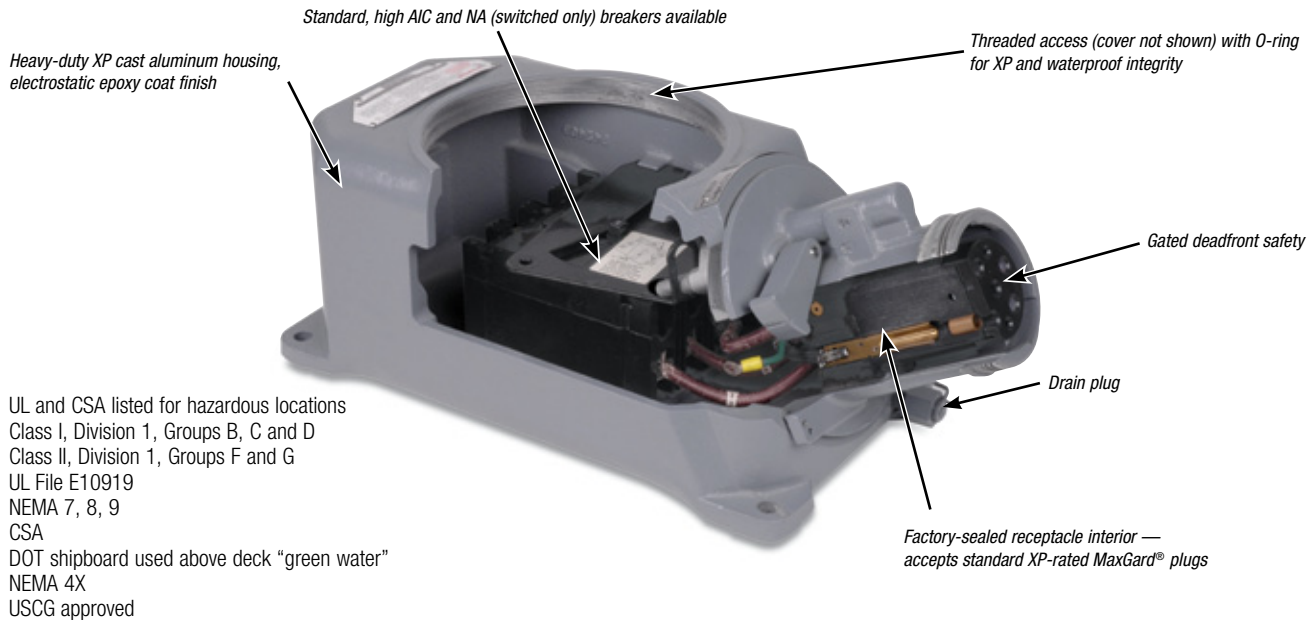
* Also available as switch only

MaxGard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC
Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

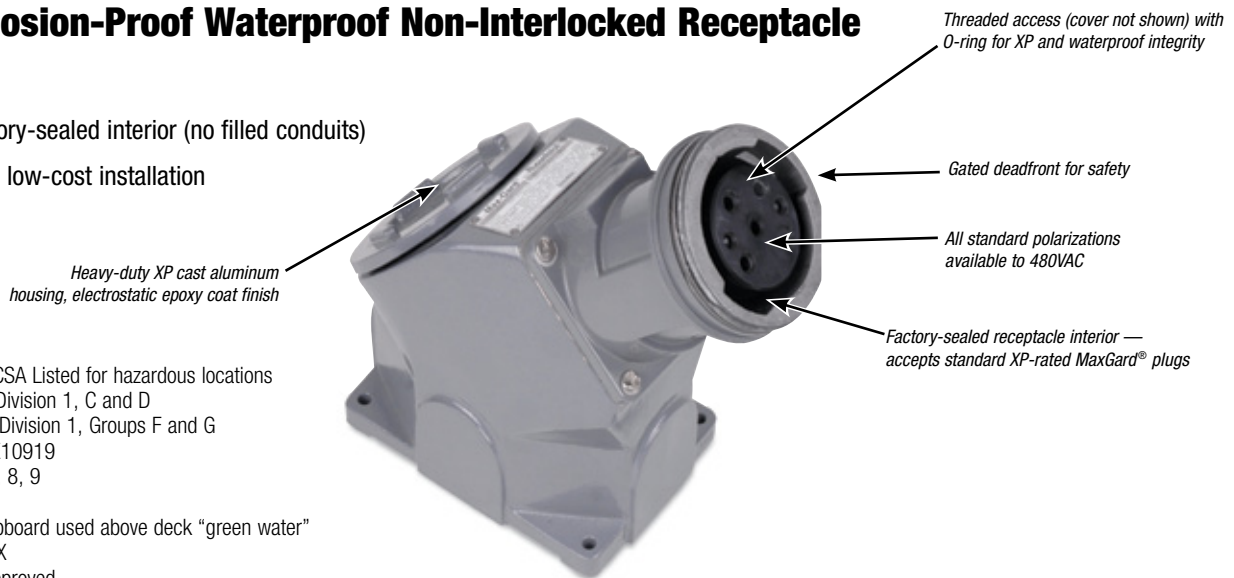
Available in 30-, 60- and 100-amp sizes, all polarizations.



MaxGard® DBRE and DSRE series interlocks are explosion proof and waterproof (O-ring sealed), along with optional control contacts, and are fully UL Listed.

Explosion-Proof Waterproof Non-Interlocked Receptacle

- Factory-sealed interior (no filled conduits)
- Easy low-cost installation



MaxGard® Interconnection Systems

30A–400A Plugs, Connectors, Receptacles, Inlets and Interlocked Receptacles

Receptacles, Plugs and Connectors

FEATURE	RUSSELLSTOLL MAXGARD®	CROUSE-HINDS ARKTITE®**	APPLETON POWERTITE®***
Center ground contact	Yes	No	No
24 single-rated factory polarizations	Yes	No	No
Gated deadfront construction	Yes	No	No
Two optional control contacts	Yes	No	No
Marine-grade CDA485 brass pins/sleeves (200–400 amp silver-plated)	Yes	No	No
O-rings/environmental separation, full line	Yes	No	No
Available to 5-wire (4-pole, 5-wire)	Yes	30 and 60 amp only	No
Complete line epoxy powder coated — standard	Yes	No	Some

Interlocked XP Receptacles

FEATURE	RUSSELLSTOLL DBRE/DSRE SERIES	CROUSE-HINDS EPC SERIES	APPLETON EBR SERIES (WITH FB BREAKER)
Waterproof (DurORing™) O-ring sealing	Yes	No	No
Available to 5-wire (4-pole, 5-wire) through 100 amp	Yes	No	No
Gated deadfront	Yes	No	No
Center ground sleeve contact	Yes	No	No
24 single-rated factory polarizations	Yes	No	No
Class I, Div. 1, Groups B, C, D	Yes	Yes	Yes
Class II, Div. 1, Groups F and G	Yes	Yes	Yes*
Meets Coast Guard (was CG259) approvals	Yes	No	No

* Group F excepting electrically conductive dusts

** Crouse-Hinds and Arktite are trademarks of Cooper Industries, Inc.

*** Appleton and Powertite are trademarks of Appleton Electric Inc.

30A–400A Plugs, Connectors, Receptacles, Inlets and Interlocked Receptacles

D
D = Gated Deadfront

F
F = Flap Cover, S = Screw Cover (screw collar for male plugs and male inlets)

3
Amperage Rating
3 = 30A, 6 = 60A, 1 = 100A, 2 = 200A, 4 = 400A

414
Voltage Assignment Number
See **page H-340** (voltage selection chart)

F
M = Male Pins, F = Female Sleeves (contacts)

R
R = Receptacle, P = Plug

A
Ø = Without Adapter,
A = Angle, S = Straight Adapter

B
B = Junction Box, E = Angle Enclosure,
Ø = No Box

K
Ø = Standard Configuration,
K = 2 Control Contacts

} Ex: FP = Connector
MR = Motor Inlet

(Last 3 positions above:
Ø can appear in any position — standard plugs,
etc. will have a ØØØ suffix, e.g., "DS2404MPØØØ")

D = Gated Deadfront

S = Switch, B = Circuit Breaker

R = Receptacle

E = Explosion-Proof, F = Flap Cap (weathertight),
S = Screw Cap (watertight)

6 = Amperage Rating
3 = 30A, 6 = 60A, 1 = 100A, 2 = 200A, 4 = 400A

414 = Voltage Assignment Number ([page H-340](#) Voltage Selection Chart)

060 = Breaker Rating code: ([page H-330](#) Breaker Rating Trip Charts)
*NAO = Non-Automatic Switch

K = 2 Control Contacts
Ø = Standard Configuration, K = 2 Control Contacts

S = Auxiliary Switch, Z = Shunt Trip
Ø = Standard Configuration, S = Auxiliary Switch, Z = Shunt Trip

** With S in position 2, positions 9, 10 and 11 must be NAO*

MaxGard® Interconnection Systems

30 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS3CC.

Maximum lug wire 8 AWG 7-strand or flexible, cable entrance .187" diameter.

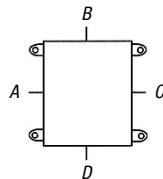
Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1" NPT.



▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: DS3104MP00K

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.

Device Ratings and Polarizations

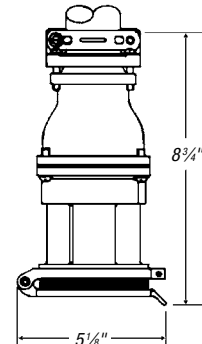
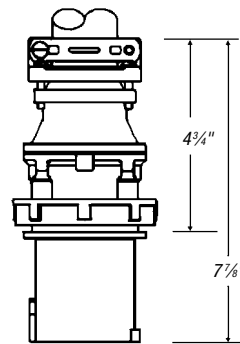
Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)



Male Plug††

Female Connector

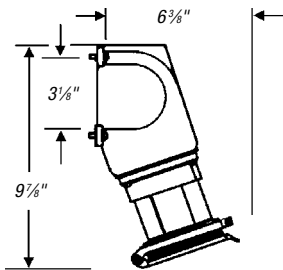


POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277	DS3104MP000	7/8"	DF3104FP000	7/8"
			125	DS3107MP000		DF3107FP000	
2	3		480	DS3204MP000	7/8"	DF3204FP000	7/8"
			250	DS3207MP000		DF3207FP000	
			600	DS3214MP000		DF3214FP000	
			208	DS3216MP000		DF3216FP000	
3	4		277/480	DS3304MP000	1"	DF3304FP000	1"
			125/250	DS3307MP000		DF3307FP000	
			120/208	DS3316MP000		DF3316FP000	
3	4		3Ø 480	DS3404MP000	1"	DF3404FP000	1"
			3Ø 250	DS3407MP000		DF3407FP000	
			3Ø 600	DS3414MP000		DF3414FP000	
			3Ø 208	DS3416MP000		DF3416FP000	
			3Ø 440	DS3421MP000		DF3421FP000	
4	5		3ØY 277/480	DS3504MP000	1 3/16"	DF3504FP000	1 3/16"
			3ØY 347/600	DS3514MP000		DF3514FP000	
			3ØY 120/208	DS3516MP000		DF3516FP000	
			3ØY 250/440	DS3521MP000		DF3521FP000	

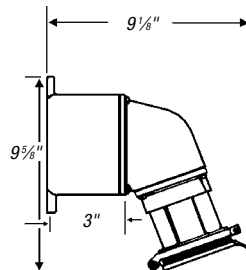
MaxGard® Interconnection Systems



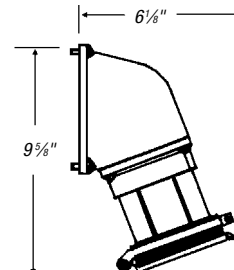
Female Receptacle
with Angle Enclosure



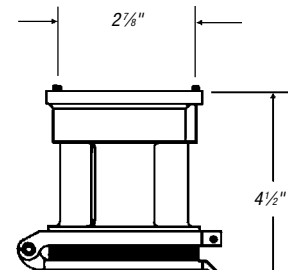
Female Receptacle
with Angle Adapter**
and Junction Box



Female Receptacle
with Angle Adapter**



Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF3104FR0E0	DF3104FRAB0	DF3104FRA00	DF3104FR000
DF3107FR0E0	DF3107FRAB0	DF3107FRA00	DF3107FR000
DF3204FR0E0	DF3204FRAB0	DF3204FRA00	DF3204FR000
DF3207FR0E0	DF3207FRAB0	DF3207FRA00	DF3207FR000
DF3214FR0E0	DF3214FRAB0	DF3214FRA00	DF3214FR000
DF3216FR0E0	DF3216FRAB0	DF3216FRA00	DF3216FR000
DF3304FR0E0	DF3304FRAB0	DF3304FRA00	DF3304FR000
DF3307FR0E0	DF3307FRAB0	DF3307FRA00	DF3307FR000
DF3316FR0E0	DF3316FRAB0	DF3316FRA00	DF3316FR000
DF3404FR0E0	DF3404FRAB0	DF3404FRA00	DF3404FR000
DF3407FR0E0	DF3407FRAB0	DF3407FRA00	DF3407FR000
DF3414FR0E0	DF3414FRAB0	DF3414FRA00	DF3414FR000
DF3416FR0E0	DF3416FRAB0	DF3416FRA00	DF3416FR000
DF3421FR0E0	DF3421MRAB0	DF3421FRA00	DF3421FR000
DF3504FR0E0	DF3504FRAB0	DF3504FRA00	DF3504FR000
DF3514FR0E0	DF3514FRAB0	DF3514FRA00	DF3514FR000
DF3516FR0E0	DF3516FRAB0	DF3516FRA00	DF3516FR000
DF3521FR0E0	DF3521FRAB0	DF3521FRA00	DF3521FR000

MaxGard® Interconnection Systems

30 Amp

* Notes to Catalog Numbers

Control Contacts (position 12)

use "K" example: DBRF3104030K0

Shunt Trip Breaker (position 13)

add "Z" to above: DBRF3104030KZ

Breaker Trip Ratings (positions 9, 10, 11)

15 amp use 015

25 amp use 025

20 amp use 020

30 amp use 030

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

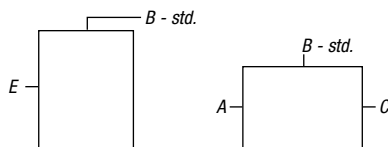
Conduit Hubs: XP

- Std. 1½" NPT-thread outlet at B (or E)

- Std. 1½" -thread outlets provided at A, B or C

- 30 amp — Max. 2½"/64mm

- 30 amp — 1.25"/32mm



▼ Control contacts "K" designation.

†† Non-fused version available. Replace DFRF with DNRF.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

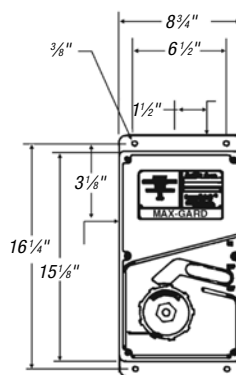
Device Ratings and Polarizations

Maximum 600VAC or 250VDC

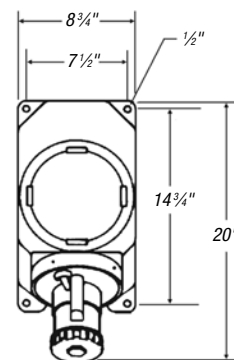
(For full polarization, see **page H-340**)



Interlocked Receptacle with Circuit Breaker NEMA 4X



Explosion-Proof Interlocked Receptacle Class I, Class II



POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	CAT. NO.
				*	*
2	3		277	DBRF310403000	DBRE310403000
			125	DBRF310703000	DBRE310703000
2	3		480	DBRF320403000	DBRE320403000
			250	DBRF320703000	DBRE320703000
			600	DBRF321403000	DBRE321403000
			208	DBRF321603000	DBRE321603000
3	4		277/480	DBRF330403000	DBRE330403000
			125/250	DBRF330703000	DBRE330703000
			120/208	DBRF331603000	DBRE331603000
3	4		3Ø 480	DBRF340403000	DBRE340403000
			3Ø 250	DBRF340703000	DBRE340703000
			3Ø 600	DBRF341403000	DBRE341403000
			3Ø 208	DBRF341603000	DBRE341603000
			3Ø 440	DBRF342103000	DBRE342103000
4	5		3ØY 277/480	DBRF350403000	DBRE350403000
			3ØY 347/600	DBRF351403000	DBRE351403000
			3ØY 120/208	DBRF351603000	DBRE351603000
			3ØY 250/440	DBRF352103000	DBRE352103000

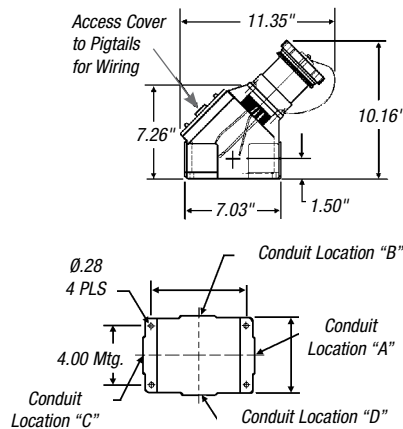
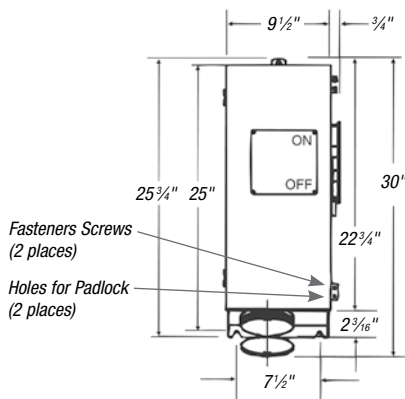
MaxGard® Interconnection Systems



**Fused^{††} Disconnect
Interlocked Receptacle
NEMA 12/3R**



**Explosion-Proof
Non-Interlocked
Receptacle**



30 Amp

Application:

Dulles International Airport "People Mover."

"People Movers" are used at Dulles for shuttling passengers from check-in to mid-field terminals to board their flight. These vehicles require air conditioning and heater unit power when docked at either location for maintenance and overhaul.

Installation:

Vehicle-mounted 30-amp male inlet with mating connector and two control contacts.

MaxGard® receptacles, plugs and connectors were specified for their safety, construction and durability needed to withstand frequent reconnections. The single-rated factory polarization also ensured built-in protection against unsafe hookups. The control contacts offer monitoring capabilities for the vehicle while being overhauled. Deep insulating chambers confine and snuff out arcing when removing devices under load. Maintenance costs are minimal due to self-cleaning pin and sleeve contact design, rear-loaded interior wiring access and quick pressure-screw type wiring terminals.

CAT. NO.	CAT. NO.
DFRF31040	DSE3104FR0
DFRF31070	DSE3107FR0
DFRF32040	DSE3204FR0
DFRF32070	DSE3207FR0
DFRF32140	DSE3214FR0
DFRF32160	DSE3216FR0
DFRF33040	DSE3304FR0
DFRF33070	DSE3307FR0
DFRF33160	DSE3316FR0
DFRF34040	DSE3404FR0
DFRF34070	DSE3407FR0
DFRF34140	DSE3414FR0
DFRF34160	DSE3416FR0
DFRF34210	DSE3421FR0
DFRF35040	DSE3504FR0
DFRF35140	DSE3514FR0
DFRF35160	DSE3516FR0
DFRF35210	DSE3521FR0

MaxGard® Interconnection Systems

30 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS3CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .187" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

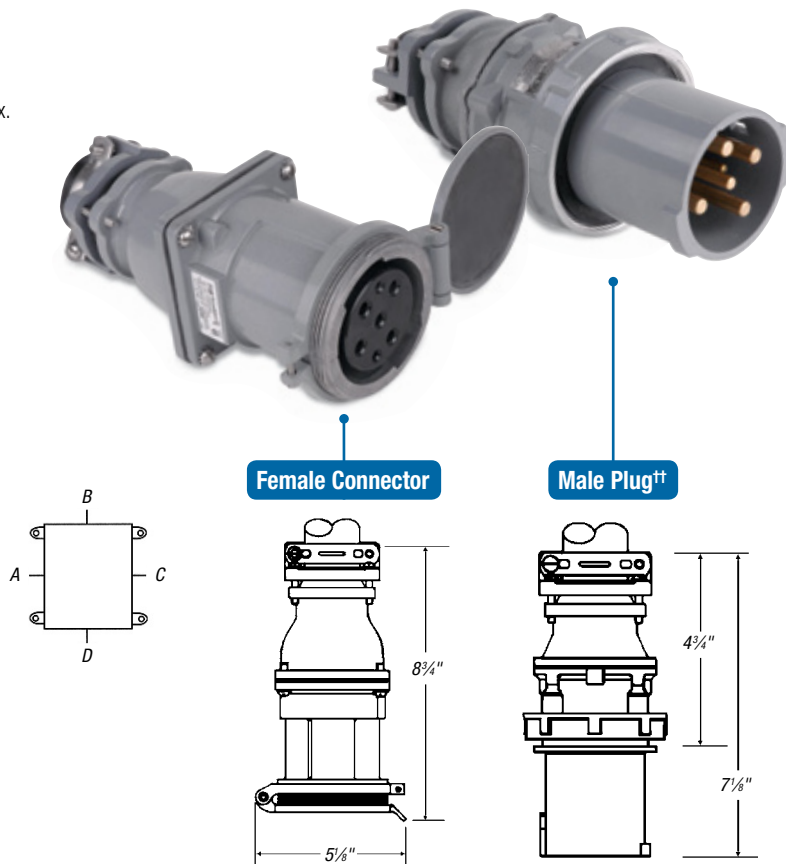
Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1" NPT.

▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS3104MR00K**

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

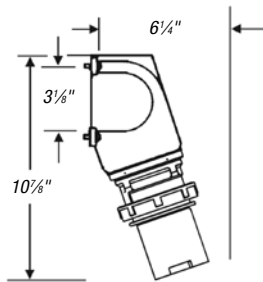
(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277 125	DF3104FP000 DF3107FP000	7/8"	DS3104MP000 DS3107MP000	7/8"
2	3		480 250 600 208	DF3204FP000 DF3207FP000 DF3214FP000 DF3216FP000	7/8"	DS3204MP000 DS3207MP000 DS3214MP000 DS3216MP000	7/8"
3	4		277/480 125/250 120/208	DF3304FP000 DF3307FP000 DF3316FP000	1"	DS3304MP000 DS3307MP000 DS3316MP000	1"
3	4		3Ø 480 3Ø 250 3Ø 600 3Ø 208 3Ø 440	DF3404FP000 DF3407FP000 DF3414FP000 DF3416FP000 DF3421FP000	1"	DS3404MP000 DS3407MP000 DS3414MP000 DS3416MP000 DS3421MP000	1"
4	5		3ØY 277/480 3ØY 347/600 3ØY 120/208 3ØY 250/440	DF3504FP000 DF3514FP000 DF3516FP000 DF3521FP000	1 3/16"	DS3504MP000 DS3514MP000 DS3516MP000 DS3521MP000	1 3/16"

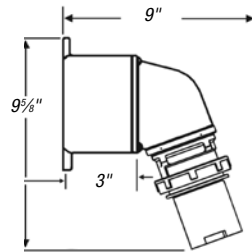
MaxGard® Interconnection Systems



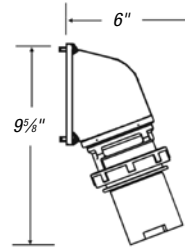
Male Inlet with
Angle Enclosure



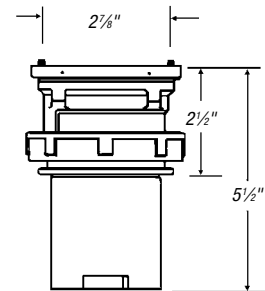
Male Inlet with
Angle Adapter**
and Junction Box



Male Inlet with
Angle Adapter**



Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS3104MR0E0	DS3104MRAB0	DS3104MRA00	DS3104MR000
DS3107MR0E0	DS3107MRAB0	DS3107MRA00	DS3107MR000
DS3204MR0E0	DS3204MRAB0	DS3204MRA00	DS3204MR000
DS3207MR0E0	DS3207MRAB0	DS3207MRA00	DS3207MR000
DS3214MR0E0	DS3214MRAB0	DS3214MRA00	DS3214MR000
DS3216MR0E0	DS3216MRAB0	DS3216MRA00	DS3216MR000
DS3304MR0E0	DS3304MRAB0	DS3304MRA00	DS3304MR000
DS3307MR0E0	DS3307MRAB0	DS3307MRA00	DS3307MR000
DS3316MR0E0	DS3316MRAB0	DS3316MRA00	DS3316MR000
DS3404MR0E0	DS3404MRAB0	DS3404MRA00	DS3404MR000
DS3407MR0E0	DS3407MRAB0	DS3407MRA00	DS3407MR000
DS3414MR0E0	DS3414MRAB0	DS3414MRA00	DS3414MR000
DS3416MR0E0	DS3416MRAB0	DS3416MRA00	DS3416MR000
DS3421MR0E0	DS3421MRAB0	DS3421MRA00	DS3421MR000
DS3504MR0E0	DS3504MRAB0	DS3504MRA00	DS3504MR000
DS3514MR0E0	DS3514MRAB0	DS3514MRA00	DS3514MR000
DS3516MR0E0	DS3516MRAB0	DS3516MRA00	DS3516MR000
DS3521MR0E0	DS3521MRAB0	DS3521MRA00	DS3521MR000

MaxGard® Interconnection Systems

60 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS6CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .302" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

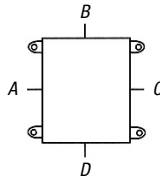
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1½" NPT.

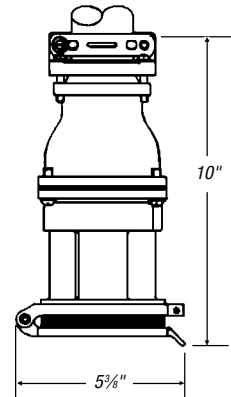
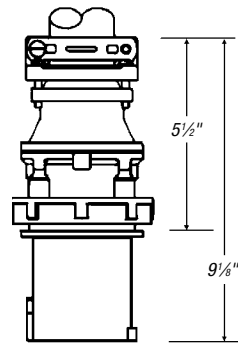
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS6104MP00K**

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.



Male Plug††

Female Connector



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

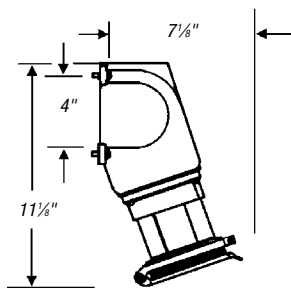
POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D. †	CAT. NO.	STANDARD BUSHING I.D. †
2	3		277	DS6104MP000	1⅞"	DF6104FP000	1⅞"
			125	DS6107MP000		DF6107FP000	
2	3		480	DS6204MP000	1⅞"	DF6204FP000	1⅞"
			250	DS6207MP000		DF6207FP000	
			600	DS6214MP000		DF6214FP000	
			208	DS6216MP000		DF6216FP000	
				DS6216MP000		DF6216FP000	
3	4		277/480	DS6304MP000	1⅞"	DF6304FP000	1⅞"
			125/250	DS6307MP000		DF6307FP000	
			120/208	DS6316MP000		DF6316FP000	
3	4		3Ø 480	DS6404MP000	1⅞"	DF6404FP000	1⅞"
			3Ø 250	DS6407MP000		DF6407FP000	
			3Ø 600	DS6414MP000		DF6414FP000	
			3Ø 208	DS6416MP000		DF6416FP000	
			3Ø 440	DS6421MP000		DF6421FP000	
4	5		3ØY 277/480	DS6504MP000	1½"	DF6504FP000	1½"
			3ØY 347/600	DS6514MP000		DF6514FP000	
			3ØY 110/208	DS6516MP000		DF6516FP000	
			3ØY 250/440	DS6521MP000		DF6521FP000	

MaxGard® Interconnection Systems

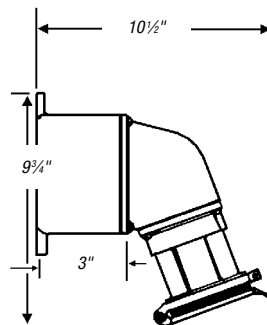
Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors



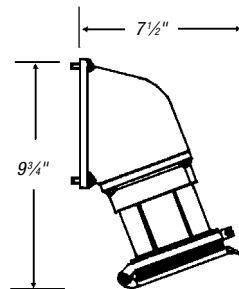
Female Receptacle
with Angle Enclosure



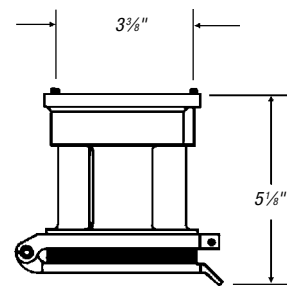
Female Receptacle
with Angle Adapter**
and Junction Box



Female Receptacle
with Angle Adapter**



Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF6104FR0E0	DF6104FRAB0	DF6104FRA00	DF6104FR000
DF6107FR0E0	DF6107FRAB0	DF6107FRA00	DF6107FR000
DF6204FR0E0	DF6204FRAB0	DF6204FRA00	DF6204FR000
DF6207FR0E0	DF6207FRAB0	DF6207FRA00	DF6207FR000
DF6214FR0E0	DF6214FRAB0	DF6214FRA00	DF6214FR000
DF6216FR0E0	DF6216FRAB0	DF6216FRA00	DF6216FR000
DF6304FR0E0	DF6304FRAB0	DF6304FRA00	DF6304FR000
DF6307FR0E0	DF6307FRAB0	DF6307FRA00	DF6307FR000
DF6316FR0E0	DF6316FRAB0	DF6316FRA00	DF6316FR000
DF6404FR0E0	DF6404FRAB0	DF6404FRA00	DF6404FR000
DF6407FR0E0	DF6407FRAB0	DF6407FRA00	DF6407FR000
DF6414FR0E0	DF6414FRAB0	DF6414FRA00	DF6414FR000
DF6416FR0E0	DF6416FRAB0	DF6416FRA00	DF6416FR000
DF6421FR0E0	DF6421FRAB0	DF6421FRA00	DF6421FR000
DF6504FR0E0	DF6504FRAB0	DF6504FRA00	DF6504FR000
DF6514FR0E0	DF6514FRAB0	DF6514FRA00	DF6514FR000
DF6516FR0E0	DF6516FRAB0	DF6516FRA00	DF6516FR000
DF6521FR0E0	DF6521FRAB0	DF6521FRA00	DF6521FR000

MaxGard® Interconnection Systems

60 Amp

* Notes to Catalog Numbers

Control Contacts (position 12)
use "K" example: DBRF6104030K0

Shunt Trip Breaker (position 13)
add "Z" to above: DBRF6104030KZ

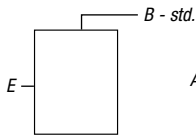
Breaker Trip Ratings (positions 9, 10, 11)

30 amp use 030
60 amp use 060
50 amp use 050

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

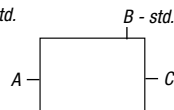
Conduit Hubs: NEMA 4X

- Std. 2" NPT-thread outlet at B (or E)
- 60 amp —
Max. 2½"/64mm



Conduit Hubs: XP

- Std. 1½" -thread outlets provided at A, B or C
- 60 amp —
1.50"/38mm



▼ Control contacts "K" designation.

†† Non-fused version available. Replace DFRF with DNRF.

Boldface figures are for voltage assignment.
For different ratings, see **page H-340**.

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

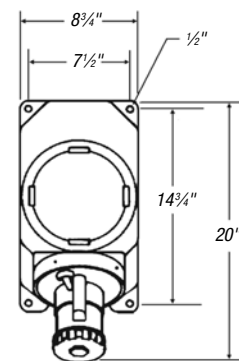
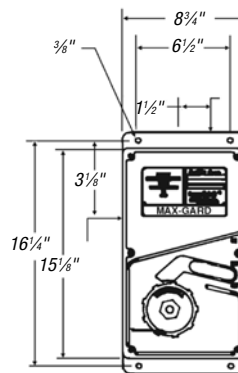
(For full polarization, see **page H-340**)



Interlocked Receptacle with Circuit Breaker NEMA 4X



Explosion-Proof Interlocked Receptacle Class I, Class II

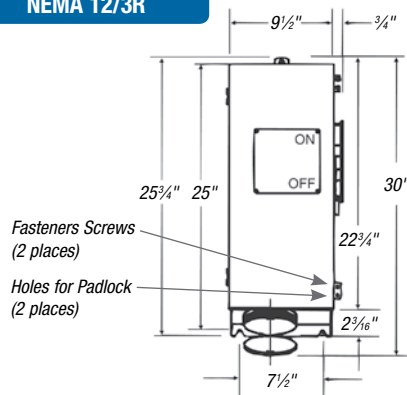


POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	CAT. NO.
2	3		277	DBRF610406000	DBRE610406000
			125	DBRF610706000	DBRE610706000
2	3		480	DBRF620406000	DBRE620406000
			250	DBRF620706000	DBRE620706000
			600	DBRF621406000	DBRE621406000
			208	DBRF621606000	DBRE621606000
3	4		277/480	DBRF630406000	DBRE630406000
			125/250	DBRF630706000	DBRE630706000
			120/208	DBRF631606000	DBRE631606000
3	4		3Ø 480	DBRF640406000	DBRE640406000
			3Ø 250	DBRF640706000	DBRE640706000
			3Ø 600	DBRF641406000	DBRE641406000
			3Ø 208	DBRF641606000	DBRE641606000
			3Ø 440	DBRF642106000	DBRE642106000
4	5		3ØY 277/480	DBRF650403000	DBRE650406000
			3ØY 347/600	DBRF651406000	DBRE651406000
			3ØY 120/208	DBRF651606000	DBRE651606000
			3ØY 250/440	DBRF652106000	DBRE652106000

MaxGard® Interconnection Systems



**Fused^{††} Disconnect
Interlocked Receptacle
NEMA 12/3R**



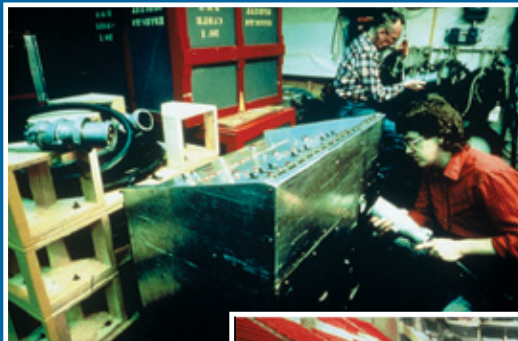
CAT. NO.

DFRF61040
 DFRF61070
 DFRF62040
 DFRF62070
 DFRF62140
 DFRF62160
 DFRF63040
 DFRF63070
 DFRF63160
 DFRF64040
 DFRF64070
 DFRF64140
 DFRF64160
 DFRF64210
 DFRF65040
 DFRF65140
 DFRF65160
 DFRF65210

SOLUTION 60 Amp

Convention Centers and Arenas

Power for Trade Show Exhibits and Concerts



Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

MaxGard® Interconnection Systems

60 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS6CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .302" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

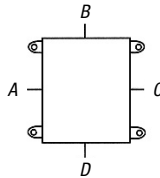
Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1½" NPT.

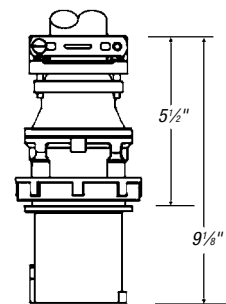
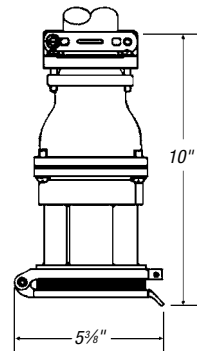
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: DS3104MP00K

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.



Female Connector

Male Plug††



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

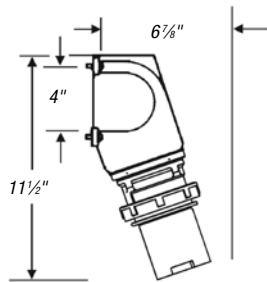
(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277	DF6104FP000	1 3/16"	DS6104MP000	1 3/16"
			125	DF6107FP000		DS6107MP000	
2	3		480	DF6204FP000	1 3/16"	DS6204MP000	1 3/16"
			250	DF6207FP000		DS6207MP000	
			600	DF6214FP000		DS6214MP000	
			208	DF6216FP000		DS6216MP000	
3	4		277/480	DF6304FP000	1 3/16"	DS6304MP000	1 3/16"
			125/250	DF6307FP000		DS6307MP000	
			120/208	DF6316FP000		DS6316MP000	
3	4		3Ø 480	DF6404FP000	1 5/16"	DS6404MP000	1 5/16"
			3Ø 250	DF6407FP000		DS6407MP000	
			3Ø 600	DF6414FP000		DS6414MP000	
			3Ø 208	DF6416FP000		DS6416MP000	
			3Ø 440	DF6421FP000		DS6421MP000	
4	5		3ØY 277/480	DF6504FP000	1 1/2"	DS6504MP000	1 1/2"
			3ØY 347/600	DF6514FP000		DS6514MP000	
			3ØY 120/208	DF6516FP000		DS6516MP000	
			3ØY 250/440	DF6521FP000		DS6521MP000	

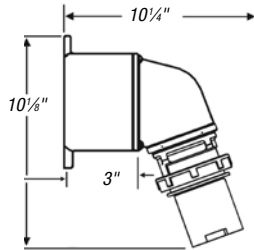
MaxGard® Interconnection Systems



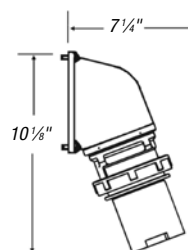
Male Inlet with
Angle Enclosure



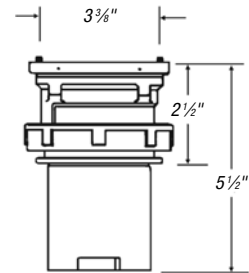
Male Inlet with
Angle Adapter**
and Junction Box



Male Inlet with
Angle Adapter**



Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS6104MR0E0	DS6104MRAB0	DS6104MRA00	DS6104MR000
DS6107MR0E0	DS6107MRAB0	DS6107MRA00	DS6107MR000
DS6204MR0E0	DS6204MRAB0	DS6204MRA00	DS6204MR000
DS6207MR0E0	DS6207MRAB0	DS6207MRA00	DS6207MR000
DS6214MR0E0	DS6214MRAB0	DS6214MRA00	DS6214MR000
DS6216MR0E0	DS6216MRAB0	DS6216MRA00	DS6216MR000
DS6304MR0E0	DS6304MRAB0	DS6304MRA00	DS6304MR000
DS6307MR0E0	DS6307MRAB0	DS6307MRA00	DS6307MR000
DS6316MR0E0	DS6316MRAB0	DS6316MRA00	DS6316MR000
DS6404MR0E0	DS6404MRAB0	DS6404MRA00	DS6404MR000
DS6407MR0E0	DS6407MRAB0	DS6407MRA00	DS6407MR000
DS6414MR0E0	DS6414MRAB0	DS6414MRA00	DS6414MR000
DS6416MR0E0	DS6416MRAB0	DS6416MRA00	DS6416MR000
DS6421MR0E0	DS6421MRAB0	DS6421MRA00	DS6421MR000
DS6504MR0E0	DS6504MRAB0	DS6504MRA00	DS6504MR000
DS6514MR0E0	DS6514MRAB0	DS6514MRA00	DS6514MR000
DS6516MR0E0	DS6516MRAB0	DS6516MRA00	DS6516MR000
DS6521MR0E0	DS6521MRAB0	DS6521MRA00	DS6521MR000

MaxGard® Interconnection Systems

100 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS1CC.

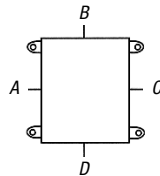
Maximum lug wire 0 AWG 19-strand or 1 AWG flexible, cable entrance .386" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 2" NPT.



▼ Control contacts for plug/receptacles:

Use "K" where noted. Ex: DS1104MP00K

For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337**.

Device Ratings and Polarizations

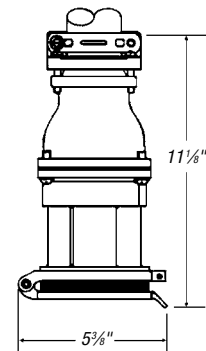
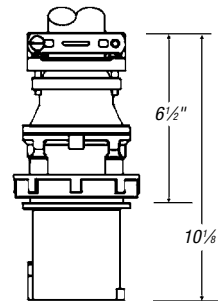
Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)



Male Plug††

Female Connector

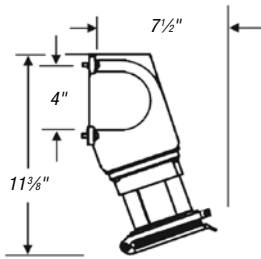


POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60HZ	CAT. NO.	STANDARD BUSHING I.D. †	CAT. NO.	STANDARD BUSHING I.D. †
2	3		277 125	DS1104MP000 DS1107MP000	1 1/16"	DF1104FP000 DF1107FP000	1 1/16"
2	3		480 250 600 208	DS1204MP000 DS1207MP000 DS1214MP000 DS1216MP000	1 1/16"	DF1204FP000 DF1207FP000 DF1214FP000 DF1216FP000	1 1/16"
3	4		277/480 125/250 120/208	DS1304MP000 DS1307MP000 DS1316MP000	1 13/16"	DF1304FP000 DF1307FP000 DF1316FP000	1 13/16"
3	4		3Ø 480 3Ø 250 3Ø 600 3Ø 208 3Ø 440	DS1404MP000 DS1407MP000 DS1414MP000 DS1416MP000 DS1421MP000	1 13/16"	DF1404FP000 DF1407FP000 DF1414FP000 DF1416FP000 DF1421FP000	1 13/16"
4	5		3ØY 277/480 3ØY 347/600 3ØY 118/208 3ØY 250/440	DS1504MP000 DS1514MP000 DS1516MP000 DS1521MP000	2"	DF1504FP000 DF1514FP000 DF1516FP000 DF1521FP000	2"

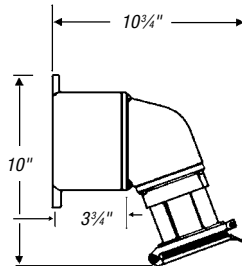
MaxGard® Interconnection Systems



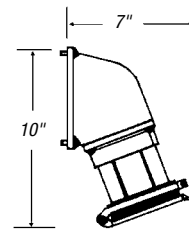
Female Receptacle
with Angle Enclosure



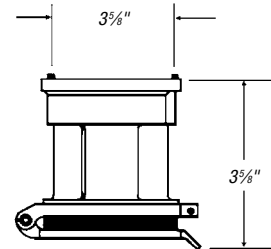
Female Receptacle
with Angle Adapter**
and Junction Box



Female Receptacle
with Angle Adapter**



Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF1104FR0E0	DF1104FRAB0	DF1104FRA00	DF1104FR000
DF1107FR0E0	DF1107FRAB0	DF1107FRA00	DF1107FR000
DF1204FR0E0	DF1204FRAB0	DF1204FRA00	DF1204FR000
DF1207FR0E0	DF1207FRAB0	DF1207FRA00	DF1207FR000
DF1214FR0E0	DF1214FRAB0	DF1214FRA00	DF1214FR000
DF1216FR0E0	DF1216FRAB0	DF1216FRA00	DF1216FR000
DF1304FR0E0	DF1304FRAB0	DF1304FRA00	DF1304FR000
DF1307FR0E0	DF1307FRAB0	DF1307FRA00	DF1307FR000
DF1316FR0E0	DF1316FRAB0	DF1316FRA00	DF1316FR000
DF1404FR0E0	DF1404FRAB0	DF1404FRA00	DF1404FR000
DF1407FR0E0	DF1407FRAB0	DF1407FRA00	DF1407FR000
DF1414FR0E0	DF1414FRAB0	DF1414FRA00	DF1414FR000
DF1416FR0E0	DF1416FRAB0	DF1416FRA00	DF1416FR000
DF1421FR0E0	DF1421FRAB0	DF1421FRA00	DF1421FR000
DF1504FR0E0	DF1504FRAB0	DF1504FRA00	DF1504FR000
DF1514FR0E0	DF1514FRAB0	DF1514FRA00	DF1514FR000
DF1516FR0E0	DF1516FRAB0	DF1516FRA00	DF1516FR000
DF1521FR0E0	DF1521FRAB0	DF1521FRA00	DF1521FR000

MaxGard® Interconnection Systems

100 Amp

* Notes to Catalog Numbers

Control Contacts (position 12) use "K" example: DBRF1104030K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF1104030KZ

Breaker Trip Ratings (positions 9, 10, 11)

70 amp use 070 100 amp use 100

90 amp use 090

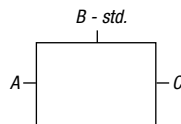
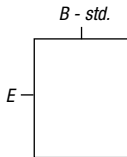
Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

- Std. 2" NPT-thread outlet at B (or E)
- 100 amp — Max. 2½"/64mm

Conduit Hubs: XP

- Std. 1½" -thread outlets provided at A, B or C
- 100 amp — 2.00"/51mm



†† Non-fused version available. Replace DFRF with DNRF.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

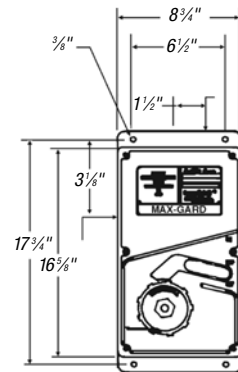
Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)



Interlocked Receptacle
with Circuit Breaker
NEMA 4X

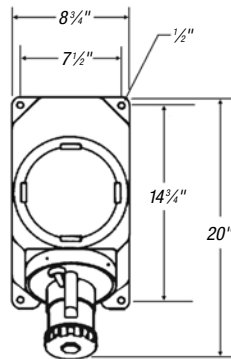


POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.
2	3		277	DBRF11041000
			125	DBRF11071000
2	3		480	DBRF12041000
			250	DBRF12071000
			600	DBRF12141000
			208	DBRF12161000
				DBRF13041000
3	4		277/480	DBRF13071000
			125/250	DBRF13161000
			120/208	DBRF14041000
3	4		3Ø 480	DBRF14071000
			3Ø 250	DBRF14141000
			3Ø 600	DBRF14161000
			3Ø 208	DBRF14211000
			3Ø 440	DBRF15041000
4	5		3ØY 277/480	DBRF15141000
			3ØY 347/600	DBRF15161000
			3ØY 120/208	DBRF15211000
			3ØY 250/440	

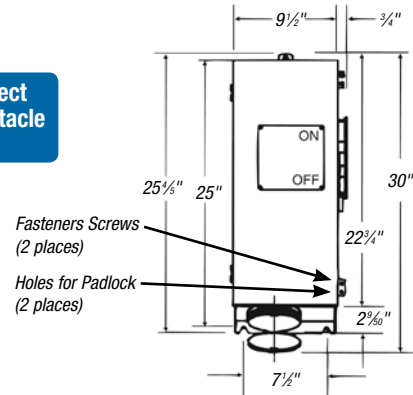
MaxGard® Interconnection Systems



**Explosion-Proof
Interlocked Receptacle
Class I, Class II**



**Fused†† Disconnect
Interlocked Receptacle
NEMA 12/3R**



Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

CAT. NO.	CAT. NO.
*	
DBRE11041000	DFRF11040
DBRE11071000	DFRF11070
DBRE12041000	DFRF12040
DBRE12071000	DFRF12070
DBRE12141000	DFRF12140
DBRE12161000	DFRF12160
DBRE13041000	DFRF13040
DBRE13071000	DFRF13070
DBRE13161000	DFRF13160
DBRE14041000	DFRF14040
DBRE14071000	DFRF14070
DBRE14141000	DFRF14140
DBRE14161000	DFRF14160
DBRE14211000	DFRF14210
DBRE15041000	DFRF15040
DBRE15141000	DFRF15140
DBRE15161000	DFRF15160
DBRE15211000	DFRF15210

MaxGard® Interconnection Systems

100 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number **DS1CC**.

Maximum lug wire 0 AWG 19-strand or 1 AWG flexible, cable entrance .386" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

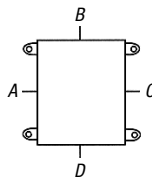
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 2" NPT.

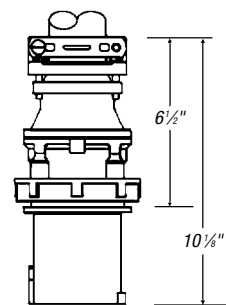
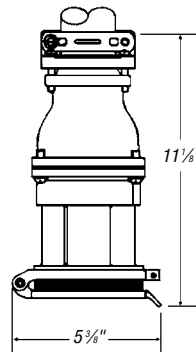
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS1104MR00K**

For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337**.



Female Connector

Male Plug††



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

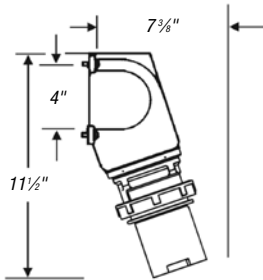
(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D. †	CAT. NO.	STANDARD BUSHING I.D. †
2	3		277	DF1104FP000	1 11/16"	DS1104MP000	1 11/16"
			125	DF1107FP000		DS1107MP000	
2	3		480	DF1204FP000	1 11/16"	DS1204MP000	1 11/16"
			250	DF1207FP000		DS1207MP000	
			600	DF1214FP000		DS1214MP000	
			208	DF1216FP000		DS1216MP000	
3	4		277/480	DF1304FP000	1 13/16"	DS1304MP000	1 13/16"
			125/250	DF1307FP000		DS1307MP000	
			120/208	DF1316FP000		DS1316MP000	
3	4		3Ø 480	DF1404FP000	1 13/16"	DS1404MP000	1 13/16"
			3Ø 250	DF1407FP000		DS1407MP000	
			3Ø 600	DF1414FP000		DS1414MP000	
			3Ø 208	DF1416FP000		DS1416MP000	
			3Ø 440	DF1421FP000		DS1421MP000	
4	5		3ØY 277/480	DF1504FP000	2"	DS1504MP000	2"
			3ØY 347/600	DF1514FP000		DS1514MP000	
			3ØY 110/208	DF1516FP000		DS1516MP000	
			3ØY 250/440	DF1521FP000		DS1521MP000	

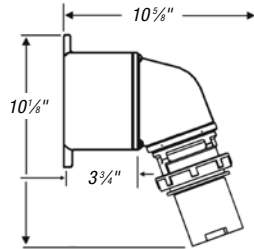
MaxGard® Interconnection Systems



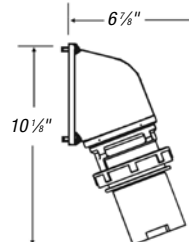
Male Inlet with
Angle Enclosure



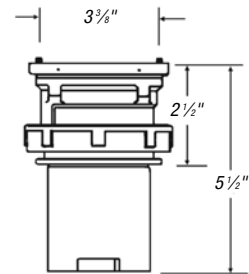
Male Inlet with
Angle Adapter** and
DJB3 Junction Box



Male Inlet with
Angle Adapter**



Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS1104MR0E0	DS1104MRAB0	DS1104MRA00	DS1104MR000
DS1107MR0E0	DS1107MRAB0	DS1107MRA00	DS1107MR000
DS1204MR0E0	DS1204MRAB0	DS1204MRA00	DS1204MR000
DS1207MR0E0	DS1207MRAB0	DS1207MRA00	DS1207MR000
DS1214MR0E0	DS1214MRAB0	DS1214MRA00	DS1214MR000
DS1216MR0E0	DS1216MRAB0	DS1216MRA00	DS1216MR000
DS1304MR0E0	DS1304MRAB0	DS1304MRA00	DS1304MR000
DS1307MR0E0	DS1307MRAB0	DS1307MRA00	DS1307MR000
DS1316MR0E0	DS1316MRAB0	DS1316MRA00	DS1316MR000
DS1404MR0E0	DS1404MRAB0	DS1404MRA00	DS1404MR000
DS1407MR0E0	DS1407MRAB0	DS1407MRA00	DS1407MR000
DS1414MR0E0	DS1414MRAB0	DS1414MRA00	DS1414MR000
DS1416MR0E0	DS1416MRAB0	DS1416MRA00	DS1416MR000
DS1421MR0E0	DS1421MRAB0	DS1421MRA00	DS1421MR000
DS1504MR0E0	DS1504MRAB0	DS1504MRA00	DS1504MR000
DS1514MR0E0	DS1514MRAB0	DS1514MRA00	PDS1514MR000
DS1516MR0E0	DS1516MRAB0	DS1516MRA00	DS1516MR000
DS1521MR0E0	DS1521MRAB0	DS1521MRA00	DS1521MR000

MaxGard® Interconnection Systems

200 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS2CC.

Maximum lug wire 4/0 AWG 19-strand or flexible, cable entrance .625" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 3" NPT.

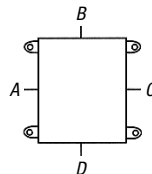
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: DS2104MP00K

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.

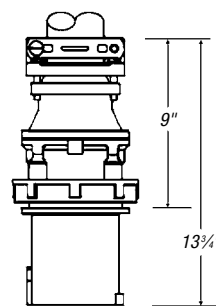
Device Ratings and Polarizations

Maximum 600VAC or 250VDC

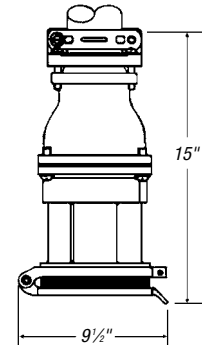
(For full polarization, see **page H-340**)



Male Plug††



Female Connector

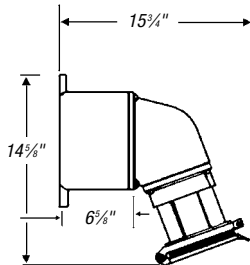


POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277	DS2104MP000	2 1/8"	DF2104FP000	2 1/8"
			125	DS2107MP000		DF2107FP000	
2	3		480	DS2204MP000	2 1/8"	DF2204FP000	2 1/8"
			250	DS2207MP000		DF2207FP000	
			600	DS2214MP000		DF2214FP000	
			208	DS2216MP000		DF2216FP000	
3	4		277/480	DS2304MP000	2 1/4"	DF2304FP000	2 1/4"
			125/250	DS2307MP000		DF2307FP000	
			120/208	DS2316MP000		DF2316FP000	
3	4		3Ø 480	DS2404MP000	2 1/4"	DF2404FP000	2 1/4"
			3Ø 250	DS2407MP000		DF2407FP000	
			3Ø 600	DS2414MP000		DF2414FP000	
			3Ø 208	DS2416MP000		DF2416FP000	
			3Ø 440	DS2421MP000		DF2421FP000	
4	5		3ØY 277/480	DS2504MP000	2 1/2"	DF2504FP000	2 1/2"
			3ØY 347/600	DS2514MP000		DF2514FP000	
			3ØY 110/208	DS2516MP000		DF2516FP000	
			3ØY 250/440	DS2521MP000		DF2521FP000	

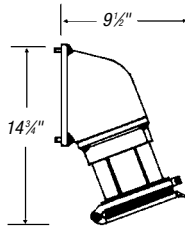
MaxGard® Interconnection Systems



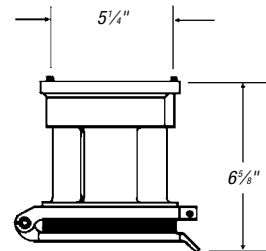
Female Receptacle
with Angle Adapter**
and Junction Box



Female Receptacle
with Angle Adapter**



Female Receptacle



Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

CAT. NO.	CAT. NO.	CAT. NO.
DF2104FRAB0	DF2104FRA00	DF2104FR000
DF2107FRAB0	DF2107FRA00	DF2107FR000
DF2204FRAB0	DF2204FRA00	DF2204FR000
DF2207FRAB0	DF2207FRA00	DF2207FR000
DF2214FRAB0	DF2214FRA00	DF2214FR000
DF2216FRAB0	DF2216FRA00	DF2216FR000
DF2304FRAB0	DF2304FRA00	DF2304FR000
DF2307FRAB0	DF2307FRA00	DF2307FR000
DF2316FRAB0	DF2316FRA00	DF2316FR000
DF2404FRAB0	DF2404FRA00	DF2404FR000
DF2407FRAB0	DF2407FRA00	DF2407FR000
DF2414FRAB0	DF2414FRA00	DF2414FR000
DF2416FRAB0	DF2416FRA00	DF2416FR000
DF2421FRAB0	DF2421FRA00	DF2421FR000
DF2504FRAB0	DF2504FRA00	DF2504FR000
DF2514FRAB0	DF2514FRA00	DF2514FR000
DF2516FRAB0	DF2516FRA00	DF2516FR000
DF2521FRAB0	DF2521FRA00	DF2521FR000

MaxGard® Interconnection Systems

200 Amp

* Notes to Catalog Numbers

Control Contacts (position 12) use "K" example: DBRF2104200K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF2104200KZ

Breaker Trip Ratings (positions 9, 10, 11)

150 amp use 150

175 amp use 175

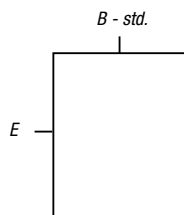
200 amp use 200

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

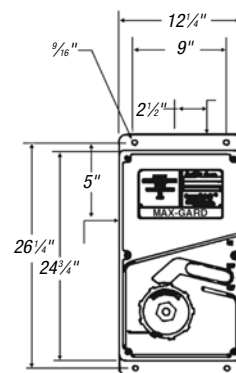
Conduit Hubs: NEMA 4X

- Std. 2" NPT-thread outlet at B (or E)
- 200 amp — Max. 3¹¹/₁₆ mm

Boldface figures are for voltage assignment.
For different ratings, see **page H-340**.



Interlocked Receptacle
with Circuit Breaker
NEMA 4X



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.
2	3		277	DBRF21042000
			125	DBRF21072000
2	3		480	DBRF22042000
			250	DBRF22072000
			600	DBRF22142000
			208	DBRF22162000
				DBRF22162000
3	4		277/480	DBRF23042000
			125/250	DBRF23072000
			120/208	DBRF23162000
3	4		3Ø 480	DBRF24042000
			3Ø 250	DBRF24072000
			3Ø 600	DBRF24142000
			3Ø 208	DBRF24162000
			3Ø 440	DBRF24212000
				DBRF24212000
4	5		3ØY 277/480	DBRF25042000
			3ØY 347/600	DBRF25142000
			3ØY 120/208	DBRF25162000
			3ØY 250/440	DBRF25212000

MaxGard® Interconnection Systems

Staten Island Ferry

SOLUTION 200 Amp

200A MaxGard® inlets with disconnects



200A MaxGard® connections on ferry deck



30A and 200A
MaxGard® interlocks



200A MaxGard® interlocks in parallel

MaxGard® Interconnection Systems

200 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number **DS2CC**.

Maximum lug wire 4/0 AWG 19-strand or flexible, cable entrance .625" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 3" NPT.

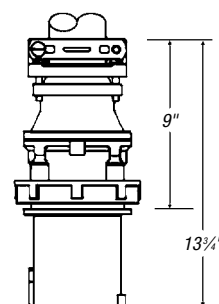
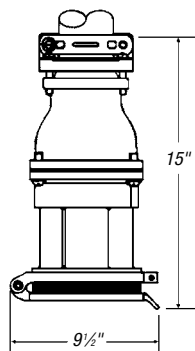
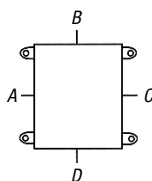


Female Connector

Male Plug††

▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS2104MR00K**

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D. †	CAT. NO.	STANDARD BUSHING I.D. †
2	3		277	DF2104FP000	2 1/8"	DS2104MP000	2 1/8"
			125	DF2107FP000		DS2107MP000	
2	3		480	DF2204FP000	2 1/8"	DS2204MP000	2 1/8"
			250	DF2207FP000		DS2207MP000	
			600	DF2214FP000		DS2214MP000	
			208	DF2216FP000		DS2216MP000	
3	4		277/480	DF2304FP000	2 1/4"	DS2304MP000	2 1/4"
			125/250	DF2307FP000		DS2307MP000	
			120/208	DF2316FP000		DS2316MP000	
3	4		3Ø 480	DF2404FP000	2 1/4"	DS2404MP000	2 1/4"
			3Ø 250	DF2407FP000		DS2407MP000	
			3Ø 600	DF2414FP000		DS2414MP000	
			3Ø 208	DF2416FP000		DS2416MP000	
			3Ø 440	DF2421FP000		DS2421MP000	
4	5		3ØY 277/480	DF2504FP000	2 1/2"	DS2504MP000	2 1/2"
			3ØY 347/600	DF2514FP000		DS2514MP000	
			3ØY 110/208	DF2516FP000		DS2516MP000	
			3ØY 250/440	DF2521FP000		DS2521MP000	

MaxGard® Interconnection Systems



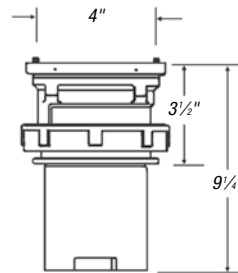
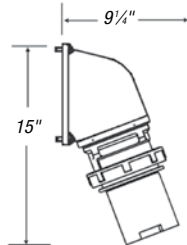
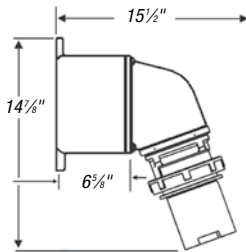
Male Inlet with
Angle Enclosure



Male Inlet with
Angle Adapter**



Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.
DS2104MRAB0	DS2104MRA00	DS2104MR000
DS2107MRAB0	DS2107MRA00	DS2107MR000
DS2204MRAB0	DS2204MRA00	DS2204MR000
DS2207MRAB0	DS2207MRA00	DS2207MR000
DS2214MRAB0	DS2214MRA00	DS2214MR000
DS2216MRAB0	DS2216MRA00	DS2216MR000
DS2304MRAB0	DS2304MRA00	DS2304MR000
DS2307MRAB0	DS2307MRA00	DS2307MR000
DS2316MRAB0	DS2316MRA00	DS2316MR000
DS2404MRAB0	DS2404MRA00	DS2404MR000
DS2407MRAB0	DS2407MRA00	DS2407MR000
DS2414MRAB0	DS2414MRA00	DS2414MR000
DS2416MRAB0	DS2416MRA00	DS2416MR000
DS2421MRAB0	DS2421MRA00	DS2421MR000
DS2504MRAB0	DS2504MRA00	DS2504MR000
DS2514MRAB0	DS2514MRA00	DS2514MR000
DS2516MRAB0	DS2516MRA00	DS2516MR000
DS2521MRAB0	DS2521MRA00	DS2521MR000

MMI Trailer



SOLUTION 200 Amp

Application:

Electrical hook-up of mobile medical imaging (MMI) trailers

Mobile medical units provide trailer-transportable blood banks, dental clinics, magnetic resonance imaging (MRI), X-ray and other diagnostic equipment to many hospitals and clinics throughout the country on a regular leased basis. Safe outdoor usage connections are required for up to 200-amp power supplies at each facility. Major specialized custom trailer manufacturers rely on the MaxGard® 200-amp interface.

Installation:

Site-mounted 200-amp receptacles with trailer-mounted plugs and connectors

When a mobile medical unit trailer is at the desired location, a heavy-duty MaxGard® 200-amp cable assembly connects the trailer with a corresponding receptacle or connector at each site, usually mounted on an outside wall. A primary safety feature is the receptacle's gated deadfront construction that ensures no exterior access to live receptacle contacts. With so many different hands involved on a daily basis, the MaxGard epoxy powder-coat finish and rugged waterproof construction provide hospital-safe long service life.

MaxGard® Interconnection Systems

400 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS4CC.

Maximum lug wire 500 kcmil 37-strand or flexible, cable entrance .937" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 4" NPT.

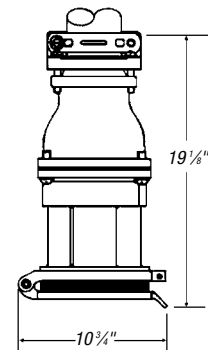
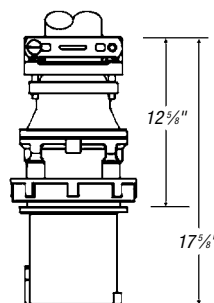
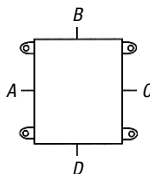
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS4104MP00K**

For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337**.



Male Plug††

Female Connector



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

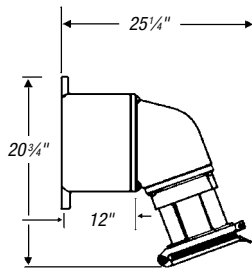
(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D. †	CAT. NO.	STANDARD BUSHING I.D. †
2	3		277 125	DS4104MP000 DS4107MP000	2 3/4"	DF4104FP000 DF4107FP000	2 3/4"
2	3		480 250 600 208	DS4204MP000 DS4207MP000 DS4214MP000 DS4216MP000		DF4204FP000 DF4207FP000 DF4214FP000 DF4216FP000	
3	4		277/480 125/250 120/208	DS4304MP000 DS4307MP000 DS4316MP000		DF4304FP000 DF4307FP000 DF4316FP000	
3	4		3Ø 480 3Ø 250 3Ø 600 3Ø 208 3Ø 440	DS4404MP000 DS4407MP000 DS4414MP000 DS4416MP000 DS4421MP000		DF4404FP000 DF4407FP000 DF4414FP000 DF4416FP000 DF4421FP000	
4	5		3ØY 277/480 3ØY 347/600 3ØY 110/208 3ØY 250/440	DS4504MP000 DS4514MP000 DS4516MP000 DS4521MP000		DF4504FP000 DF4514FP000 DF4516FP000 DF4521FP000	

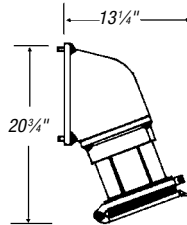
MaxGard® Interconnection Systems



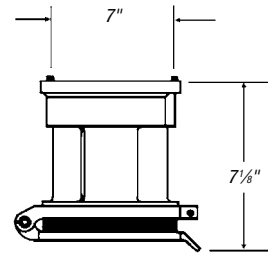
Female Receptacle
with Angle Adapter**
and Junction Box



Female Receptacle
with Angle Adapter**



Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.
DF4104FRAB0	DF4104FRA00	DF4104FR000
DF4107FRAB0	DF4107FRA00	DF4107FR000
DF4204FRAB0	DF4204FRA00	DF4204FR000
DF4207FRAB0	DF4207FRA00	DF4207FR000
DF4214FRAB0	DF4214FRA00	DF4214FR000
DF4216FRAB0	DF4216FRA00	DF4216FR000
DF4304FRAB0	DF4304FRA00	DF4304FR000
DF4307FRAB0	DF4307FRA00	DF4307FR000
DF4316FRAB0	DF4316FRA00	DF4316FR000
DF4404FRAB0	DF4404FRA00	DF4404FR000
DF4407FRAB0	DF4407FRA00	DF4407FR000
DF4414FRAB0	DF4414FRA00	DF4414FR000
DF4416FRAB0	DF4416FRA00	XDF4416FR000
DF4421FRAB0	DF4421FRA00	DF4421FR000
DF4504FRAB0	DF4504FRA00	DF4504FR000
DF4514FRAB0	DF4514FRA00	DF4514FR000
DF4516FRAB0	DF4516FRA00	DF4516FR000
DF4521FRAB0	DF4521FRA00	DF4521FR000

MaxGard® Interconnection Systems

400 Amp

* Notes to Catalog Numbers

Control Contacts (position 12)

use "K" example: DBRF4104200K0

Shunt Trip Breaker (position 13)

add "Z" to above: DBRF4104200KZ

Breaker Trip Ratings (positions 9, 10, 11)

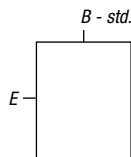
250 amp use 250 350 amp use 350

300 amp use 300 400 amp use 400

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

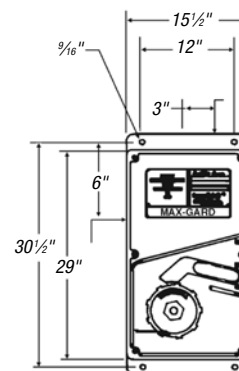
- Std. 4" NPT-thread outlet at B (or E)
- 400 amp — Max. 4" (102mm)



Boldface figures are for voltage assignment.
For different ratings, see **page H-340**.



**Interlocked Receptacle
with Circuit Breaker
NEMA 4X**



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.
2	3		277	DBRF41044000
			125	DBRF41074000
2	3		480	DBRF42044000
			250	DBRF42074000
			600	DBRF42144000
			208	DBRF42164000
3	4		277/480	DBRF43044000
			125/250	DBRF43074000
			120/208	DBRF43164000
3	4		3Ø 480	DBRF44044000
			3Ø 250	DBRF44074000
			3Ø 600	DBRF44144000
			3Ø 208	DBRF44164000
			3Ø 440	DBRF44214000
4	5		3ØY 125/250	DBRF45044000
			3ØY 347/600	DBRF45144000
			3ØY 120/208	DBRF45164000
			3ØY 250/440	DBRF45214000

MaxGard® Interconnection Systems

Shore-to-ship power



SOLUTION 400 Amp

Application:

Shore power to marine vessels — sightseeing boats

When docked, marine vessels need shore power when their engines aren't running. Dockside designs need to be as safe as possible during heavy use, rough treatment and adverse weather conditions. High amperage-rated systems are installed using parallel power delivery with cross-network protection.

Installation:

400-amp male inlets and power connectors with control contacts

Watertight devices are necessary for dockside installations. MaxGard® connections go further with O-rings on both pins and interiors for environmental separation and true waterproof performance. The male inlet center ground pin feature and keyed entry design align easily, make ground first and break last, while quarter-turn insertion delayed-action removal and

locking screw collars provide accidental pull-out protection. Upon connector insertion, two auxiliary control contacts complete a contactor circuit, which powers the line through a make-last-and-break-first configuration. Contactors are installed separately in an on-shore sheltered power distribution panel.

This can be wired for each contactor or for multiple connections; if one plug is removed, power is cut off.

MaxGard® Interconnection Systems

400 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS4CC.

Maximum lug wire 500 kcmil 37-strand or flexible, cable entrance .937" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

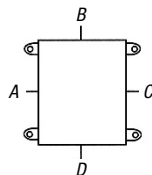
Boldface figures are for voltage assignment.

For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 4" NPT.

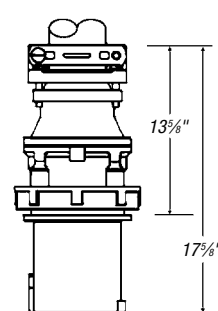
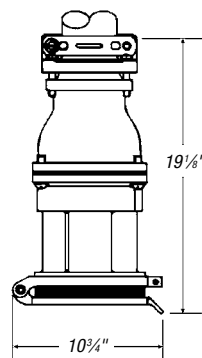
▼ **Control contacts for plug/receptacles:**
Use "K" where noted. Ex: **DS4104MR00K**

For Adapters, Junction Boxes and Accessories,
see **pages H-334–H-337**.



Female Connector

Male Plug††



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

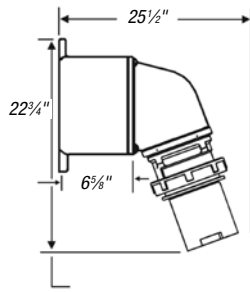
(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277 125	DF4104FP000 DF4107FP000	2 3/4"	DS4104MP000 DS4107MP000	2 3/4"
2	3		480 250 600 208	DF4204FP000 DF4207FP000 DF4214FP000 DF4216FP000		DS4204MP000 DS4207MP000 DS4214MP000 DS4216MP000	
3	4		277/480 125/250 120/208	DF4304FP000 DF4307FP000 DF4316FP000		DS4304MP000 DS4307MP000 DS4316MP000	
3	4		3Ø 480 3Ø 250 3Ø 600 3Ø 208 3Ø 440	DF4404FP000 DF4407FP000 DF4414FP000 DF4416FP000 DF4421FP000		DS4404MP000 DS4407MP000 DS4414MP000 DS4416MP000 DS4421MP000	
4	5		3ØY 277/480 3ØY 347/600 3ØY 120/208 3ØY 250/440	DF4504FP000 DF4514FP000 DF4516FP000 DF4521FP000		DS4504MP000 DS4514MP000 DS4516MP000 DS4521MP000	

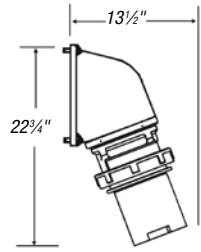
MaxGard® Interconnection Systems



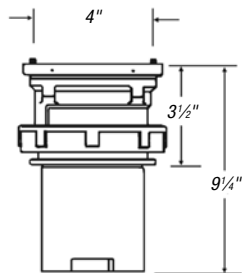
Male Inlet with Angle Adapter** and Junction Box



Male Inlet with Angle Adapter**



Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.
DS4104MRAB0	DS4104MRA00	DS4104MR000
DS4107MRAB0	DS4107MRA00	DS4107MR000
DS4204MRAB0	DS4204MRA00	DS4204MR000
DS4207MRAB0	DS4207MRA00	DS4207MR000
DS4214MRAB0	DS4214MRA00	DS4214MR000
DS4216MRAB0	DS4216MRA00	DS4216MR000
DS4304MRAB0	DS4304MRA00	DS4304MR000
DS4307MRAB0	DS4307MRA00	DS4307MR000
DS4316MRAB0	DS4316MRA00	DS4316MR000
DS4404MRAB0	DS4404MRA00	DS4404MR000
DS4407MRAB0	DS4407MRA00	DS4407MR000
DS4414MRAB0	DS4414MRA00	DS4414MR000
DS4416MRAB0	DS4416MRA00	DS4416MR000
DS4421MRAB0	DS4421MRA00	DS4421MR000
DS4504MRAB0	DS4504MRA00	DS4504MR000
DS4514MRAB0	DS4514MRA00	DS4514MR000
DS4516MRAB0	DS4516MRA00	DS4516MR000
DS4521MRAB0	DS4521MRA00	DS4521MR000

MaxGard® Interconnection Systems

Cable Bushings for MaxGard® Plugs and Connectors

To order non-standard bushing, add cable bushing number to the end of a catalog number. The bushing is furnished at no additional cost at time of order.

Ex: DF2504FP000/DF2032.

Shaded areas show Cable Bushings provided with a strain-relief neck; larger bushings are collar style.



Size No. 3 and 6
(Identification Letter Inside Hole)



Size No. 10, 20 and 40

HOLE DIAMETER FOR CABLE	SIZE 3 30 AMP	SIZE 6 60 AMP	SIZE 10 100 AMP	SIZE 20 200 AMP	SIZE 40 400 AMP
.625"	JG63				
.750"	JG64	JG104			
.875"	JG65 Std. 2P3W	JG105			
1.000"	JG66 Std. 2P3W	JG106	DF1020	DF2020	
1.188"	JG67 Std. 3P4W	JG107 Std. 2P3W	DF1022	DF2022	
1.313"		JG108 Std. 3P4W	DF1024	DF2024	
1.375"	JG69				
1.500"	JG610	JG1010 Std. 4P5W	DF1026	DF2026	
1.625"					
1.688"		JG1011	DF1027 Std. 2P3W	DF2027	
1.813"			DF1029 Std. 3P4W	DF2029	
1.875"		JG1013	DF1030	DF2032 Std. 2P3W	
2.000"			DF1032 Std. 4P5W		
2.125"				DF2034 Std. 3P4W	
2.250"				DF2036 Std. 4P5W	
2.500"				DF2040	
2.625"					DF4042
2.750"					DF4044
3.000"					DF4048 Std. 3P4W
3.250"					DF4054 Std. 4P5W

Standard Cable Bushings

Notes: When ordering, select bushing size slightly larger than your cable O.D. for best fit.

Material — Neoprene

MaxGard® Interconnection Systems

Adapters for Conduit and Fittings

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA Conduit Adapters

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100 AMP CAT. NO.	TAPPED HOLE SIZE NPT	200 AMP CAT. NO.	TAPPED HOLE SIZE NPT	400 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA62	¾"	JPA104	1¼"	DFA14	1¼"	DFA25	1½"	DFA46	2"
JPA63	1"	JPA105	1½"	DFA15	1½"	DFA26	2"	DFA47	2½"
JPA64	1¼"	JPA 106	2"	DFA16	2"	DFA27	2½"	DFA48	3"
JPA65	1½"	—	—	—	—	—	—	—	—

Note:

Material — cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated. Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector. Complete list price is the list price of the device plus list price of the adapter.

Ex.: Cat. No. DS3107MP000 with adapter tapped 1" would be Cat. No. DS3107MP000/JPA63.

Replacement Flap Covers and Screw Covers

- For connectors, receptacles and interlocks

CAT. NO.	DESCRIPTION	AMPERAGE
DFC3	Flap Cover Assembly (Weathertight)	30
DFC6		60
DFC10		100
DFC20		200
DFC40		400
DSC3	Screw Cap and STS — Lanyard Assembly (Watertight)	30
DSC6		60
DSC10		100
DSC20		200
DSC40		400










DFC6



DSC6

MaxGard® Interconnection Systems

Accessories for Receptacles

	DESCRIPTION	30 AMP CAT. NO.	60 AMP CAT. NO.	100 AMP CAT. NO.	200 AMP CAT. NO.	400 AMP CAT. NO.
	Cup Caps For watertight plugs/inlets. Cup caps are used where portable equipment is on a standby basis and plugs are not in use. Effectively protect insulation and contacts from excessive moisture, dirt, dust and corrosion. Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated with steel braid cable attached.	DS3CC	DS6CC	DS1CC	DS2CC	DS4CC
	Adapter Flush Frames — Single Gang Provide suitable means for mounting box covers of junction box receptacles flush in a wall.	JFA6	JFA10	JFA10	JFA20	CONSULT FACTORY
	Adapters for Conduit Box Receptacles Adapters to fit existing boxes and for special mounting requirements can also be furnished. Consult your Thomas & Betts representative. 20° Vertical Angle Adapter 30° Vertical Angle Adapter 45° Vertical Angle Adapter Straight Adapter	JAA6-AB6 — JAA6-45 JRA6-AB6	JAA10 — JAA10-45 JRA10	DAA10 — — DRA10	DAA20 — — DRA20	— DAA40 — DRA40
	Junction Box — Single Gang	JB6-1	JB10-B150	JB10-B200	DJB20	DJB40
	Angle Enclosure	JE6	JE10	JE10M	—	—
	MACK Adapter Plates Enables mounting of MaxGard® receptacles to competitive existing back boxes. This involves removing the existing non-hazardous location receptacle from back box, inserting adapter plate and installing MaxGard® receptacle. Adapter plates are available for competitors' boxes including Hubbel, Killark, Appleton and Crouse-Hinds.	DCCA3	DCCA6	DCCA10	DCCA20	—
	Russellstoll® Adapter Plates Adapt MaxGard® receptacles to existing J-Line™, Angle Type and Heavy-Service Ever-Lok® back boxes.	DRCA3	DRCA6	DRCA10	—	N/A

MaxGard® Interconnection Systems

Replacement Interiors for Receptacles, Connectors, Plugs and Male Inlets



		VOLTAGE POLARIZATION	CORRESPONDING MALE INTERIOR ASSEMBLY		CORRESPONDING FEMALE INTERIOR ASSEMBLY	
			PLUG/INLET	MALE INTERIOR	CONNECTOR/RECEPTACLE	FEMALE INTERIOR
30A	2P3W	125VAC	DS3107MP000	DFPU3107	DF3107FP000	DFRU3107
	2P3W	250VAC	DS3207MP000	DFPU3207	DF3207FP000	DFRU3207
	3P4W	125/250VAC	DS3307MP000	DFPU3307	DF3307FP000	DFRU3307
	3P4W	3-ph 480VAC	DS3404MP000	DFPU3404	DF3404FP000	DFRU3404
	4P5W	277/480VAC	DS3504MP000	DFPU3504	DF3504FP000	DFRU3504
60A	2P3W	250VAC	DS6207MP000	DFPU6207	DF6207FP000	DFRU6207
	3P4W	125/250VAC	DS6307MP000	DFPU6307	DF6307FP000	DFRU6307
	3P4W	3-ph 480VAC	DS6404MP000	DFPU6404	DF6404FP000	DFRU6404
	4P5W	277/480VAC	DS6504MP000	DFPU6504	DF6504FP000	DFRU6504
100A	2P3W	250VAC	DS1207MP000	DFPU1207	DF1207FP000	DFRU1207
	3P4W	125/250VAC	DS1307MP000	DFPU1307	DF1307FP000	DFRU1307
	3P4W	3-ph 480VAC	DS1404MP000	DFPU1404	DF1404FP000	DFRU1404
	4P5W	277/480VAC	DS1504MP000	DFPU1504	DF1504FP000	DFRU1504
200A	3P4W	277/480VAC	DS2304MP000	DFPU2304	DF2304FP000	DFRU2304
	3P4W	3-ph 480VAC	DS2404MP000	DFPU2404	DF2404FP000	DFRU2404
	4P5W	277/480VAC	DS2504MP000	DFPU2504	DF2504FP000	DFRU2504
400A	3P4W	277/480VAC	DS4304MP000	DFPU4304	DF4304FP000	DFRU4304
	3P4W	3-ph 480VAC	DS4404MP000	DFPU4404	DF4404FP000	DFRU4404
	4P5W	277/480VAC	DS4504MP000	DFPU4504	DF4504FP000	DFRU4504

Note: For other interiors not shown, use same polarization index as plug, connector, etc. Ex: DS6416MP000 plug uses DFPU6416 interior.

Accessories for Interlocked NEMA 12/3R Receptacles

DESCRIPTION	30 AMP CAT. NO.	60 AMP CAT. NO.	100 AMP CAT. NO.	200 AMP CAT. NO.	400 AMP CAT. NO.
Fused Disconnect Interlocked Receptacle with Safety Switch 30–100A					
1 NO — 1 NC Contact	F34757	F34757	F34757	N/A	N/A
2 NO — 2 NC Contact	F34758	F34756B	N/A	N/A	N/A
Copper Body Lugs — 6 lugs per kit	F34756A	F34756B	F34756C	N/A	N/A
Type R Fuse Clips — 3 per kit	F34755A	F34755B	F34755C	N/A	N/A
Neutral Block	F34754A	F34754B	F34754B	N/A	N/A

MaxGard® Interconnection Systems

Pin and Sleeve Plugs, Receptacles and Systems

1.0 Scope

- 1.1 This document covers multi-contact pin and sleeve, industrial grade, arc-quenching, circuit interrupting-rated electrical plugs, motor plugs, connectors, receptacles, mechanically interlocked receptacles and assorted accessories. Usable in dry, damp, wet, marine and/or hazardous locations for electrical power circuits. Devices are to be rated 30, 60, 100, 200 and/or 400 amperes at 600VAC, 50–400 Hz and 250VDC maximum. Devices are also rated for continuous use in temperatures from -40° C to +130° C. These devices must provide internal environmental seals for marine and extreme wet applications and can be electrically interlocked.
- 1.2 The devices described shall be Thomas & Betts/Russellstoll® MaxGard® catalog numbers as specified.

2.0 Product Classifications (Features)

- 2.1 **Gated Deadfront** — All receptacles and connectors must have a rotating disk on the face of the interior, which provides live contact isolation and environmental separation.
- 2.2 **Delayed Action Arc Containment** — All devices upon disconnect under load shall have provision so the arc is contained and extinguished within the insulation cavity, making it impossible to withdraw a live plug.
- 2.3 **Flap Cover or Screw Cover Option** — Flap cover option must provide weathertight capability by utilizing a spring actuated self-closing flap. Watertight capability shall be obtained by using a gasketed screw cap.
- 2.4 **Polarization** — All devices shall be factory polarized for amperage, voltage, frequency and phase; thus providing a single voltage rating, single interface system.
- 2.5 **Grounding** — The grounding of the device shall be accomplished through a separate center ground (earth) make-first and break-last pole on all devices for complete system grounding.

- 2.6 **Pole Capabilities** — All devices shall accommodate up to four power pins plus a separate center ground pin and they shall be integral with the connector bodies (five pins total).
- 2.7 **Interior Type** — Interiors must be male (pin type) or female (sleeve type). Pins and sleeves shall also be self-aligning and self-wiping/self-cleaning.
- 2.8 **Control Contacts** — All devices must have an option for two control contacts, which shall be make-last and break-first for use in electrical interlocks and/or control circuits. See table below.
- 2.9 **Conductor Terminals** — Pin and sleeve connections shall employ solderless pressure-type screw terminals and be sized to accept stranded or solid copper conductors in AWG sizes (max. O.D.s as noted). The screw terminals shall also have socket heads to ensure proper torquing of wires.
- 2.10 **Environmental Seals** — Each device must have an environmental seal or O-ring around all interiors and around each pin and sleeve to prevent water and contaminants from entering the wiring compartment. This provides waterproof capability, even when not mated.
- 2.11 **Hazardous Location** — All standard plugs 30, 60 and 100 amp shall be UL and CSA listed for hazardous location Class I Division 1, Groups C and D; Class II Division 1, Groups F and G. A hazardous location circuit breaker-protected interlock shall also be applicable to the same environments and possess all the same product features as outlined above. Enclosures shall meet NEMA 8 hazardous outdoor-duty classifications and shall meet shipboard use above deck in accordance with the Department of Transportation (USCG "Green Water").
- 2.12 **Lockout Devices** — Plug connection lockout is achieved by a padlock through plug sleeve housing hole provided for this purpose. On Hazardous Location/Explosion Proof Interlock Receptacles, lockout shall additionally be achieved by separate lockout accessory available from the factory. On standard Interlocks, lockout accessory/construction is available from the factory.

Rating for Pilot/Control Contacts

Contact Rating Code Designation A-600, Table 119.1 — UL 508 Heavy Pilot Duty Load (720 VA/600VAC) Maximum

THERMAL CONTINUOUS CURRENT AMPS	MAXIMUM CURRENT AMPERE									
	120V		240V		480V		600V		MAX. VOLT AMPERE	
	Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
10 (#12 AWG)	60	6	30	3	15	1.5	12	1.2	7200	720

MaxGard® Interconnection Systems

3.0 Materials Requirements

- 3.1 **Housings** — Plug, motor plug, receptacles, connectors and interlock housings, associated covers and caps, screw collars, and clamp holders shall be made of copper-free cast aluminum (max. .004% copper).
- 3.2 **Finish** — All external surfaces except those that provide means of grounding shall be epoxy powder coated to resist corrosion.
- 3.3 **Hardware** — All hardware, external and springs, shall be stainless steel. Cable clamps shall be stainless steel or epoxy powder coated, copper-free cast aluminum.
- 3.4 **Insulators** — All device body insulators shall be molded from glass-reinforced high strength thermoset polyester, minimum of UL94V0 flammability rated.
- 3.5 **Contacts** — Contacts base material shall be made of a conductive copper alloy, (brass CDA485) to prevent dezincification. Accessory material of the contacts shall be made of a compatible corrosion resistant material.
- 3.6 **Environmental Seals** — Environmental gaskets and O-rings shall be made of Neoprene material.

4.0 Design and Construction Requirements

- 4.1 **Circuit Interrupting Rating** — All devices 30, 60, 100 and 200 amperes shall be tested to be interrupted at 150% of rated current. Additionally, all devices shall be designed and tested to interrupt 100% of rated current.
- 4.2 **Wiring** — All devices shall be wired from the rear requiring no disassembly of the pins and/or sleeves from the insulated body.
- 5.0 **Applicable Documents (Compliances)**
- 5.1 **Underwriters Laboratories (UL)** — The devices specified herein shall be listed in applicable sections of UL Standards 1010, 231, 1682 and 1686, File Nos. E2630, E57324, E68085, E123752.
- 5.2 **Canadian Standard Association (CSA)** — The devices specified shall be listed in the applicable sections of CSA C22.2-182.1, File Number LR14096.
- 5.3 **International Electro-Technical Commission (IEC)** — The 30-, 60- and 100-ampere devices specified shall have been tested and comply with IEC 309-1.
- 5.4 **Federal Department of Transportation** — Refrigerated National Shipboard location devices shall meet and comply with Federal Register volume 47, number 68, subpart 111.79.
- 5.5 **Standards** — The devices specified shall comply with Military Standards MIL-STD-105 and 1344; ASTM Standards D570 and D2565; NEMA Standard PR4-1983; and OSHA regulations when installed in accordance with the National Electrical Code (NEC®).

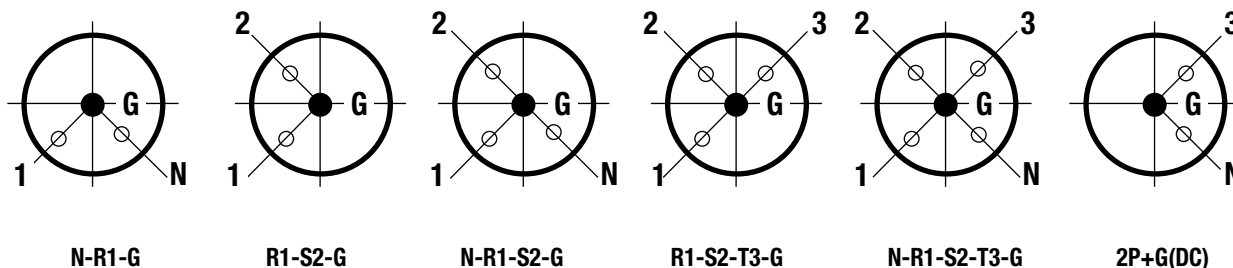
5.6 NEMA 250 Enclosures Standard

- NEMA 1** — General Purpose for indoor use; guards against contact with equipment.
- NEMA 3R** — Outdoor use primarily to protect against rain, sleet, wind-blown dust and damage from external ice formation.
- NEMA 4** — Indoor or outdoor use to protect against windblown dust and rain; splashing and hose-directed water.
- NEMA 4X** — Watertight, dust-tight corrosion-resistant for indoor or outdoor applications.
- NEMA 6** — Watertight, casual/temporary immersion.
- NEMA 7** — Class I (Hazardous) for indoor use in Class I areas, per NEC®.
- NEMA 8** — Class I (Hazardous) for indoor use in Class I, oil-immersed equipment.
- NEMA 9** — Class II (Hazardous) for indoor use in Class II areas, per NEC®.
- NEMA 12** — Industrial use, dust-tight for indoor use to protect against dust, falling dirt and dripping non-corrosive liquids.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

MaxGard® Interconnection Systems

Single Polarization/Multiple Service* Assigned Voltages and Wiring Systems



VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	INDEX
101	220V-50 Hz	201	380V-50 Hz	301	220/380V-50 Hz	401	380V-50 Hz	501	220/380V-50 Hz			01
103	127V-50 Hz	203	220V-50 Hz	303	220/127V-50 Hz	403	220V-50 Hz	503	220/127V-50 Hz			03
104	277V-60 Hz	204	480V-60 Hz	304	277/480V-60 Hz	404	3Ø 480V-60 Hz	504	3ØY 277/480V-60 Hz			04
105	250V-50 Hz	205	440V-50 Hz	305	250/440V-50 Hz	405	3Ø 440V-50 Hz	505	3Ø 250/440V-50 Hz			05
107	125V-60 Hz	207	250V-60 Hz	307	125/250V-60 Hz	407	3Ø 250V-60 Hz	507	3ØY 125/250V-60 Hz			07
108	220V-60 Hz	208	380V-60 Hz	308	220/380V-60 Hz	408	3Ø 380V-60 Hz	508	3Ø 220/380V-60 Hz			08
109	100V-60 Hz	209	220V-60 Hz	309	100/220V-60 Hz	409	3Ø 220V-60 Hz	509	3Ø 100/220V-60 Hz			09
111	115V-400 Hz	211	220V-400 Hz	311	220/115V-400 Hz	411	220V-400 Hz	511	220/115V-400 Hz			11
—	—	—	—	—	—	—	—	513	230V DC	613	250 VDC	13
114	347V-60 Hz	214	600V-60 Hz	314	347/600V-60 Hz	414	3Ø 600V-60 Hz	514	3ØY 347/600V-60 Hz			14
115	100V-50 Hz	215	220V-50 Hz	315	100/220V-50 Hz	415	3Ø 220V-50 Hz	515	3Ø 100/220V-50 Hz			15
116	120V-60 Hz	216	208V-60 Hz	316	120/208V-60 Hz	416	3Ø 208V-60 Hz	516	3ØY 120/208V-60 Hz			16
117	120V-400 Hz	217	208V-400 Hz	317	120/208V-400 Hz	417	3Ø 208V-400 Hz	517	3Ø 120/208V-400 Hz			17
—	—	—	—	—	—	208V	—	—	—	618	28 VDC	18
—	—	—	—	—	—	—	—	—	—	—	—	20
—	—	221	440V-60 Hz	321	250/440V-60 Hz	421	3Ø 440V-60 Hz	521	3ØY 250/440V-60 Hz			21
—	—	—	—	—	—	250V	—	Reserved	—	—	—	22
—	—	—	—	—	—	480V	—	Reserved	—	—	—	23
—	—	—	—	—	—	600V	—	Reserved	—	—	—	24

MaxGard® receptacles and plugs may be furnished in any of the above voltage and phasing systems.

To order any device in a voltage and phasing not shown in the preceding catalog pages, substitute the Voltage Assignment Number in the **above** chart for that portion of the listed catalog number appearing in **boldface** type.

Example: 200 Amp Weathertight Receptacle with Flap Cover, Angle Adapter and Junction Box for 3Ø 480 volt (3-pole and ground) is DF2404FRAB0.

To change to 3Ø 208 volt, the catalog number becomes DF2416FRAB0.

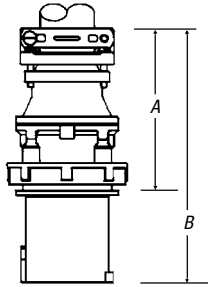
Note: All devices may be furnished with two control contacts. Add "K" to the end of the catalog number, in place of last position Ø.

*** Dual-Voltage or Multiple-Service Applications** (for any given polarization number) — Example: A factory installation may consist of all receptacles specified and wired at polarization "507." This is a 3ph.Y-125/250V-60 Hz supply. However, all circuit requirements "below" (507) can also be met; for instance a "207" plug will draw phasing for 250V-60 Hz operation of equipment as well, while another ".507" receptacle supplies power for a 3-phase motor installation. See chart **above**.

For non-interrupting polarizations at 45, 90, 150, 300, 600A ratings, consult Technical Services.

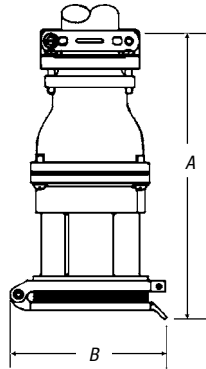
MaxGard® Interconnection Systems

Male Plug



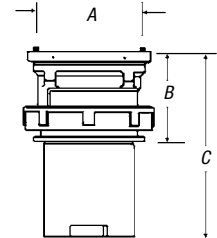
AMP	A	B
30	4¾"	7⅞"
60	5½"	9⅞"
100	6½"	10⅞"
200	9"	13¾"
400	12⅝"	17⅝"

Connector



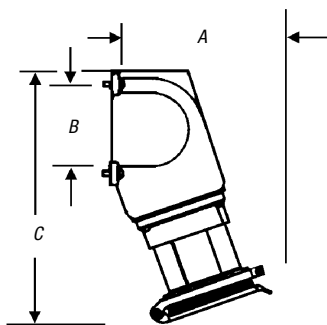
AMP	A	B
30	8¾"	5⅞"
60	10"	5⅞"
100	11⅞"	5⅞"
200	15"	9½"
400	19⅞"	10¾"

Male Inlet



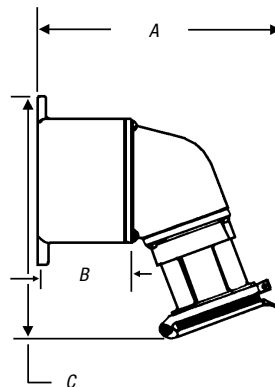
AMP	A	B	C
30	2⅞"	2½"	5½"
60	3⅞"	2½"	5½"
100	3⅞"	2½"	5½"
200	5¼"	3½"	9¼"
400	3⅞"	4⅞"	9¼"

Receptacle with Angle Enclosure



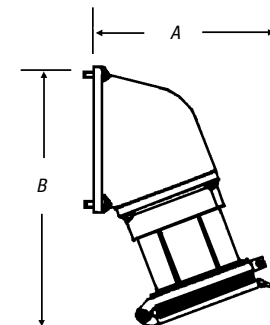
AMP	A	B	C
30	6⅞"	3⅞"	9⅞"
60	7⅞"	4"	11⅞"
100	7½"	4"	11⅞"
200	—	—	—
400	—	—	—

Receptacle with Angle Adapter and DJB Junction Box



AMP	A	B	C
30	9⅞"	3"	9⅞"
60	10½"	3"	9¼"
100	10¾"	3¾"	10"
200	15¾"	6⅞"	14⅞"
400	25¼"	12"	20¼"

Receptacle with Angle Adapter

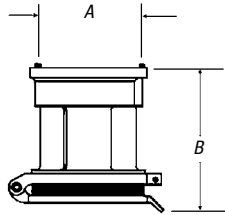


AMP	A	B
30	6⅞"	9⅞"
60	7½"	9¼"
100	7"	10"
200	9½"	14¼"
400	13¼"	20¼"

(Flap covers shown — screw covers available. On all, screw covers have nominal effect on outside dimensions.)

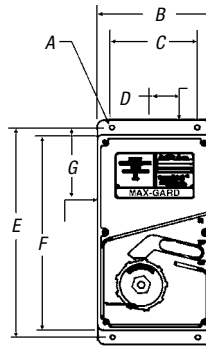
MaxGard® Interconnection Systems

Receptacle Only



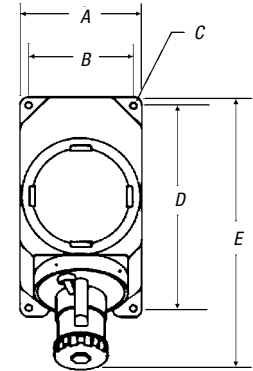
AMP	A	B
30	2 ⁷ / ₈ "	4 ¹ / ₂ "
60	3 ³ / ₈ "	5 ¹ / ₈ "
100	3 ³ / ₈ "	5 ¹ / ₈ "
200	5 ¹ / ₄ "	6 ¹ / ₈ "
400	7"	7 ¹ / ₈ "

Interlocked Receptacle with Circuit Breaker NEMA 4X



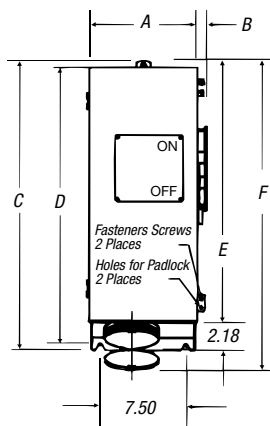
AMP	A	B	C	D	E	F	G
30	3 ³ / ₈ "	8 ³ / ₄ "	6 ¹ / ₂ "	1 ¹ / ₂ "	16 ¹ / ₄ "	15 ¹ / ₈ "	3 ¹ / ₈ "
60	3 ³ / ₈ "	8 ³ / ₄ "	6 ¹ / ₂ "	1 ¹ / ₂ "	16 ¹ / ₄ "	15 ¹ / ₈ "	3 ¹ / ₈ "
100	3 ³ / ₈ "	8 ³ / ₄ "	6 ¹ / ₂ "	1 ¹ / ₂ "	17 ³ / ₄ "	16 ¹ / ₈ "	3 ¹ / ₈ "
200	3 ³ / ₈ "	12 ¹ / ₄ "	9"	2 ¹ / ₂ "	26 ¹ / ₄ "	24 ³ / ₄ "	5"
400	3 ³ / ₈ "	15 ¹ / ₂ "	12"	3"	30 ¹ / ₂ "	29"	6"

Explosion-Proof Circuit-Breaker Interlocked Receptacle



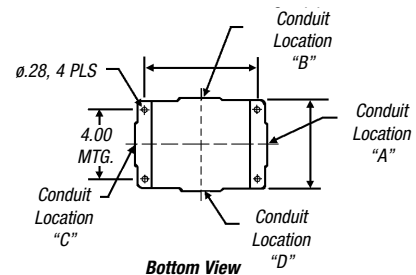
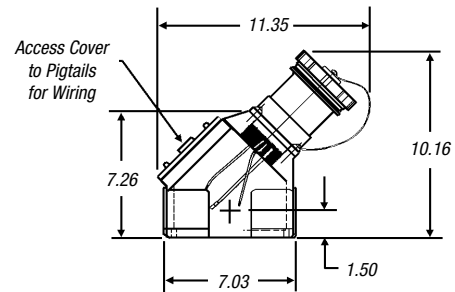
AMP	A	B	C	D	E
30	8 ³ / ₄ "	7 ¹ / ₂ "	1 ¹ / ₂ "	14 ³ / ₄ "	20"
60	8 ³ / ₄ "	7 ¹ / ₂ "	1 ¹ / ₂ "	14 ³ / ₄ "	20"
100	8 ³ / ₄ "	7 ¹ / ₂ "	1 ¹ / ₂ "	14 ³ / ₄ "	20"
200	N/A	N/A	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A

Fused Disconnect Interlocked Receptacle NEMA 3R/12



AMP	A	B	C	D	E	F
30	9 ¹ / ₂ "	3 ¹ / ₄ "	25 ³ / ₄ "	25"	22 ³ / ₄ "	30"
60	9 ¹ / ₂ "	3 ¹ / ₄ "	25 ³ / ₄ "	25"	22 ³ / ₄ "	30"
100	9 ¹ / ₂ "	3 ¹ / ₄ "	25 ³ / ₄ "	25"	22 ³ / ₄ "	30"
200	N/A	N/A	N/A	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A	N/A

Explosion-Proof Non-Interlocked Receptacle



MaxGard® Interconnection Systems

Circuit Breakers for NEMA 4X Interlocked Receptacles

High interrupt breakers may be furnished at additional cost.

INTERLOCK	STANDARD CIRCUIT BREAKERS		HIGH INTERRUPT CIRCUIT BREAKERS (OPTIONAL)	
	MAX. VOLTS (60 Hz)	AMPERES	MAX. VOLTS (60 Hz)	AMPERES
30, 60 and 100 Amp	240 AC	20,000 Asym., 18,000 Sym.	240 AC	75,000 Asym., 65,000 Sym.
	277 AC	15,000 Asym., 14,000 Sym.	277 AC	30,000 Asym., 25,000 Sym.
	480 AC	15,000 Asym., 14,000 Sym.	600 AC	20,000 Asym., 18,000 Sym.
	600 AC	15,000 Asym., 14,000 Sym.	600 AC	20,000 Asym., 18,000 Sym.
	250 DC	10,000 Amperes	250 DC	10,000 Amperes
200 Amp	240 AC	75,000 Asym., 65,000 Sym.	N/A	
	480 AC	30,000 Asym., 25,000 Sym.		
	600 AC	20,000 Asym., 18,000 Sym.		
	250 DC	10,000 Amperes		
400 Amp	240 AC	50,000 Asym., 42,000 Sym.	240 AC	75,000 Asym., 65,000 Sym.
	277 AC	35,000 Asym., 30,000 Sym.	480 AC	40,000 Asym., 35,000 Sym.
	480 AC	25,000 Asym., 22,000 Sym.	600 AC	30,000 Asym., 25,000 Sym.
	250 DC	10,000 Amperes	250 DC	20,000 Amperes

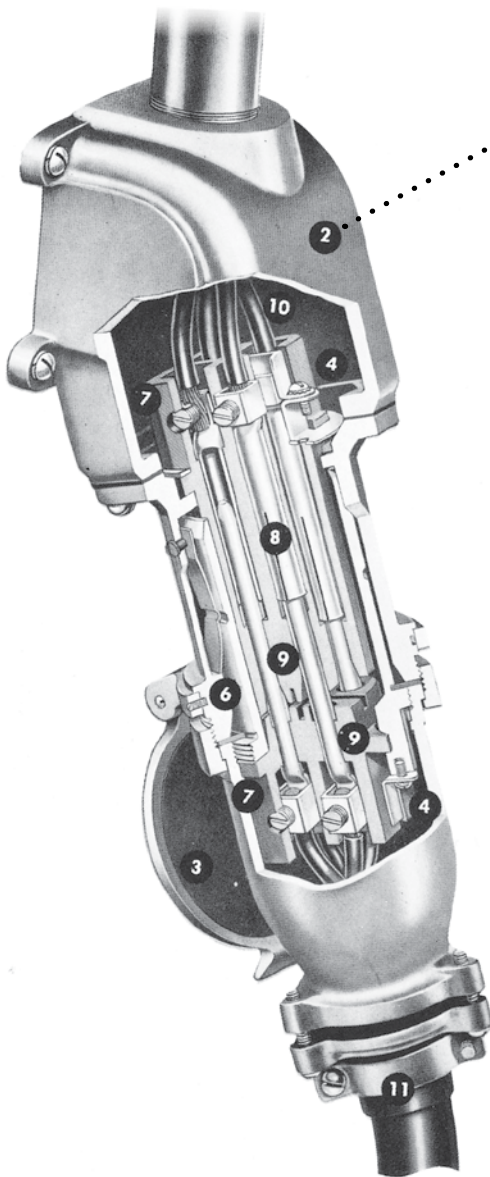
J-Line™ Interconnection Systems

J-Line™
4P4W Max.
30 through 200A

Robust service in metal for many industrial applications, the J-Line™ offers a value alternative to MaxGard® in 3P4W, 30–200 Amp applications with less severe needs. Unique among competitors, the J-Line™ uses a reversible contract carrier for maximum flexibility in many portable service applications.

Design Features

Russellstoll® J-Line™ Load-Breaking Plugs, Connectors and Receptacles



1. Circuit-interrupting rated safety
2. Cast aluminum, corrosion-resistant copper-free alloy housings and enclosures provide lightweight and maximum corrosion resistance, along with electrostatic epoxy powder coat finish
3. Quick conversion between weathertight flap cover and watertight screw cap assemblies. Basic receptacle housing accommodates both covers and is the basic component of all complete units. All watertight configured plugs may be used interchangeably
4. Two grounding arrangements (Style No. 1 and Style No. 2)
5. Four complete J-Lines: 30, 60, 100 and 200 amps; 600VAC/250VDC (plus 150A/270A specials)
6. Flap cover can be rotated and locked in any convenient position
7. Pressure-type solderless wiring terminals
8. Silver-plated contacts
9. One-piece interior assemblies interchangeable from regular to reverse service in the field with a screwdriver
10. Wiring space ample for maximum requirements
11. Cable clamps adjustable for maximum range of cable size. Oil-resistant Neoprene strain-relief bushing compresses around cable tightly, prevents entry of dust and moisture
12. Polarization provides positive non-interchangeability for different electrical systems
13. Reversed contacts flexibility: male–female reversed installation within any housing

J-Line™ Interconnection Systems

Polarization

Devices offer standard and custom polarization for total operator safety so that plugs will fit only into receptacles or connectors having the same electrical/specification characteristics.

Visual means of aligning units for a specific, positive polarization are provided:

- Button inside of receptacle housing mates to groove on plug shroud
- Smaller primary guides also assist positive part-part mating
- External I.D. of 1 of 8 polarization indexes visible
- Different polarizations assigned to voltages can't mate — a safer system!



Conversion to Weathertight and Watertight Types



*Weathertight J-Line™
with flap cover assembly*



*Watertight J-Line™
with screw cap*

Substitution of either the flap cover assembly or the screw cap assembly on the housing of the basic receptacle permits quick and easy conversion between the weathertight and watertight types. Only a small screwdriver is needed to change in the field.

The basic receptacle housing is constructed with a threaded end to accommodate a screw cap or the collar nut of a watertight plug. A special groove above the threads accommodates the flap cover assembly. The flap cover assembly may be rotated around this grooved shell and the set-screw locked in any convenient position.

The watertight plug, with its collar screwed firmly to the basic receptacle shell, forms a completely watertight connection on either type of receptacle assembly.

These conversion features also permit the use of flap cover or screw cap on connector housings.

J-Line™ Interconnection Systems

30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

For all Weathertight and Watertight types.

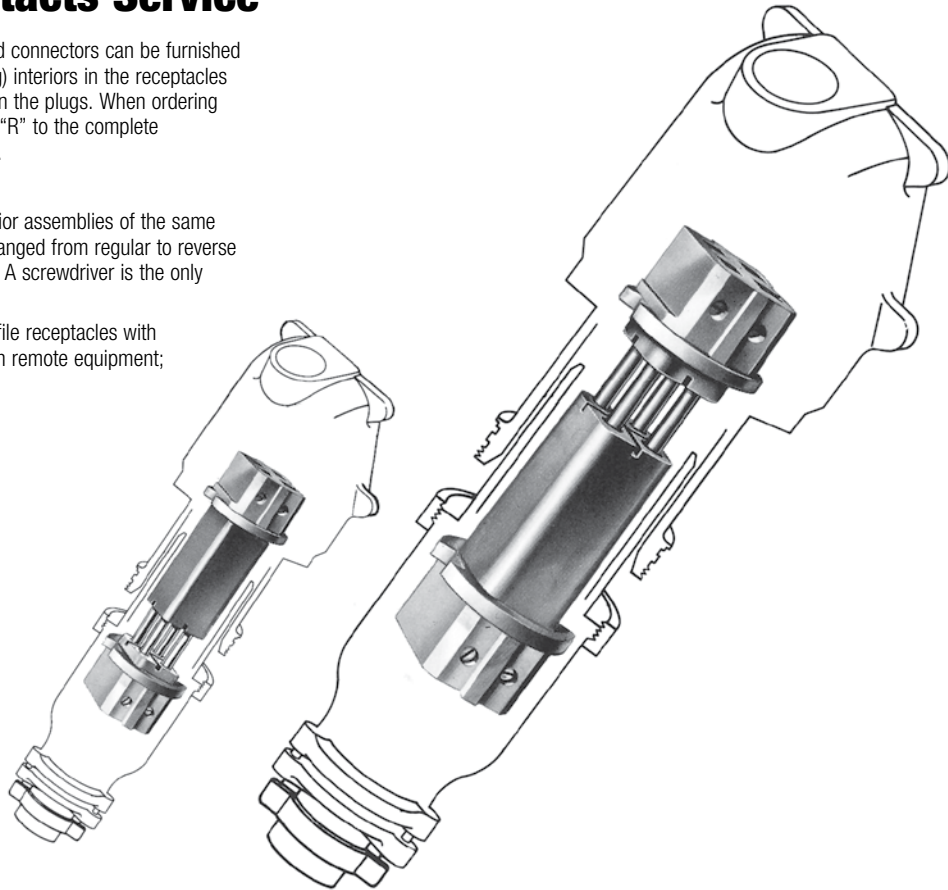
Reversed Contacts Service

All J-Line™ plugs, receptacles and connectors can be furnished for Reverse Service — male (plug) interiors in the receptacles and female (receptacle) interiors in the plugs. When ordering reverse service, add a final suffix "R" to the complete catalog number. Price on request.

Example: JRFA334HR

J-Line™ receptacle and plug interior assemblies of the same amperage may be quickly interchanged from regular to reverse service (or vice versa) in the field. A screwdriver is the only tool required.

Example: Panel-mounted low-profile receptacles with male interiors act as male inlets in remote equipment; receive power from female plugs. (Cup cap also recommended.)



Regular Service

Interior assemblies placed in normal, standard positions — female interior assembly is positioned in the receptacle housing and the male interior assembly is positioned in the plug housing.

Reversed Service

Note the complete interior assemblies have now been interchanged so that the male (plug) interior assembly is positioned in the receptacle housing and the female (receptacle) interior assembly is positioned in the plug housing.

J-Line™ Interconnection Systems

30–200/270 Amp (30–200A Load-Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

Grounding Data

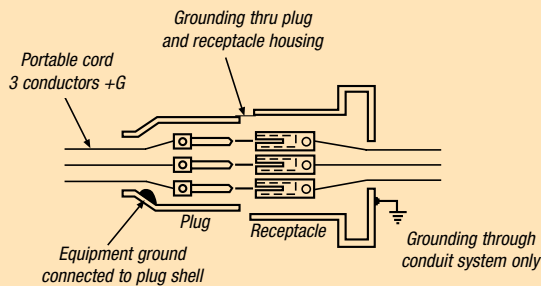
Effective grounding of portable electrical equipment is necessary to protect operators from electric shock. The National Electrical Code® requires that in most cases, exposed non-current-carrying metal parts of portable equipment shall be grounded if operated at more than 150 volts to ground. Grounding must be used in other than residential occupancies when used in damp or wet locations, or by persons standing on the ground or on metal floors or working inside of metal tanks or boilers, except where supplied through an insulating transformer with ungrounded secondary of not over 50 volts.

Plugs and receptacles provide for grounding of portable equipment in either of two ways:

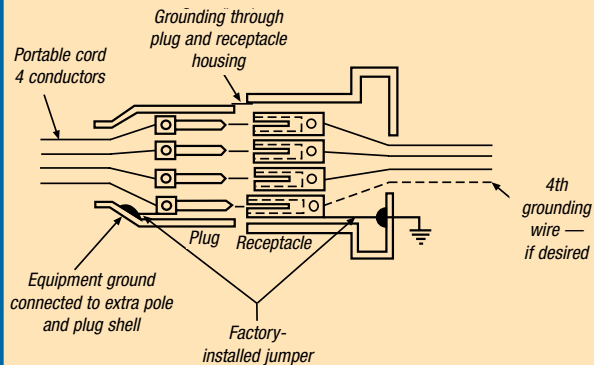
Corrosive Locations

The National Electrical Code® requires that under conditions favorable to corrosion, the grounding conductor for enclosures and equipment be of copper or other corrosion-resistant material. In alternating current systems, this necessitates running another conductor back to the common grounding electrode. This may be run through the conduit containing the circuit conductors. At the receptacle, this grounding conductor should be connected to the extra (grounding) pole by the pressure connector provided for that purpose. Where such an extra grounding conductor is required, Style 2 receptacles should be used.

STYLE 1 — Typical 3P3W Plug and Receptacle



STYLE 2 — Typical 3P4W Plug and Receptacle



Style 1

4P4W (or 3P3W) through Metal Housings of Plug and Receptacle

In this system shown **above**, the equipment grounding conductor in the flexible cable is electrically connected directly to the plug or cable connector housing by a suitable terminal. The receptacle is grounded by being part of a grounded conduit system.

When inserted, the plug housing makes contact with the grounded receptacle or connector housing by means of the receptacle ground spring before the current-carrying contacts engage. On withdrawal, it remains in contact until after the current-carrying contacts disengage.

Style 2

3P4W (or 2P3W) through a Separate Grounding Pole in Plug and Receptacle

In this system shown **above**, the equipment grounding conductor in the flexible cable is electrically connected to the equipment grounding pole in the plug or cable connector interior. The grounding pole of the receptacle interior is electrically connected by a spring-strap jumper to the receptacle housing, which itself is grounded by being part of the ground spring of the receptacle or connector housing as described in Style 1.

The grounding contact in a type 2 receptacle is longer than the current-carrying contacts so that the ground connection makes first and breaks last.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

J-Line™ Interconnection Systems

30–270 Amp (30, 60, 100 and 200 Amp Load-Breaking, 150 and 270 Amp Special Service), Maximum 600VAC/250VDC Receptacles, Plugs, Connectors and Inlets

For any J-Line™ catalog numbers not shown here, check **page H-350** for “Series” information. For special polarizations (suffixes), contact Technical Services.

Plugs



(All plugs come with watertight screw collar)

Max. 600VAC/250VDC

CURRENT RATING	WEATHERTIGHT/WATERTIGHT	CONFIGURATION	
30 Amp	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS323H JPS333F JPS334H JPS344F
		3P3W*	
		3P4W	
		4P4W*	
60 Amp	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS623H JPS633F JPS634H JPS644F
		3P3W*	
		3P4W	
		4P4W*	
100 Amp (150 Amp)**	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS1023H JPS1033F JPS1034H JPS1044F
		3P3W*	
		3P4W	
		4P4W*	
200 Amp (270 Amp)**	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS2023H JPS2033F JPS2034H JPS2044F
		3P3W*	
		3P4W	
		4P4W*	
200 Amp (270 Amp)**	Watertight (Screw Cover)	2P3W	JPS2023H JPS2033F JPS2034H JPS2044F
		3P3W*	
		3P4W	
		4P4W*	

* Housing Ground Only (Style 1 Grounding), see **page H-347**.

+ Shown with 20° angle adapter. Can be furnished with 45° angle at same price. When ordering, add suffix -45 to catalog number.

** Special rated devices (not shown). Consult Customer Service for details.

Note: To order Reverse Service, add a final suffix “R” to catalog number. Example: JRFA334HR — a receptacle housing with male interior.

□ Polarization index (std. shown); consult Technical Services for more information.

◆ Flap Cover “F” noted. Screw Cover “S” also available.

▼ For Reversed Contacts, use “R” suffix to any catalog number.

Std. Cable Bushing

CURRENT RATING	BUSHING I.D.	MAX. AWG SIZE
30	7/8"	#6 7-strand or #8 flexible
60	1 1/16"	#4 7-strand or flexible
100	1 1/2"	#10 19-strand or #1 flexible
200	2"	4/0 19-strand or flexible

(See **page H-354** for other bushings.)

J-Line™ Interconnection Systems

Connectors



Receptacles



	PANEL MOUNT	BASIC RECEPTACLE	STANDARD SERIES*
◆ □ ▼ JCF323H _ JCF333F JCF334H JCF344F	◆ □ ▼ JRF323H _ JRF333F JRF334H JRF344F	◆ □ ▼ JRF323H _ JRF333F JRF334H JRF344F	◆ □ ▼ JRFA323H _ JRFA333F JRFA334H JRFA344F
JCS323H JCS333F JCS334H JCS344F	JRSX323H JRSX333F JRSX334H JRSX344F	JRS323H JRS333F JRS334H JRS344F	JRSA323H JRSA333F JRSA334H JRSA344F
JCF623H JCF633F JCF634H JCF644F	JRF623H JRF633F JRF634H JRF644F	JRF623H JRF633F JRF634H JRF644F	JRFA623H JRFA633F JRFA634H JRFA644F
JCS623H JCS633F JCS634H JCS644F	JRSX623H JRSX633F JRSX634H JRSX644F	JRS623H JRS633F JRS634H JRS644F	JRSA623H JRSA633F JRSA634H JRSA644F
JCF1023H JCF1033F JCF1034H JCF1044F	JRF1023H JRF1033F JRF1034H JRF1044F	JRF1023H JRF1033F JRF1034H JRF1044F	JRFA1023H JRFA1033F JRFA1034H JRFA1044F
JCS1023H JCS1033F JCS1034H JCS1044F	JRSX1023H JRSX1033F JRSX1034H JRSX1044F	JRS1023H JRS1033F JRS1034H JRS1044F	JRSA1023H JRSA1033F JRSA1034H JRSA1044F
JCF2023H JCF2033F JCF2034H JCF2044F	JRF2023H JRF2033F JRF2034H JRF2044F	JRF2023H JRF2033F JRF2034H JRF2044F	JRFA2023H JRFA2033F JRFA2034H JRFA2044F
JCS2023H JCS2033F JCS2034H JCS2044F	JRSX2023H JRSX2033F JRSX2034H JRSX2044F	JRS2023H JRS2033F JRS2034H JRS2044F	JRSA2023H JRSA2033F JRSA2034H JRSA2044F

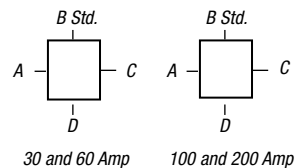
Conduit Size (Using JPA_ Series Conduit Adapters)

CURRENT RATING	STD. SIZE	MAX. SIZE
30	1"	1¼"
60	1½"	1½"
100	2"	2"
200	3"	3"

* Smaller NPT openings available on request.

Cable Conduit Adapters, see **page H-355**.

Conduit Entry Location: Standard Series





















J-Line™ Interconnection Systems

30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

Receptacle Mounting Options — J-Line™ Construction

Progressive Assembly

MOUNTING STYLE	TO ORDER USE:	CURRENT RATING			
		30 AMP	60 AMP	100/150 AMP	200/270 AMP
Standard Series JRFA/JRSA □ 	 Receptacle +  Vertical or Square Mount Box +  Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA3 (20°) or JAA3-45 (45°)	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JAA6-AB6 (20°) or JAA6-45 (45°)	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JAA10 (20°) or JAA10-45 (45°)	Basic Receptacle* + JB20 3" Std. Conduit Size + JAA20 (20°) or JAA20-45 (45°)
Series JRFR/JRSR □ Straight 	 Receptacle +  Vertical Mount Box +  Straight Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JRA3	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JRA6-AB6	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JRA10	Basic Receptacle* + JB20 2½" Std. Conduit Size + JRA20
Series JRFB/JRSB □ 	 Receptacle +  30° Angle Adapter	Basic Receptacle* + JAAB3	Basic Receptacle* + JAAB6	Basic Receptacle* + JAAB10	Basic Receptacle* + JAAB20
Series JRFE/JRSE □ 	 Receptacle +  Angle Enclosure	Basic Receptacle* + JE3 1" Std. Conduit Size	Basic Receptacle* + JE6 1½" Std. Conduit Size	Basic Receptacle* + JE10 2" Std. Conduit Size	N/A
Series JRFH/JRSH □ Horizontal 	 Receptacle +  Horizontal Mount Box +  Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA10 (20°)	N/A	N/A	N/A

* Select appropriate receptacle by rating, configuration and voltage on **page H-349**.

□ **Note:** JRXX 3rd letter denotes Flap (F) or Screw (S) Cover.

EX: JRSA — Screw Cover

JRFA — Flap Cover

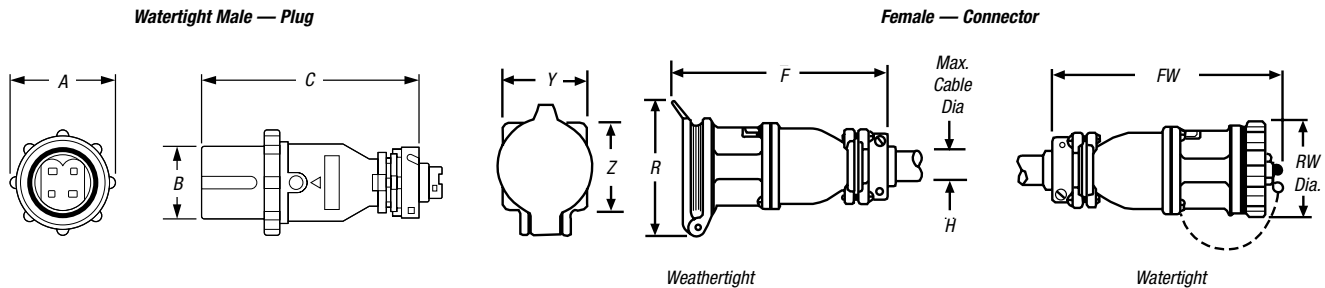
JRF — Flap Cover, Basic Receptacle

JRS — Screw Cover, Basic Receptacle

J-Line™ Interconnection Systems

30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

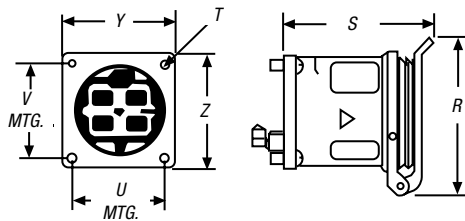
Plugs and Connectors



Dimensions for 2-, 3- or 4-Wire Weathertight and Watertight Units

AMP	A	B	C	WEATHERTIGHT F	WATERTIGHT FW	WEATHERTIGHT R	WATERTIGHT RW	Y	Z	H
30	3"	2 1/8"	7"	8 1/8"	8 3/8"	4 1/4"	3"	2 3/4"	2 3/4"	1
60	3 3/4"	2 9/16"	8 7/8"	10 3/4"	10 9/16"	5"	3 3/4"	3 1/2"	3 1/2"	3 3/8"
100/150	4 1/8"	2 13/16"	10 1/4"	10 1/2"	10 1/8"	5 1/4"	4 1/8"	4"	4"	1 1/8"
200/270	5 3/4"	3 1/16"	14 1/8"	14 7/8"	15 1/8"	7 1/8"	5 3/4"	5 1/8"	5 1/8"	2 1/2"

Basic Receptacles

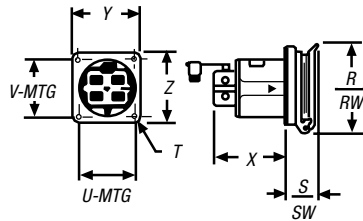


Dimensions for 2-, 3- or 4-Wire Units

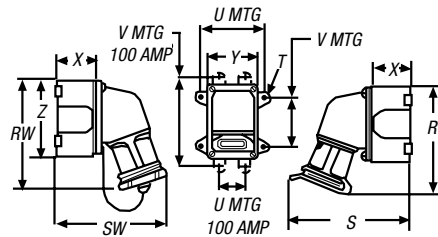
AMP	Z	Y	X	WEATHERTIGHT S	WATERTIGHT SW	WEATHERTIGHT R	WATERTIGHT RW	V	U	T
30	2 3/4"	2 3/4"	1	3 3/8"	3 3/4"	4 1/4"	3"	2 1/4"	2 1/4"	1/4"
60	3 1/2"	3 1/2"	1 1/4"	4 5/8"	4 3/4"	5"	3 3/4"	2 5/8"	2 5/8"	5/32"
100/150	4"	4"	1 1/4"	5"	5 1/4"	5 1/4"	4 1/8"	3 3/8"	3 3/8"	9/32"
200/270	5 5/8"	5 5/8"	1 3/4"	6 1/8"	6 1/8"	7 1/8"	5 3/4"	4 7/8"	4 7/8"	11/32"

J-Line™ Interconnection Systems

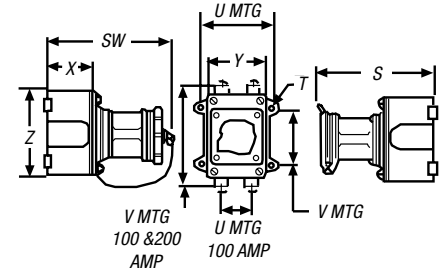
Panel Mount Series



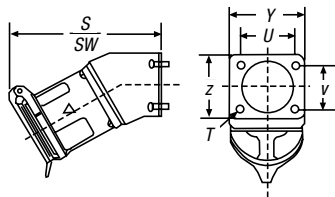
Standard Series JRFA/JRSA



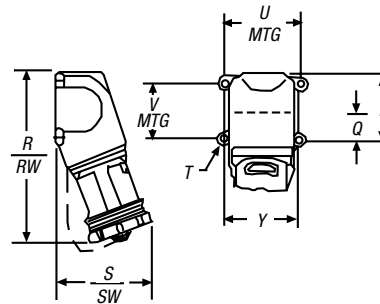
Series JRFR/JRSR



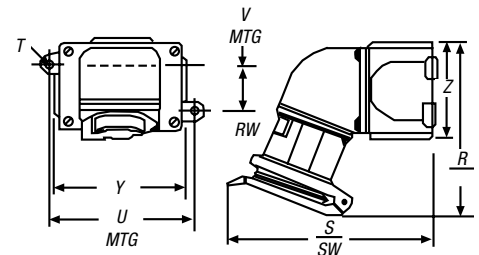
Series JRFB/JRSB



Series JRFE/JRSE



Series JRFH/HRSH



AMP	SERIES	Z	Y	X	WEATHERTIGHT				Q	P	V	U	T	PANEL OPENING
					S	SW	R*	RW†						
30	Panel Mount	3 1/2"	3 1/2"	2 9/16"	1 3/4"	2"	4 1/4"	3"	—	—	2 1/8"	2 7/8"	1/4"	2 3/4"
	Standard (20°)	4 1/2"	3"	2 1/8"	7"	6 1/2"	6 3/4"	6 3/4"	—	—	2 1 1/16"	3 1 1/16"	1/4"	—
	JRFR/JRSR	4 1/2"	3"	2 1/8"	6 1/2"	6 1/2"	—	—	—	—	2 1 1/16"	3 1 1/16"	1/4"	—
	JRFB/JRSB	3 1/8"	3 3/8"	—	5 3/4"	5 3/4"	—	—	—	—	2 1/4"	2 1/4"	1/4"	2 1/4"
	JRFE/JRSE	—	3 1/2"	—	5 1/4"	4 5/8"	7 7/8"	7 7/8"	1 1/4"	2 3/8"	—	4	1/4"	—
60	JRFH/HRSH	3 3/16"	4 1/2"	2 1/8"	7"	6 1/2"	6 3/8"	6 5/8"	—	—	2 1 1/16"	3 1 1/16"	1/4"	—
	Panel Mount	4"	4"	3 3/8"	1 3/4"	2"	5"	3 3/4"	—	—	3 3/8"	3 3/8"	9/32"	3 1/4"
	Standard (20°)	5 5/8"	4"	3"	9 1/4"	8 5/8"	8 7/8"	9"	—	—	3 3 1/16"	4 1 3/16"	1 1/32"	—
	JRFR/JRSR	5 5/8"	4"	3"	8 3/8"	8 1/2"	—	—	—	—	3 3 1/16"	4 1 5/16"	1 1/32"	—
	JRFB/JRSB	3 3/16"	3 3/8"	—	7 3/8"	7 3/8"	—	—	—	—	2 3/16"	2 5/8"	9/32"	2 1/2"
100/150	JRFE/JRSE	—	4 1/4"	—	6 3/8"	5 3/4"	9 3/4"	9 1/2"	1 1/16"	3 1 1/16"	3 3/8"	4 1/2"	9/32"	—
	Panel Mount	4 1/4"	4 1/4"	4 1/16"	1 3/4"	2"	5 1/4"	4 1/8"	—	—	3 5/8"	3 5/8"	9/32"	3 1/2"
	Standard (20°)	5 1/2"	5 1/2"	3 1/2"	10 1/2"	9 7/8"	9 7/8"	9 3/4"	—	—	6 3/4"	4 1/4"	1 1/32"	—
	JRFR/JRSR	5 1/2"	5 1/2"	3 1/2"	11 1/4"	11 1/8"	—	—	—	—	6 3/4"	4 1/4"	1 1/32"	—
	JRFB/JRSB	3 3/16"	3 3/8"	—	8 1/4"	8 1/4"	—	—	—	—	2 3/16"	2 5/8"	9/32"	—
200/270	JRFE/JRSE	—	4 1/4"	—	6 3/8"	5 3/4"	9 3/4"	9 1/2"	1 1/16"	3 1 1/16"	3 3/8"	4 1/2"	9/32"	—
	Panel Mount	6"	6"	5 5/8"	2"	2 1/2"	7 7/8"	5 3/4"	—	—	5 1/4"	5 1/4"	1 1/32"	5 5/8"
	Standard (20°)	8 5/16"	8 5/16"	6 5/16"	15 5/8"	15 5/8"	12 1 1/16"	12 5/16"	—	—	9 5/8"	7 7/8"	3/8"	—
	JRFR/JRSR	8 5/16"	8 5/16"	6 5/16"	15"	15 1/2"	—	—	—	—	9 5/8"	7 7/8"	3/8"	—
	JRFB/JRSB	4"	4"	—	12 1/4"	12 1/4"	—	—	—	—	2 3/4"	2 3/4"	1 1/32"	—

Note: U = horizontal mounting hole centers; V = vertical mounting hole centers.

* = Flap Cap.

† = Screen Cap.

J-Line™ Interconnection Systems

Replacement Interiors for Receptacles, Connectors, Plugs and Male Inlets



POLES/WIRES	FEMALE INTERIORS: RECEPTACLES AND CONNECTORS				MALE INTERIORS: PLUG AND MALE INLETS			
	30 AMP	60 AMP	100/150 AMP	200/270 AMP	30 AMP	60 AMP	100/150 AMP	200/270 AMP
2P2W+	JRU322	JRU622	JRU1022	JRU2022	JPU322	JPU622	JPU1022	JPU2022
2P3W	JRU323	JRU623	JRU1023	JRU2023	JPU323	JPU623	JPU1023	JPU2023
3P3W*	JRU333	JRU633	JRU1033	JRU2033	JPU333	JPU633	JPU1033	JPU2033
3P4W	JRU334	JRU634	JRU1034	JRU2034	JPU334	JPU634	JPU1034	JPU2034
4P4W*	JRU344	JRU644	JRU1044	JRU2044	JPU344	JPU644	JPU1044	JPU2044

* Includes equipment grounding lug for attachment to enclosure.

+ For replacement only — includes equipment grounding lug.

Material — Molded composition with silvered copper contacts.

Cup Caps for Watertight (Series JPS) Plugs — Standard or Reverse Service

CAT. NO.	AMPERES
F30717A	30
F30718A	60
F30814A	100
F30815A	200

Cup Caps 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.

Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated with steel braid cable attached.



J-Line™ Interconnection Systems

Cable Bushings for J-Line™ Plugs and Connectors

Boxed catalog numbers are standard bushing sizes. To order non-standard bushing, specify as follows: example JPS634H/JG65.



Standard Cable Bushings —
Size No. 3, 6, 10 and 20



Oversize Cable Bushings —
Size No. 3, 6, 10 and 20

HOLE DIAMETER FOR CABLE	SIZE 3 30 AMP	SIZE 6 60 AMP	SIZE 10 100/150 AMP	SIZE 20 200/270 AMP
.375"	JG31			
.500"	JG32			
.563"	JG325			
.594"	JG32B			
.625"	JG33	JG63		
.750"	JG34	JG64	JG104	
.781"	JG341			
.875"	JG35	JG65	JG105	
.938"	JG355			
1.000"	JG36*	JG66	JG106	JG206
1.125"	JG361*			
1.188"		JG67	JG107	JG207
1.313"			JG108	JG208
1.375"		JG69*		
1.500"		JG610*	JG1010	JG2010
1.688"			JG1011	JG2011
1.813"				JG2012
1.875"			JG1013*	
2.000"				JG2014
2.125"				JG2015
2.500"				JG2016*

Notes:

Boxed numbers denote standard bushing size supplied.

When ordering, select bushing size slightly larger than your cable O.D. for best fit.

Material — Neoprene.

Identification letter inside hole.

J-Line™ Interconnection Systems

Adapters for Conduit and Fittings for use on J-Line™ Plugs and Connectors

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA62 Conduit Adapter
(replaces cable gland assembly)



JPA106 Conduit Adapter

Plug or Connector Sizes

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100/150 AMP CAT. NO.	TAPPED HOLE SIZE NPT	200/270 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA31	1/2"	JPA62	3/4"	JPA104	1 1/4"	JPA205	1 1/2"
JPA32	3/4"	JPA63	1"	JPA105	1 1/2"	JPA206	2"
JPA33	1"	JPA64	1 1/4"	JPA106	2"	JPA207	2 1/2"

* JPA65 @ 1 1/2" also available.

Notes:

Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated.

Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector.




Complete list price is the list price of the device plus list price of the adapter.

Example: Cat. No. JPS634H with adapter tapped
1" would be Cat. No. JPS634H/JPA63.

J-Line™ Interconnection Systems

Covers



CAT. NO.		DESCRIPTION	AMPERAGE
For Connectors and Receptacles			
	JFC3	Flap Cover Assembly (Weathertight)	30
	JFC6		60
	JFC10		100/150
	JFC20		200/270
	JSC3	Screw Cap and Braid Cable Assembly (Watertight)	30
	JSC6		60
	JSC10		100/150
	JSC20		200/270
For Plugs			
	JSN3	Plug Collar	30
	JSN6		60
	JSN10		100/150
	JSN20		200/270

DuraGard® Waterproof Connections

Russellstoll® Line Selections for Outdoor (and Indoor) Applications

DuraGard® to 3P4W 20 through 60A

The toughest design and construction in thermoplastic safety, durability and performance in UL 94-V0 flame-rated DuraV® material. With DurOring™ sealed pins, sleeves and interiors are watertight even unmated. A 30A and 50A Circuit Breaker Interlock line in DuraV® are the best choices for standard voltage polarization options through 600VAC (Interlock to 480VAC).

Interlocked Outlets 20 through 60A

USCG Accepted 20–50A convenience Interlocked Receptacles accept DuraGard® plugs. Built from aluminum or brass for rough-service installations, in Switched or Circuit Breaker formats, their extremely heavy-duty designs provide maximum durability.

IEC (IP67) to 4P5W 20 to 100A

Thermoplastic international standard IEC 309-2 or CEE-17 connector usage is growing especially in OEM, export and standard performance applications. The IP67 style is watertight when mated and directly interchangeable with other manufacturers. International designations shadow U.S. amperage ratings: 20/(16), 30/(32), 60/(63) and 100/(125) Amps. IP67 devices have screw collars or flap/screw covers, with catalog number "W" suffixes.



Typical Application Groups

Marine

- Lighting Connectors
- Shore-to-Ship Power
- Low-Power Welding
- Power Distribution Panels
- Shipboard Power Outlets
- Barge Power Connection

Construction and Agricultural

- Generator Set Panels
- Portable Tools and Equipment
- Irrigation Systems Panels
- Portable Lighting and Equipment

Food Processing, Brewery/ Beverage, Pulp and Paper, Pharmaceuticals, Portable Building Power

- Welding Outlets
- Motor Power Connections
- Lighting Systems
- Machinery Interconnections
- Process Control Power Systems

OEMs

- Export Machinery
- Critical Power Connections and Welding Systems
- Transportable Equipment

Usage

- Any application where electrical connections need protection from water and/or dust entrance to the contacts or the wiring compartment
- Cable-to-connector sealing and device locking designs are critical

DuraGard® Waterproof Connections

Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors, Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

The Next Generation: DuraGard® Waterproof Connectors

Severe environments and high-pressure washdown duty applications require durable, waterproof and safe connections. Russellstoll® takes design reliability to new heights with Safety Grade™ standards for truly waterproof connectors. Many watertight specifications cover mated connections only. DuraGard® connectors are designed to be watertight mated or unmated, thus offering the ultimate waterproof connection. DuraGard® connectors are also UL94-V0 flame rated for safety and utilize a durable, efficient pin and sleeve contact design that is voltage polarized to meet NEC® 210-7 and OSHA standards. DuraGard®... designed for maximum safety, durability and performance.



DuraGard® Features Make the Performance Difference.

Not just “watertight”; Waterproof for Washdown Duty: DurORing™ Sealing

- Specifically designed for wet environments with our unique DurORing™ sealing system. Unit is watertight mated or unmated
- Eliminates need for costly “weather boots” or “adapters”
- Compact size
- “Lockout Ready” plugs have padlock access hole in front (30A/50A)

Durable, Tough and Flame Safety Rated Housings

- DuraV® housing material specially selected for hot or cold washdown duty
- Flame safe UL94-V0 rated housings
- Superior performance in corrosive environments
- High-visibility yellow housings

Safe and Reliable Power Connections: Pin and Sleeve, Voltage Polarized

- Long life: round, self-cleaning, constant pressure pin and sleeve contacts of solid CDA 360 brass for long, reliable electrical life
- More power, operates cooler: large circular electrical contact area enables more current flow with lower temperature rise
- Ground pin keyed for voltage polarization (O-ring seal)

Easy to Wire

- No twist-off “Locking Plugs”: integral threaded screw collars and compression-type bushings make wiring a snap
- Fast assembly and wiring: “Drop-In” rear-loaded interiors use no assembly screws versus 3–5 or more with other connectors, 30A/50A/60A connectors use unique E-Z Tite™ external gland lock screw



DuraGard® Waterproof Connections

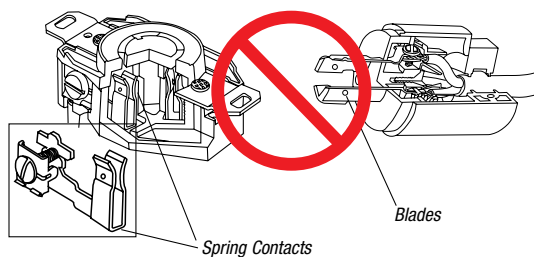
Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

DuraGard® Pin and Sleeve Connections

Pin and Sleeve contact devices consist of round male pins that are inserted into tubular female sleeves. Current flows through a large pin-to-sleeve circular contact area. Because current is not restricted through point contact only, higher current flow and cooler operating temperatures are achieved in a compact connection. Wiping action during insertion or withdrawal provides positive self cleaning. Shrouded pins and sleeves are protected from physical

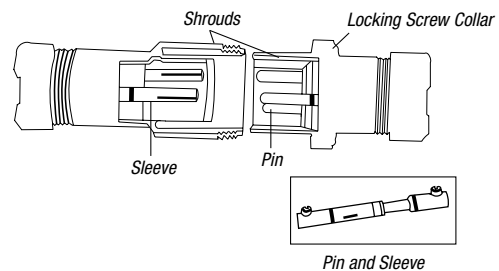
damage or casual access and aid in polarization features of the line. The shroud and screw collar completely lock plugs to receptacles for a reliable connection. Step on the cord, kick or drop a plug — your connection will remain tight. **Pin and Sleeve devices are the safety standard for high-current applications worldwide.**

Bladed Plug and Receptacle



Spring blade contact designs offer point contact only, with minimal mechanical support in receptacles. Higher heat is generated in use as contacts loosen with age and dirt accumulation, resulting in failures. Exposed blade contacts can easily be damaged. Contacts are both the electrical and mechanical locking method.

Pin and Sleeve Connector and Plug



Pin and Sleeve design enables higher current flow at cooler temperatures due to large circular contact area. Sleeves act as retainers for the pins, making a reliable connection. Shrouded pins and sleeves are protected from damage and inadvertent access. Locking housing screw collars provide for a reliable, long-lasting connection with electrical contacts separate.

DuraGard® Waterproof Connections



The Water Spray Test

1000-PSI water spray was directly applied at the face of DuraGard® receptacles. No damage occurred, and no water penetrated the housing or cord seal. DuraGard® plugs, connectors and receptacles are designed to withstand water spray test at 1000 PSI. No extra boots or adapters required.



DuraGard®: Designed for the Toughest Washdown Applications



Pulp and Paper



Food Processing



Beverage and Bottling



Pharmaceutical Manufacturing

DuraGard® Waterproof Connections

Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

The Ultimate in Waterproof Connections

20, 30, 50 and 60 Amp, 600VAC
20 Amp, 250VDC

Lockout Capable (30/50/60A Plugs):

- Access hole (not seen) for padlock hasp
- Interlock engagement CDA 360 solid brass pin and sleeve contacts

High Reliability, High-Performance Connections:

- CDA 360 solid brass pin and sleeve contacts

Long-Lasting Self-Cleaning Connections:

- Full round pin and sleeve contacts

Fast, Easy, Rear-Load Wiring and Assembly:

- Drop-in assembly interior
- Sleeve and cable bushing
- Easy-in pressure screw wiring terminations

Waterproof Cable Sealing:

- Neoprene compression bushing cable locking system
- Locking bushing nut with external cable clamps
- Bushing sizes available for any cable size

Waterproof Locking Connections:

- Locking screw collars with O-ring gaskets
- Housing mechanical support and pin and sleeve connection

Safety Specified Voltage Connections:

- Safety ground makes first breaks last
- Voltage polarized to meet NEC® 210-7 and OSHA standards

Durable and UL94-V0 Flame Rated Housings:

- DuraV® high-impact body and collars
- Thermoset interiors
- Deadfront construction

Dry Wiring Compartments:

- DurOring™ Sealing System for each pin and sleeve and interior assembly

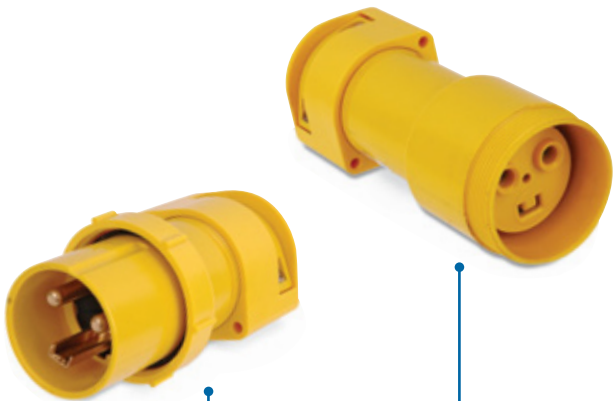
(50-Amp Plug and Connector Shown)

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

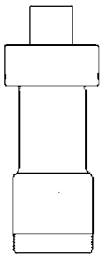
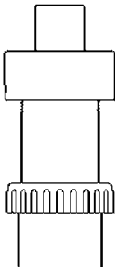
DuraGard® Waterproof Connections

20 Amp Standard Service



Male Plug

Female Connector



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

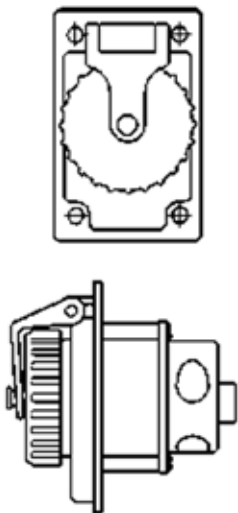
POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	<div><input type="checkbox"/> CAT. NO.</div>	<div><input type="checkbox"/> CAT. NO.</div>
2	3		125VAC	9P23U1_	9C23U1_
			250VAC	9P23U2	9C23U2
			277VAC	9P23U3	9C23U3
			480VAC	9P23U4	9C23U4
			600VAC	9P23U5	9C23U5
			through 600VAC/250VDC	9P23U0	9C23U0
3	4		125/250VAC	9P24U1	9C24U1
			3Ø 250VAC	9P24U2	9C24U2
			3Ø 480VAC	9P24U4	9C24U4
			3Ø 600VAC	9P24U5	9C24U5
			through 600VAC/250VDC	9P24U0	9C24U0

❑ Add suffix — / xxxx for bushing I.D. (page H-370) or conduit adapter assembled.

◆ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

* Consult Technical Services.

DuraGard® Waterproof Connections



Female Receptacle

STANDARD BUSHING I.D.: PLUG/CONN.*	<div><input type="checkbox"/> CAT. NO.</div>
Standard .625"; or optional size, see page H-370	9R23U1W
	9R23U2W
	9R23U3W
	9R23U4W
	9R23U5W
	9R23U0W
Standard .625"; or optional size, see page H-370	9R24U1W
	9R24U2W
	9R24U4W
	9R24U5W
	9R24U0W

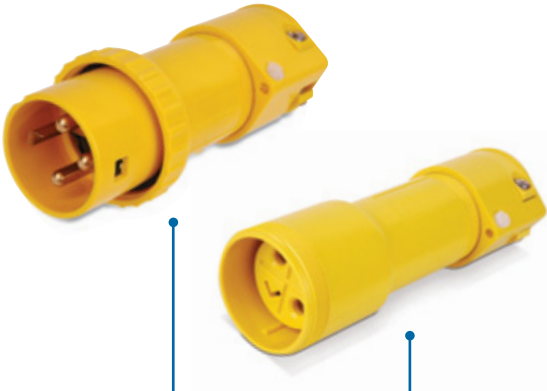
☐ Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.

◆ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

* Consult Technical Services.

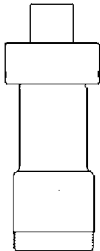
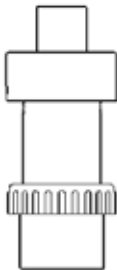
DuraGard® Waterproof Connections

30 Amp Standard Service



Male Plug

Female Connector



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	CAT. NO.	CAT. NO.
2	3		125VAC	9P33U1	9C33U1
			250VAC	9P33U2	9C33U2
			277VAC	9P33U3	9C33U3
			480VAC	9P33U4	9C33U4
			600VAC	9P33U5	9C33U5
			through 600VAC/250VDC	9P33U0	9C33U0
3	4		125/250VAC	9P34U1	9C34U1
			3Ø 250VAC	9P34U2	9C34U2
			3Ø 480VAC	9P34U4	9C34U4
			3Ø 600VAC	9P34U5	9C34U5
			through 600VAC/250VDC	9P34U0	9C34U0

□ Add suffix — / xxxx for bushing I.D. (page H-370) or conduit adapter assembled.

◆ "W" suffix indicates watertight receptacle;
"F" suffix indicates splash-proof spring flap cover included.

* Consult Technical Services.

DuraGard® Waterproof Connections

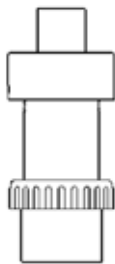
30 Amp
Reverse Service



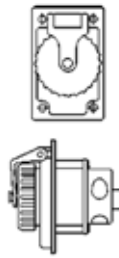
Female Receptacle



Female Plug



Male Receptacle



STANDARD BUSHING I.D.: PLUG/CONN.*	◆ CAT. NO.	□ CAT. NO.	◆ CAT. NO.
	▼	▼	▼
Standard .700"; for optional size, see page H-370	9R33U1W	9F33U1_	9B33U1F
	9R33U2W	9F33U2	9B33U2F
	9R33U3W	9F33U3	9B33U3F
	9R33U4W	9F33U4	9B33U4F
	9R33U5W	9F33U5	9B33U5F
	9R33U0W	9F33U0	9B33U0F
Standard .750"; for optional size, see page H-370	9R34U1W	9F34U1	9B34U1F
	9R34U2W	9F34U2	9B34U2F
	9R34U4W	9F34U4	9B34U4F
	9R34U5W	9F34U5	9B34U5F
	9R34U0W	9F34U0	9B34U0F

□ Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.

◆ "W" suffix indicates watertight receptacle;
"F" suffix indicates splash-proof spring flap cover included.

* Consult Technical Services.

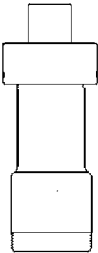
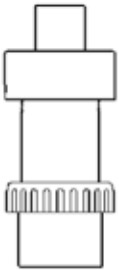
DuraGard® Waterproof Connections

50 Amp
Standard Service



Male Plug

Female Connector



Device Ratings and Polarizations

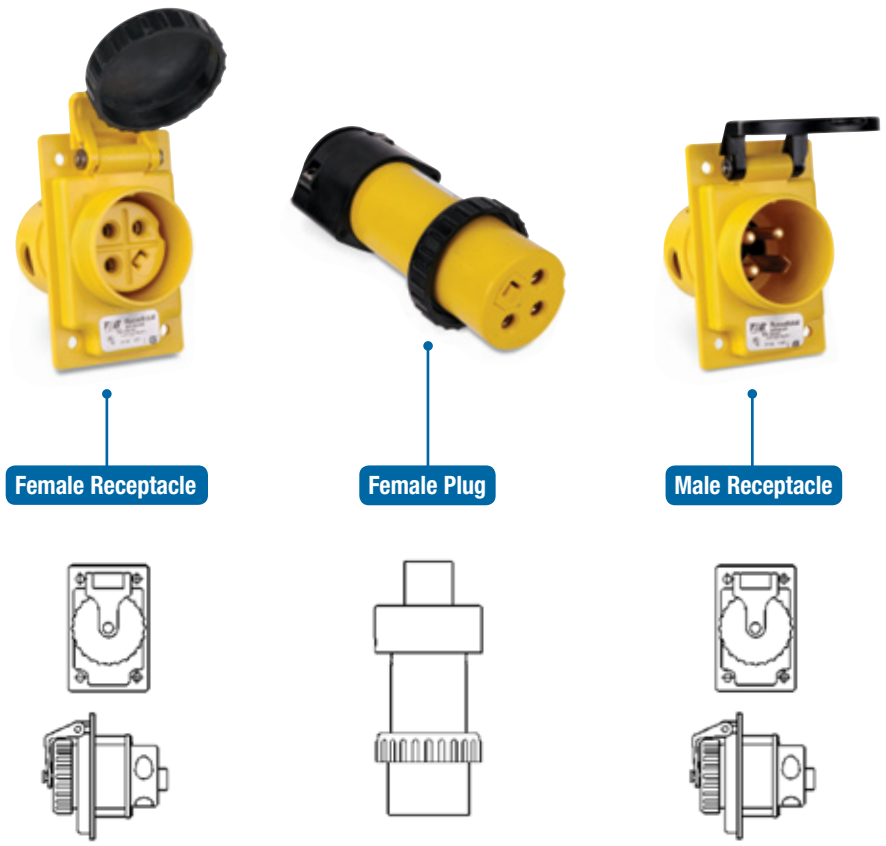
Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	CAT. NO. <input type="checkbox"/>	CAT. NO. <input type="checkbox"/>
2	3		125VAC	9P53U1	9C53U1
			250VAC	9P53U2	9C53U2
			277VAC	9P53U3	9C53U3
			480VAC	9P53U4	9C53U4
			600VAC	9P53U5	9C53U5
			through 600VAC/250VDC	9P53U0	9C53U0
3	4		125/250VAC	9P54U1	9C54U1
			3Ø 250VAC	9P54U2	9C54U2
			3Ø 480VAC	9P54U4	9C54U4
			3Ø 600VAC	9P54U5	9C54U5
			through 600VAC/250VDC	9P54U0	9C54U0

☐ Add suffix — / xxx for bushing I.D. (page H-370) or conduit adapter assembled.
♦ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

DuraGard® Waterproof Connections

50 Amp
Reverse Service



STANDARD BUSHING I.D.: PLUG/CONN.*	◆ CAT. NO.	□ CAT. NO.	◆ CAT. NO.
	▼	▼	▼
Standard .925"; for optional size, see page H-370	9R53U1W	9F53U1	9B53U1F
	9R53U2W	9F53U2	9B53U2F
	9R53U3W	9F53U3	9B53U3F
	9R53U4W	9F53U4	9B53U4F
	9R53U5W	9F53U5	9B53U5F
	9R53U0W	9F53U0	9B53U0F
Standard .925"; For optional size, see page H-370	9R54U1W	9F54U1	9B54U1F
	9R54U2W	9F54U2	9B54U2F
	9R54U4W	9F54U4	9B54U4F
	9R54U5W	9F54U5	9B54U5F
	9R54U0W	9F54U0	9B54U0F

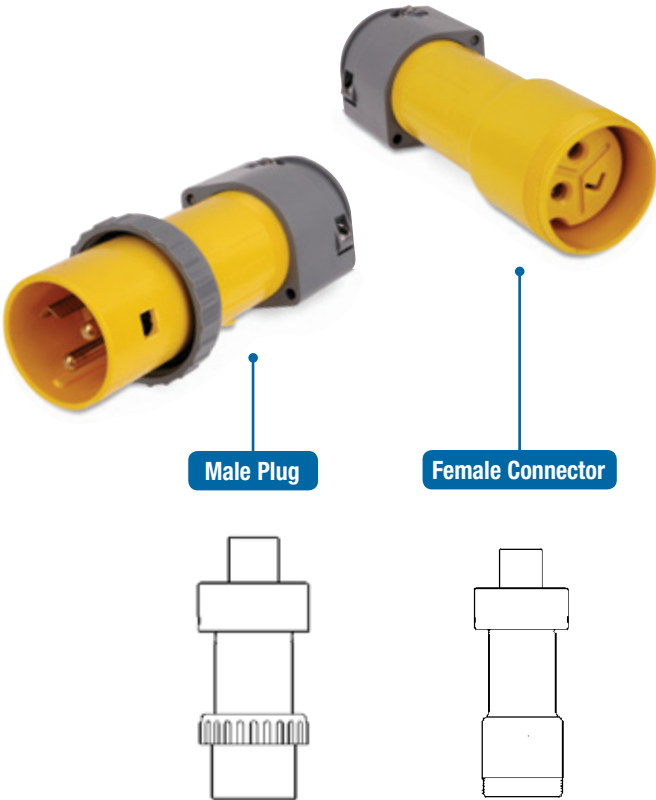
□ Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.

◆ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

* Consult Technical Services.

DuraGard® Waterproof Connections

60 Amp Standard Service



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	CAT. NO.	CAT. NO.
2	3		125VAC	9P63U1	9C63U1
			250VAC	9P63U2	9C63U2
3	4		125/250VAC	9P64U1	9C64U1
			3Ø 250VAC	9P64U2	9C64U2

□ Add suffix — / xxxx for bushing I.D. (page H-370) or conduit adapter assembled.

♦ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

DuraGard® Waterproof Connections

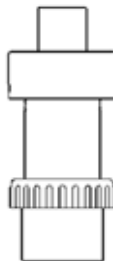
60 Amp
Reverse Service



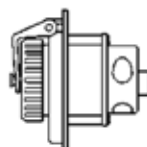
Female Receptacle



Female Plug



Male Receptacle



STANDARD BUSHING I.D.: PLUG/CONN.*	♦ CAT. NO.	□ CAT. NO.	♦ CAT. NO.
Standard 1.000"; for optional size, see page H-370	9R63U1	9F63U1	9B63U1
	9R63U2	9F63U2	9B63U2
Standard 1.000"; for optional size, see page H-370	9R64U1	9F64U1	9B64U1
	9R64U2	9F64U2	9B64U2

□ Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.

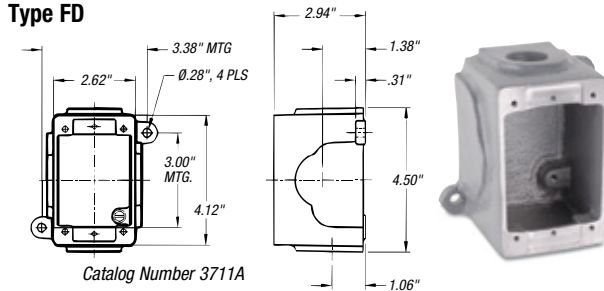
♦ "W" suffix is watertight; "F" suffix for splash-proof spring flap cover.

* Consult Technical Services.

DuraGard® Waterproof Connections

Conduit Boxes (For Surface Mounting)

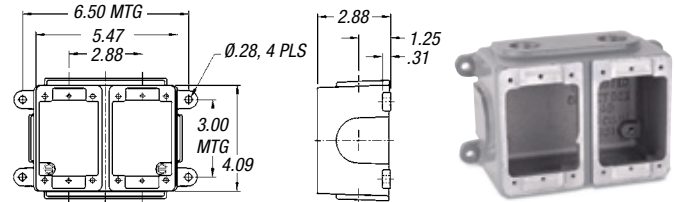
Type FD



Catalog Number 3711A

	CAST ALUMINUM	CAST BRASS	USE WITH
Single	3711A	3731-RS	20A
Double	3712A	3732-RS	30A
DSFD	3781A	—	50A

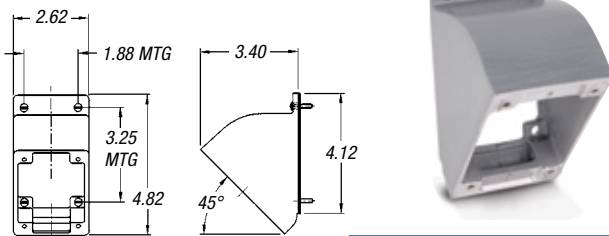
Note: 3/4" NPT Hole Std. Additional accessories are available. Please consult your Thomas & Betts representative.



Catalog Number 3712A

Catalog Number 3781A

45° Angle Adapter



Catalog Number 3678A

CAST ALUMINUM	CAST BRASS
3678A	3678B

Conduit Adapter Kits (Plugs or Connectors)



SIZE	20 AMP	30 AMP	50 AMP	60 AMP
1/2"	9X2C50	9X3C50	—	—
3/4"	9X2C75	9X3C75	9X5C75	9X6C75
1"	—	9X3C10	9X5C10	9X6C10

Cable Bushings



20-Amp
Cable Bushing

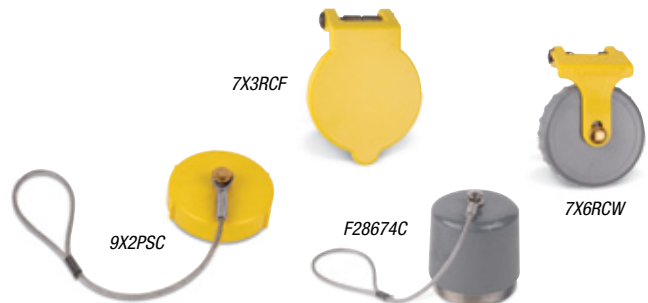
MAX. CABLE O.D. (INCHES)	20 AMP	30 AND 50 AMP
.375	C16984A	—
.437	C16984B	—
.500	C16984C	—
.545	—	2000-11
.562	C16984D	—
.606	B16506	—
.620	—	2000-03
.625	B16524	—
.700	—	2000-04
.750	—	2000-01
.800	—	2000-06
.870	—	2000-02
.925	—	2000-12
1.000	—	2000-05

(Minimum limit 85% of O.D. size for sealing.)

Material — Oil-resistant Neoprene.

State catalog number followed by slash (/) and bushing code; example: 9P33U1/1000.

Replacement Caps



	20 AMP	30 AMP	50 AMP	60 AMP
Screw Cap (Connector)	9X2PSC	9X3PSC	9X5PSC	9X6PSC
Cup Cap (Plug)	—	F26874C	F26874C	F26874C
Screw Cap (Receptacle)	—	7X3RCW	7X5RCW	7X6RCW
Flap Cap (Receptacle)	—	7X3RCF	7X5RCF	7X6RCF

DuraGard® Waterproof Connections

Replacement Interiors



		CAT. NO.	
AMPS	VOLTAGE POLARIZATION	MALE INTERIOR ASSEMBLY	FEMALE INTERIOR ASSEMBLY
2P3W 20A	125VAC	9XM23U1	9XF23U1
	250VAC	9XM23U2	9XF23U2
	277VAC	9XM23U3	9XF23U3
	480VAC	9XM23U4	9XF23U4
	600VAC	9XM23U5	9XF23U5
	through 600VAC/250VDC	9XM23U0	9XF23U0
2P3W 30A	125VAC	9XM33U1	9XF33U1
	250VAC	9XM33U2	9XF33U2
	277VAC	9XM33U3	9XF33U3
	480VAC	9XM33U4	9XF33U4
	600VAC	9XM33U5	9XF33U5
	through 600VAC/250VDC	9XM33U0	9XF33U0
2P3W 50A	125VAC	9XM53U1	9XF53U1
	250VAC	9XM53U2	9XF53U2
	480VAC	9XM53U4	9XF53U4
	600VAC	9XM53U5	9XF53U5
	through 600VAC/250VDC	9XM53U0	9XF53U0
3P4W 20A	125/250VAC	9XM24U1	9XF24U1
	3Ø 250VAC	9XM24U2	9XF24U2
	3Ø 480VAC	9XM24U4	9XF24U4
	3Ø 600VAC	9XM24U5	9XF24U5
	through 600VAC/250VDC	9XM24U0	9XF24U0
3P4W 30A	125/250VAC	9XM34U1	9XF34U1
	3Ø 250VAC	9XM34U2	9XF34U2
	3Ø 480VAC	9XM34U4	9XF34U4
	3Ø 600VAC	9XM34U5	9XF34U5
	through 600VAC/250VDC	9XM34U0	9XF34U0
3P4W 50A	125/250VAC	9XM54U1	9XF54U1
	3Ø 250VAC	9XM54U2	9XF54U2
	3Ø 480VAC	9XM54U4	9XF54U4
	3Ø 600VAC	9XM54U5	9XF54U5
	through 600VAC/250VDC	9XM54U0	9XF54U0
2P3W 60A	125VAC	9XM63U1	9XF63U1
	250VAC	9XM63U2	9XF63U2
3P4W 60A	125/250VAC	9XM64U1	9XF64U1
	3Ø 250VAC	9XM64U2	9XF64U2

DuraGard® Waterproof Connections

Safety Interlocks

Circuit Breaker Interlocked Outlet:

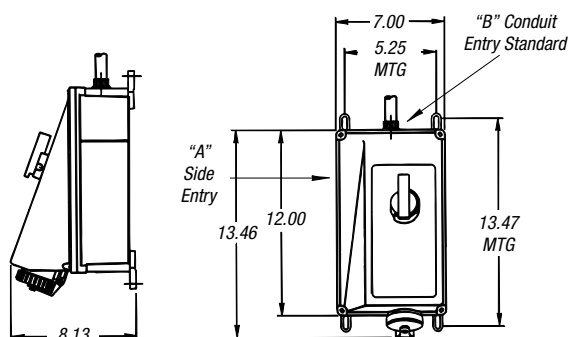
- 30A and 50A ranges and polarizations to 480VAC
- 22kA interrupt capacity breaker
- Easy handle reset after trip
- Auxiliary switch or other options

User Friendly — Flexible Mounting:

- Variable footprint mounting tabs
- Compact size fits 8" standard I-beam webs
- Conduit entry from top, bottom or side ($\frac{3}{4}$ ", 1" or 1 $\frac{1}{4}$ " NPT)
- Large red handle with lockout access

Flame Rated and DuraV® Tough Housing:

- UL 94-V0 housing and interior with stainless steel components
- High-impact thermoplastic housing
- NEMA 4X construction



The **only** non-metallic, 22kAIC, 30A and 50A series circuit breaker interlocked receptacle available today!

3P4W EXAMPLES SHOWN:				CAT. NO.		
AMPS	VOLTAGE POLARIZATION	SAFETY INTERLOCK WITH CIRCUIT BREAKER	CIRCUIT BREAKER TRIP RATING	MATING PLUG	ROTARY CONTROLLER	REPLACEMENT INTERIOR
3P4W 30A	125/250VAC	9MT34U1W30B	30A	9P34U1	9MI34U1WNAB	9XL34U1
	3Ø 250VAC	9MT34U2W30B	30A	9P34U2	9MI34U2WNAB	9XL34U2
	3Ø 480VAC	9MT34U4W30B	30A	9P34U4	9MI34U4WNAB	9XL34U4
	3Ø 600VAC	9MT34U5W30B	30A	9P34U5	9MI34U5WNAB	9XL34U5
	through 600VAC/3P4W	9MT34U0W30B	30A	9P34U0	9MI34U0WNAB	9XL34U0
3P4W 50A	125/250VAC	9MT54U1W50B	50A	9P54U1	9MI54U1WNAB	9XL54U1
	3Ø 250VAC	9MT54U2W50B	50A	9P54U2	9MI54U2WNAB	9XL54U2
	3Ø 480VAC	9MT54U4W50B	50A	9P54U4	9MI54U4WNAB	9XL54U4
	3Ø 600VAC	9MT54U5W50B	50A	9P54U5	9MI54U5WNAB	9XL54U5
	through 600VAC/3P4W	9MT54U0W50B	50A	9P54U0	9MI54U0WNAB	9XL54U0

Note: 1. Change suffix for alternate trip ratings. Example: 9MT54U2W30B — 50-amp, 3P4W, safety interlock with 30-amp circuit breaker, conduit top entry.

♦ Change "W" to "F" for flap cap access. Example: 9MI34U2F30B — 30-amp, 3P4W, safety interlock with rotary controller and flap cap.

(Minimum limit 85% of O.D. size for sealing.)

Foot and Hardware Replacement Kit: Cat. No. 9XLMF (non-metallic) and Cat. No. 9XLMF-SS (stainless steel).

Thomas&Betts

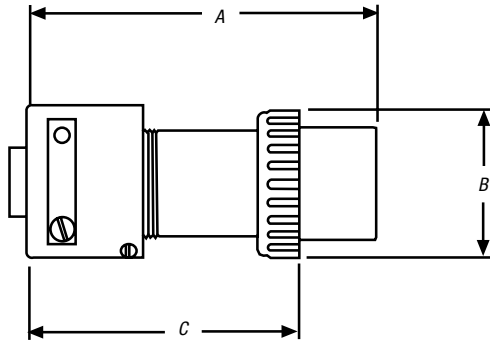
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

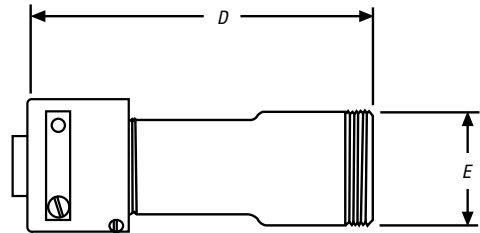
www.tnb.com

DuraGard® Waterproof Connections

Plugs and Female Plugs (30A/50A only)



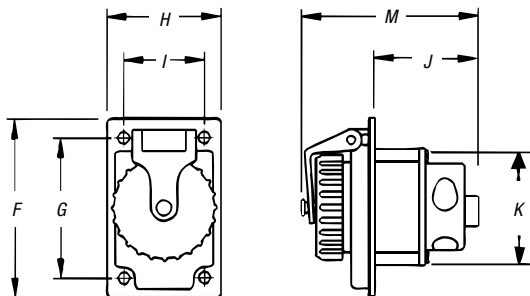
Connectors



AMPS		A*	B	C*	D	E	MAX AWG	TERMINAL Ø IN./MM
20A	Inches	3.87	2.16	2.75	4.75	1.88	12	.140/.0055
	mm	98.3	54.9	69.9	120.7	47.8		
30A	Inches	5.385	2.38	4.16	6.25	2.13	8	.235/.0092
	mm	136.6	60.5	105.7	158.8	54.1		
50A	Inches	5.75	2.38	4.16	6.25	2.13	6	.235/.0092
	mm	146.1	60.5	105.7	158.8	54.1		
60A	Inches	5.75	2.38	4.16	6.25	2.13	6	.235/.0092
	mm	146.1	60.5	105.7	158.8	54.1		

* Dimensions will vary slightly with assembly.

Receptacles and Male Receptacles (Inlets — 30A/50A only)



Screw cover shown. Flap cover also available; no dimensional changes.

AMPS		F	G	H	I	J	K	M	MAX. AWG	TERMINAL Ø IN./MM
20A	Inches	4.14	3.25	2.66	1.88	1.49	2.26	3.17	12	.140/.0055
	mm	105.2	82.6	67.6	47.8	37.8	57.4	80.5		
30A	Inches	4.14	3.25	2.66	1.88	2.44	2.71	4.12	8	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		
50A	Inches	4.14	3.25	2.66	1.88	2.44	2.71	4.12	6	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		
60A	Inches	4.14	3.25	2.66	1.88	2.44	2.71	4.12	6	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		

DuraGard® Waterproof Connections

Plugs, Connectors and Receptacles

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	6000 volts RMS (minimum creepage and minimum clearance per UL 840)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pf

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords. 10 standard diameters from .405" to 1.00", custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull Out Force	In accordance with UL 1682
Product Identification	Identification label and molded in name
Lockout/Tagout	Lockout/tagout hole on plug complies with OSHA Reg. 29 CFR 1910.147

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49 Watertight/ flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged
Flammability	V0 or better per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F
Chemicals	Minimum: -40° C/-40° F without impact Resists standard industrial hydrocarbons, acids, bases and solvents



Material

Contact Carrier Interior	Molded arc-resistant UL 94-V0 phenolic thermoset
Housing, Gland Nuts, Screw Collar Rings	DuraV® UL 94-V0, high-impact Thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	20 amp — Nylon 30, 50 and 60 amp — Aluminum
Cable Clamp Bushing	Neoprene

Approvals*



* TUV & PSE listed product also available; contact Technical Services.

DuraGard® Waterproof Connections

Safety Interlocks

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	480 volts RMS (minimum creepage distance and minimum clearance per UL 840) (using circuit breaker)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pf
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Wiring Accommodation	Conduit entries at top, side and bottom, .750" NPT top entry standard
Terminal Identification	In accordance with UL 1682
Plug Pull Out Force	In accordance with UL 1682
Product Identification	Identification label
Lockout/Tagout	Lockout/tagout access on switch complies with OSHA Reg. 29 CFR 1910.147

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49. Watertight/ flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged (screw cover closed/locked)
Flammability	VO or better per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C / -40° F without impact (Note: per C/B trip at elevated temps.)
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents
UV Resistance	UV-stabilized material

Material

Contact Carrier Interior	Molded arc-resistant UL 94-V0 thermoset material
Housing, Gland Nuts, Screw Collar Rings	DuraV® UL 94-V0, high-impact Thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	20 amp — Nylon 30, 50 and 60 amp — Aluminum
Cable Clamp Bushing	Neoprene

Approvals



FS/FD™ Metallic Connections

The FS/FD™ general-purpose interconnection system is designed for lower-amperage marine and rough service applications with rugged die-cast aluminum housings and epoxy powder-coated finishes. Interlocked receptacles add branch circuit-protected outlet capability and base receptacles fit existing Russellstoll® FS, FD and DSFD single- and multi-gang back boxes. Its versatility and watertight features make it ideal for washdown industrial and light marine applications.

Safety

- Circuit-interrupting up to 30A, 250VAC (20A, 600VAC)
- Factory-polarized interiors permit mating of same voltage/same type devices through configured ground pins and housing features
- Shell grounding by means of ground strap integral with ground contact for assured assembly safety

Durability

- Constructed of copper-free cast aluminum (brass construction also available)
- Optional conduit adapters, strain reliefs and cable bushings available (modified catalog number construction)
- Non-metallic versions of most metallic plugs and receptacles also available (see DuraGard®, pages H-357–H-375)

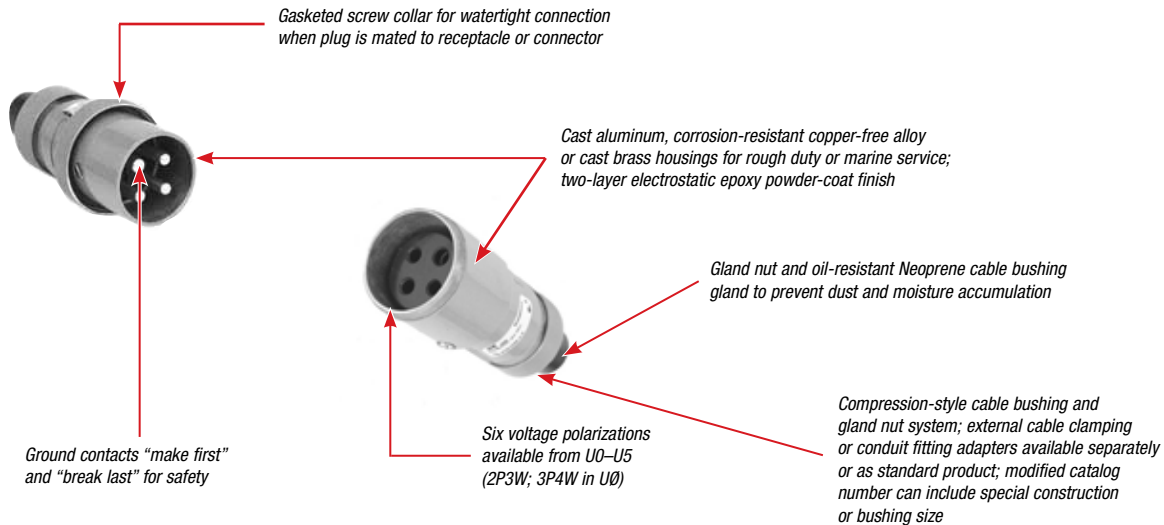
Performance

- Precision-made, self-aligning and self-wiping contacts
- Devices available in watertight and weathertight versions
- Solderless binding screw terminals for convenient wiring (20A, 2P3W devices have set-screw pressure terminals)

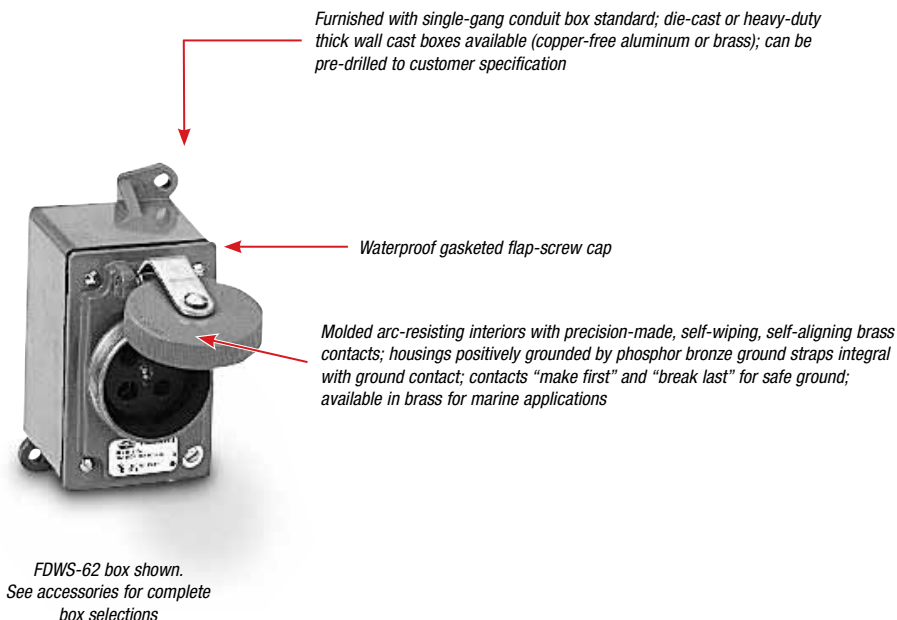


FS/FD™ Metallic Connections

Plug and Connector (+ Reverse Service Female Plug)



Receptacle (+ Reverse Service Male Inlet)



FS/FD™ Metallic Connections

10–30 Amp



Male Plugs



Female Connectors

POLES/WIRES	AMPERES	VOLTAGE	POLARIZATION (RECEPTACLE)	ALUMINUM	CAST BRASS	ALUMINUM	CAST BRASS
2P3W	15A	125VAC		3720U-2	3720BU-2	3913U-2	3913BU-2
		177VAC		3720U-3	3720BU-3	3913U-3	3913BU-3
		480VAC		3720U-4	3720BU-4	3913U-4	3913BU-4
		600VAC		3720U-5	3720BU-5	3913U-5	3913BU-5
	20A	250VAC		3720	3720B	3913	3913B
		125VAC		3720U-1	3720BU-1	3913U-1	3913BU-1
	30A	250VAC		3750	3750B	3933	3933B
3P4W	10A	600VAC		3730	3730B	3914	3914B
	15A	250VAC		3730	3730B	3914	3914B
	20A	600VAC		3760	3760B	3934	3934B
	30A	250VAC		3760	3760B	3934	3934B

Cable Bushings — Oil-resistant, Neoprene cable bushing is regularly furnished with hole sizes listed above. Other hole sizes are available at no extra cost when specified on order. See **page H-382** for available sizes.

Screw caps for connectors can be furnished with retained screw cap at extra cost. For kits order:

9X2PSC 20A screw cap
 9X3PSC 30A screw cap
 F26874C 30A plug cup cap

See the DuraGard® section for Thermoplastic families.

Standard Cable Bushing Hole Diameter

PREFIX	HOLE DIA.
3720	—
3730	—
3750, 3760	—
3913	5/8"
3914	11/16"
3933, 3934	3/4"
3789	—
3790	—
3809, 3810	—

For other plug and connector accessories, see **pages H-382–H-385**.

Plugs can be furnished with adapters to accommodate rigid conduit or standard connectors. For armored cable or flexible conduit, see **page H-382**.

FS/FD™ Metallic Connections



Female Receptacles



Reverse Service



Inlets

ALUMINUM WITH BOX *	CAST BRASS WITH BOX *	FEMALE PLUGS		MALE RECEPTACLES	
		ALUMINUM	CAST BRASS	ALUMINUM WITH BOX FDWS-62	CAST BRASS WITH BOX 3731
3743U-2	3763U-2	3789U-2	3789BU-2	3776U-2	3779U-2
3743U-3	3763U-3	3789U-3	3789BU-3	3776U-3	3779U-3
3743U-4	3763U-4	3789U-4	3789BU-4	3776U-4	3779U-4
3743U-5	3763U-5	3789U-5	3789BU-5	3776U-5	3779U-5
3743	3763	3789	3789B	3776	3779
3743U-1	3763U-1	3789U-1	3789BU-1	3776U-1	3779U-1
3753	3773	3809 ¹	3809B ¹	3796 ²	3799 ³
3744	3764	3790	3790B	3777	3780
3744	3764	3790	3790B	3777	3780
3754	3774	3810	3810B	3797	3800
3754	3774	3810	3810B	3797	3800

* Receptacles come with the following boxes:

MATERIAL	AMPERES	BOX
Aluminum	10, 15 and 20	FSWS-62
	30	FDWS-62
Brass	10, 15 and 20	3721
	30	3731

Note:

1. Also in plastic. Use 3809P or 9F33UO.

2. Also in plastic. Use 3796P — Aluminum back box (use 3797-P for brass).

3. Also in plastic. Use 3799P (Brass J-Box) or 9B33U0F (without J-Box).

For 20A/30A Thermoplastic devices, see DuraGard® section.

Mating with DuraGard® line:

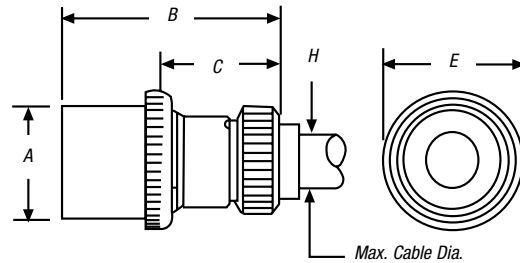
— 20A devices will mate and lock across lines.

— 30A metal male devices cannot mate to DuraGard®; 30A female devices can be mixed.

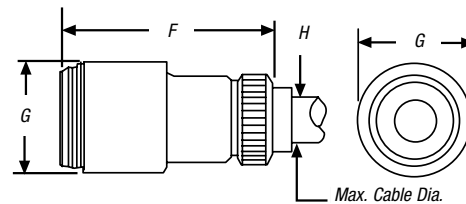
FS/FD™ Metallic Connections

Plug, Female Plug and Connector Dimensions

AMPS		A	B	C	E	F	G	H
10 Amp	Inches	1.75	3.62	2.25	2.00	4.00	1.87	.75
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
15 Amp	Inches	1.75	3.62	2.25	2.00	4.00	1.87	.75
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
20 Amp	Inches	1.75	3.62	2.25	2.00	4.00	1.87	.75
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
30 Amp	Inches	1.87	3.75	2.25	2.25	4.25	2.25	1.12
	mm	47.62	95.25	57.15	57.15	107.95	57.15	28.57

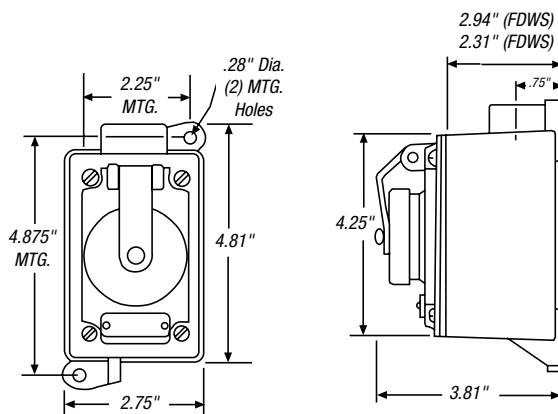


Plugs and Female Plugs

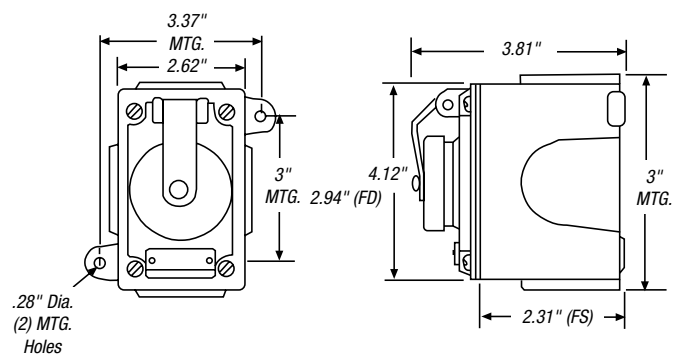


Connectors

Receptacles and Male Receptacles



Standard Die-Cast Aluminum Back Box
(FSWS/FDWS)



Cast Aluminum/Cast Brass Back Box
(3701-3732 Series)

FS/FD™ Metallic Connections

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	600 volts RMS (minimum creepage distance and minimum clearance per UL 840)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC
Horsepower	Per NEC® 430-151 ratings (non-interrupting)



Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords per UL standard 62 and CSA C22.2 No. 49.1
Terminal Identification	In accordance with UL 1682
Cable Pull Out Force	In accordance with UL 1682
Product Identification	Identification label and name per UL 1686

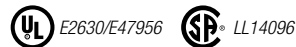
Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49 Watertight/flap screw cover on receptacle
Flammability	V0/5VA per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C/-40° F without impact
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior	Thermoset
Housing, Gland Nuts, Screw Collar Rings	Cast Aluminum or Brass
Contacts: Pins and Sleeves	Brass
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	Brass or Aluminum
Cable Clamp Bushing	Neoprene

Approvals



NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

FS/FD™ Metallic Connections

For Plugs and Connectors

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX. CABLE DIA.
EX: 3913 10–20 Amp	3905	3905B	.62"
EX: 3934 20/30 Amp	3906	3906B	1.12"

Material — Cast aluminum, corrosion-resistant copper-free alloy; cast brass, epoxy powder coat finish.

Conduit Adapters



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED NPT
EX: 3913 10–20 Amp	FSA11 FSA12	FSA11B FSA12B	1/2" 3/4"
EX: 3934 20/30 Amp	FSA21 FSA22 FSA23	FSA21B FSA22B FSA23B	1/2" 3/4" 1"

Furnished complete with gasket.

Cable Bushings

HOLE DIAMETER FOR CABLE (INCHES)	TYPE 2 10 AMP	TYPE 3 20 AND 30 AMP
.313	SG05	—
.375	SG1	JG31
.438	SG15	—
.500	SG2	JG32
.531	SG2A	—
.563	SG25	JG325
.594	SG2B	—
.625	SG3	JG33
.688	SG3A	—
.750	SG4	JG34
.875	—	JG35
1.000	—	JG36**
1.125	—	JG361**

** Special for large O.D. cable.

Note:

When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory selected to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

Examples — Using Catalog No. 3934:

Combo. Gland Nut and Cable Clamp 3934-3906

Adapter at 3/4" 3934-FSA22

1/2" Cable Bushing 3934-JG32

Material — Oil-resistant Neoprene.



Type 2
Cable Bushing



Type 3
Cable Bushing

FS/FD™ Metallic Connections

Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.

Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



Single-Gang



Two-Gang



DSFD

GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*	FOR USE WITH
Single	FS	3701A	3721	4.12" x 2.62" x 2.31"	15-20A
	FD	3711A	3731	4.12" x 2.62" x 2.94"	30A
	DSFD	3781A	—	4.12" x 3.62" x 4.12"	30A
Two	FS	3702A	3722	4.12" x 5.5" x 2.25"	15-20A
	FD	3712A	3732	4.12" x 5.62" x 2.87"	30A

* Dimensions are overall exclusive of conduit pads and mounting lugs

Note:

When Type FD devices (20A) are to be mounted in boxes, Type FD boxes should be used. FS boxes will not accommodate FD devices (30A or 3P4W).

Mounting — All the above boxes are for surface mounting.

For flush mounting, see **page H-384**.

Boxes — Cast brass, natural finish; cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

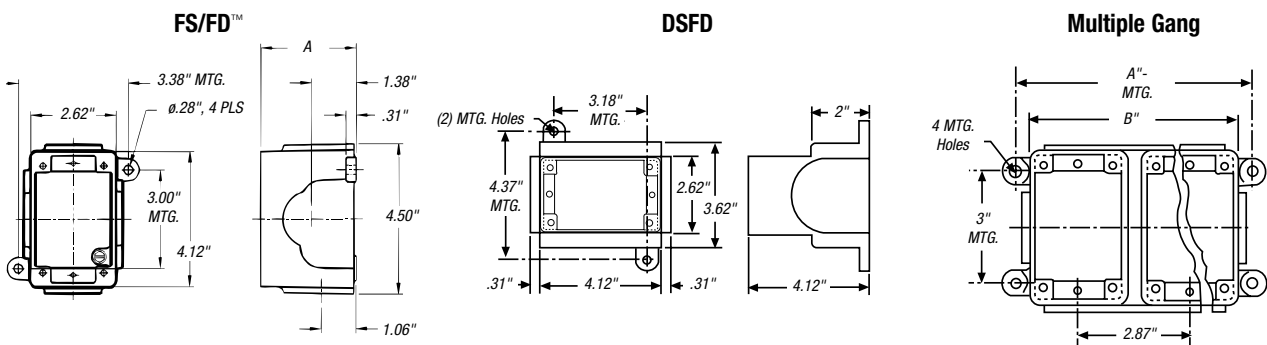
Outlets — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional outlets charged extra — see price list. Specify size and location.

Maximum Conduit — FS and FD: 1", one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom.

Cast iron available on special order — consult your Thomas & Betts representative.

Dimensions



TYPE	A
FS	2.31
FD	2.94

A		B	
FS	6.50"	FS	5.50"
FD	6.50"	FD	5.62"

FS/FD™ Metallic Connections

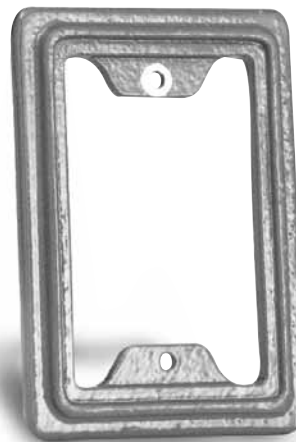
Adapter Flush Frames*

For mounting to standard wall outlet boxes (2-screw mount).

GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	3671A	3681	5" x 3.5"
2	3672A	3682	5" x 6.5"

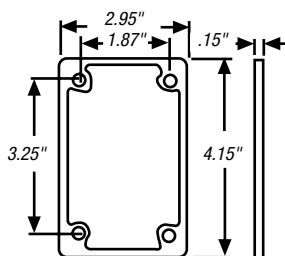
Adapters and covers to fit boxes on [page H-379](#).

* Furnished complete with gasket and screws.



Blank Cover*

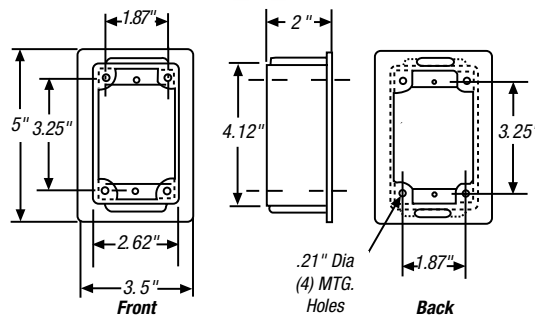
Covers standard FS/FD™ box openings.



CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

* Furnished complete with gasket and screws.

Flush Wall Mounting Extension*



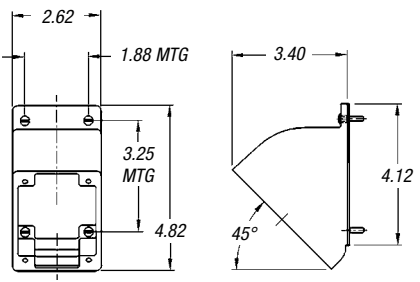
CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

* Furnished complete with gasket and screws.

FS/FD™ Metallic Connections

45° Angle Adapter*

Mounts to any FS/FD™ box.



CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

* Furnished complete with gasket and screws.

Type FSWS and FDWS
(with Mounting Shelf for Box-Mounted Devices)

Aluminum die-cast boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.



CAT. NO.	CONDUIT ENTRIES	
	TOP	BOTTOM
FSWS-62	3/4"	NA
FDWS-62	3/4"	NA
FDWS-622	3/4"	3/4"
FDWS-63	1"	NA
FDWS-633	1"	1"

* Furnished complete with gasket and screws.

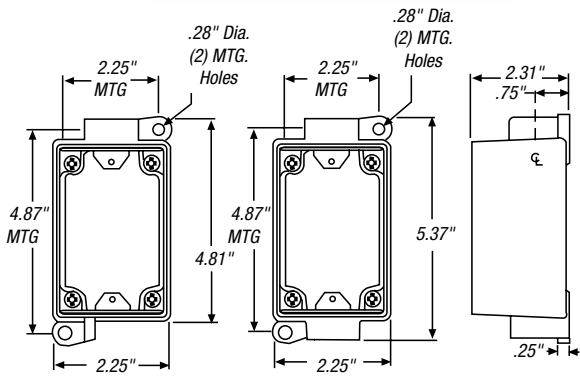
Notes:

Materials — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish; cast brass, natural finish.

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

Outlets — Standard as listed.

Mounting — All of the above boxes are for surface mounting.



FS/FD™ Metallic Connections

Marine/Industrial Series — 20 and 30 Amp, 250VAC

Mechanically interlocked FS/FD™ Interface receptacle outlets, available through 30 amp 250VAC, provide added electrical safety in branch circuits.

By design, the plug must be fully inserted into the interlocked receptacle before the switch or circuit breaker can be turned to the "ON" position, and the switch or circuit breaker must be in the "OFF" position before the plug can be withdrawn. This design ensures that when properly installed and operated, the circuit is made and broken by the switch or circuit breaker, not by the connectors.

As with all Russellstoll products, mechanically interlocked receptacles were designed with safety, durability and performance in mind.



Safety

- Mechanical linkage prevents plug insertion or withdrawal unless switch is in "OFF" position
- Circuit breaker protection available on many models
- Ground contacts "make first," "break last"

Durability

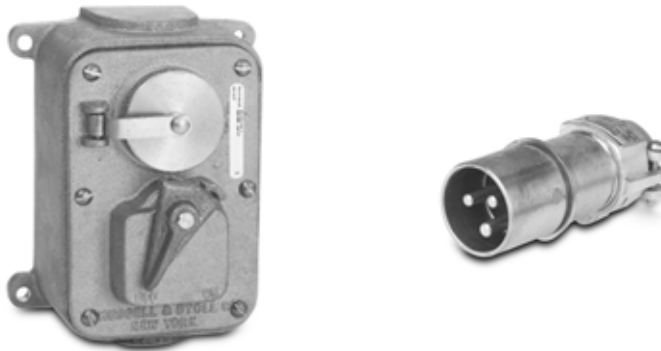
- Constructed of copper-free cast aluminum (some types available in brass)
- Sturdy die-cast and sand-cast housings

Performance

- Precision-made, self-aligning and self-wiping contacts
- Receptacles provided with spring-actuated, self-closing flaps
- Devices available in watertight and weathertight versions
- Solderless screw terminals for convenient wiring

FS/FD™ Metallic Connections

Mechanically Interlocked Receptacle with Switch



Rating:

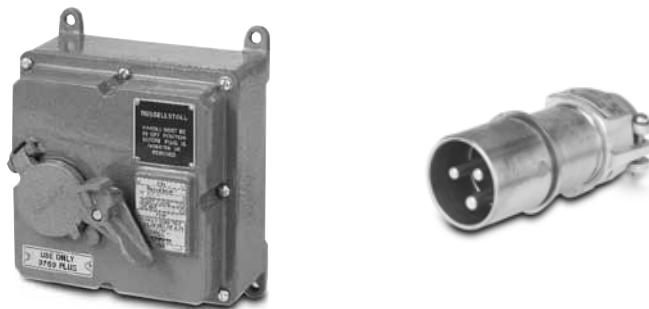
20 Amp/600VAC

30 Amp/250VAC

POLES/WIRES	ALUMINUM RECEPTACLE W/BOX**	FS/FD PLUG	BRASS RECEPTACLE W/BOX	FS/FD PLUG	DURAGARD® PLUG	BUSHING I.D.
2P3W	F20493C	3750	1593LP	3750B	9P33U0	5/8"
3P4W	F20493A**	3760	1594LP	3760B	9P34U0	3/4"

** For flap cover brass version, add "-B" suffix.

Mechanically Interlocked Receptacle with Circuit Breaker



Rating:

20 Amp/250VAC

30 Amp/250VAC

POLES/ WIRES	TRIP RATING	ALUMINUM RECEPTACLE W/BOX	FS/FD PLUG	DURAGARD PLUG	BUSHING I.D.
2P3W	20A	F33048B	3750	9P33U0	5/8"
	30A	F33048C	3750		
3P4W	20A	F33054B	3760	9P34U0	3/4"
	30A	F33054C	3760		
50A, 250V* 3P4W	50A	C1479AH	3760	9P34U0*	7/8"

* Consult technical services for all 50A trip applications (30A device, 50A trip). Also see DuraGard® Interlocks.
For brass versions, contact Technical Services.

Note: For panel mounting or cover assemblies only, please consult your Thomas & Betts representative.

FS/FD™ Metallic Connections

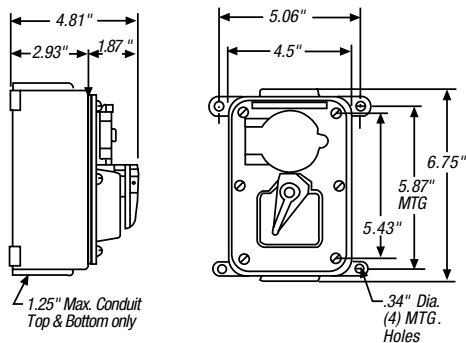
Specifications

- Housings: Cast brass, natural finish; Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish
- Cable bushings: Oil-resistant, Neoprene strain-relief cable bushings regularly furnished with hole size as listed for plug; other hole sizes available if specified on order; see Accessory Reference Section, Bushing sizes on **page H-388**
- Outlets: Unless otherwise specified, boxes are furnished blank
- Receptacle interlocked with switch: Maximum conduit outlets 1½" top and bottom; specify outlets required
- Receptacle interlocked with circuit breaker: Maximum conduit outlet 1½" at locations V, W, X, Y and Z as per diagram; specify outlets required, use symbols

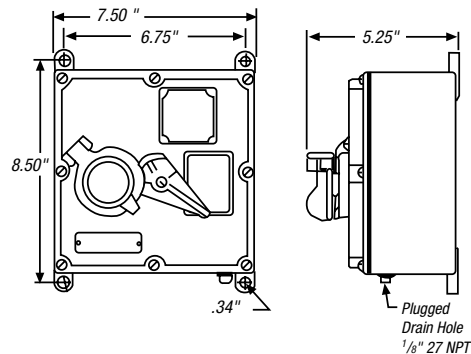
Dimensions

Interlocked with Switch, Surface Mount

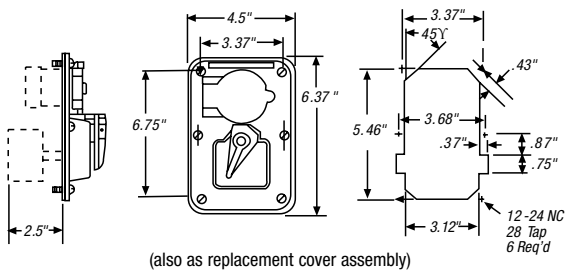
CAT. NO. F18196B&C and F20493A&B



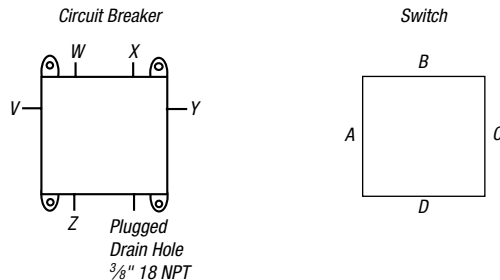
Interlocked with Circuit Breaker



Machine Panel Mount

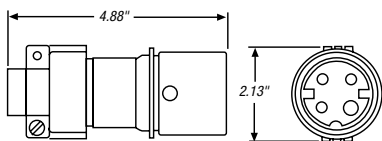


Floor Extension Mount

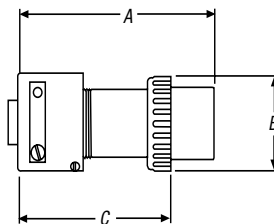


Standard Plug

20/30 Amp FS/FD™



30/50 Amp DuraGard®



AMPS		A	B	C
30 Amp	Inches	5.38	2.38	4.16
	mm	136.6	60.5	105.7
50 Amp	Inches	5.75	2.38	4.16
	mm	146.1	60.5	105.7

UniGard® Pin and Sleeve IEC Connections

Safety, Performance and Durability... in a Snap!



Beverage Plants



Construction Sites



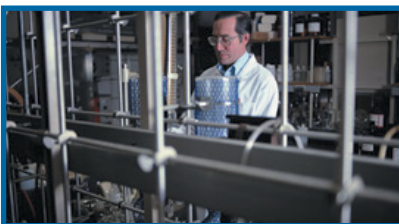
Food Processing



Marine and Shipboard



Pulp and Paper Mills



Chemical Plants



Extensive Product Family

- Safe and reliable, portable electrical connections
- Wide variety of plugs, connectors, receptacles, inlets and mounting boxes
- Watertight (IP67) and splashproof (IP44) versions available
- 20-, 30-, 60- and 100-Amp ratings for small, medium or large current loads
- cULus Listed for North American ratings
- UL classified to IEC 309-1 and IEC 309-2 for North American and International ratings
- Complete interchangeability with all manufacturers' IEC309-1 and IEC 309-2 devices
- Meets IEC 309 global configurations for safety in industrial applications
- 16, 32, 63 and 125A international ratings available

Watertight

- Watertight design and construction meet stringent IP67 internal protection standards
- Rugged thermoplastic housings resist impact or abuse and provide excellent corrosion resistance
- Unique Thomas & Betts strain-relief grip and sealing system ensures superior cable retention and watertight conductor termination
- Ideal for outdoor, wet, marine and washdown applications
- Unique 75% faster assembly with EZ Klik® handle locking, and EZ Tite™ cable grip system

Splashproof

- Suitable for indoor use where splashing liquids and other contaminants may interfere with electrical connections
- Ideal for most heavy commercial applications and light industrial applications
- Available in 20- and 30- Amp ratings

UniGard® Pin and Sleeve IEC Connections

EZ Klik® Locking Mechanism

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors



75% Faster Cable Builds — EZ Tite™ System

- One-piece cable gland
- Nylon locking screw prevents loosening
- Easy hand assembly of cable gland, Grip Tite™ 6-finger clamp and onion-ring bushing



Self-Aligning Solid Contacts —

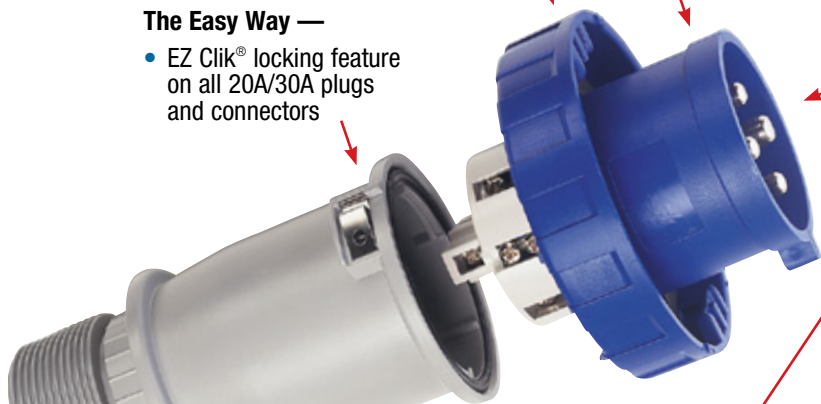
- Self-aligning nickel-plated full-round pins and sleeves for maximum cool contact area
- Sleeve pressure rings ensure constant surface contact force
- Nickel plating offers maximum corrosion for any use

Screw Collars Stay Put —

- Turreted grip allows for easy handling

The Easy Way —

- EZ Klik® locking feature on all 20A/30A plugs and connectors



Safe Connections Standard —

- Ground contacts “make first, break last” for safe connections even under load

UniGard® Pin and Sleeve IEC Connections

Combination Flap/Screw Cover —

- Integral Neoprene gasket for IP67 watertight protection
- Standard flap cover for IP44 splashproof protection
- Unique flex hinge design

Neoprene Cable Bushing —

- Onion-ring design
- Universal fit capability

Solid Neoprene Gasket in Handle

Grip Tite™ 6-Finger Clamp —

- Provides superior cable retention

Secure Grip Handle —

- Tapered shoulder (20A/30A)
- Ribbed (60A/100A)

Raised Ground Terminal —

- Ensures safe connections every time

Fast and Easy Wiring —

- Unique, one-way terminal access
- Clearly marked terminal connections

Double Secure Wiring —

- Dual, combination point terminal screws for fail-safe connections



Standard Interface/World Ready Full International Compliances

EN60309

UL Classification to IEC 309-1 and IEC 309-2

cULus Listing: UL 1682/1686 and CSA C22.2 No. 182.1

CE conforms to EC Low Voltage Directive

North American and Global Voltage Polarization
"clock positions" available in all standard ratings

Solid, Safe Voltage Selections

One-piece contact carriers with full-color IEC
standard voltage-phasing

Coding ensures correct product application every time

UniGard® Pin and Sleeve IEC Connections



Features

No Tools, No Screws Necessary

- EZ Klik® locking handle saves 75% on assembly time
- Unique EZ Klik® assembly feature on 20 and 30 Amp plugs and connectors makes installation and inspection fast and reliable
- Captured gaskets in handles seal out water, chemicals and dust

Easy Action Single-Wiring Point Access Saves Time Wiring

- All terminal screws face in same direction allowing installer to make safe and secure conductor terminations in 30% less time than other devices
- Rugged, corrosion-free thermoplastic housings are color-coded for safe and reliable connections to all other mating type/polarizations, with raised ground terminal standard

Simple Cable Clamping

- Threaded EZ Tite™ cable gland on 20 and 30 Amp devices makes assembly fast and easy
- One-piece lock screw verifies clamp locking hold, with no external metal contact possible (20 and 30 Amp devices)

Unique Fast Assembly

- One-piece EZ Tite™ cable gland with locking screw loads to cable followed by Grip Tite™ 6-finger cable clamp/grip piece
- Watertight onion-ring bushing fits a wide variety of outside diameters

Watertight and Grip Tite™ Safety

- Grip Tite™ flexible 6-finger clamp teeth hold well beyond all agency test pullout forces
- No internal clamps required
- Available in all amperages

The Performance Connection

- Watertight spring-loaded covers with high-strength flex-hinge screw covers on IP67 devices
- Flap covers on IP44 splashproof styles
- Safety, performance and durability for all IEC 309 applications worldwide

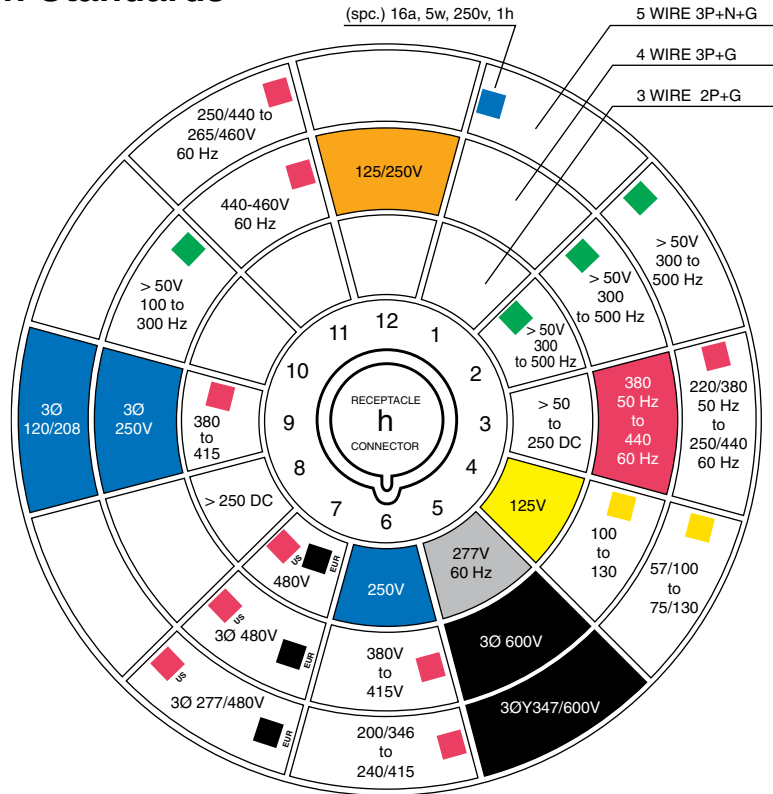
UniGard® Pin and Sleeve IEC Connections

UniGard® Global Configuration Standards

Configuration

It's impossible to mismatch different voltages of the IEC 309-2 Standard Devices

- **Device size determines amperage.** Each voltage grouping is a different size so they are easily distinguishable for compatibility.
- **All IEC 309-2 devices are color coded.** Each voltage grouping has its own distinct color coding for mating compatibility.
- **Every IEC 309-2 mating plug grounding pin is a mirror image of the female device.** Devices of differing voltages cannot be mated to one another.
- **The female receptacles and connectors have a "clock face" voltage polarization.** A "keyway" female housing notch is always at 6 o'clock reference position. Ground contact (sleeve) position on this "clockface" establishes voltage polarization (ie. "7h" = 7 o'clock ground sleeve position). Male pin positions are mirror image.



RATED VOLTAGE	COLOR	USAGE (N. AMER., R.O.W. EURO)
110-130V	YELLOW	No. Amer. and Euro.
208-250V	BLUE	No. Amer. and Euro.
380-415V	RED	Euro.
500V +	BLACK	N. Amer. and Euro.
277/480V	RED	N. Amer.
277V	GRAY	N. Amer.
125/250V	ORANGE	N. Amer.
250/440V	RED	Latin Amer.
50-600V, 300/400 Hz	GREEN	Euro. and N. Amer.
50-250VDC	WHITE	Euro. and N. Amer.

Catalog Numbering System

R S 4 30 P 9 W

Suffixes: Construction Options

Internal Protection

IP67 = Watertight = **W**

IP44 = Splashproof = **S**

Polarization/Voltage

9 = "9h" Clock Hour = 250VAC, 3-phase

Plug, **C**onductor, **R**eceptacle, **I**nlet **B**

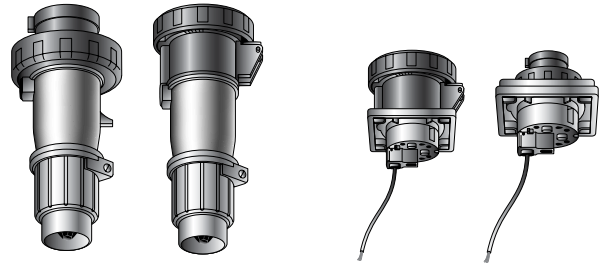
Amperage : 20, 30, 60, 100A or EURO 16, 32, 63, 125A

Poles and Wires : 2p**3**w, 3p**4**w, 4p**5**w

UniGard® Pin and Sleeve IEC Connections

20 Amp

IP67 (shown)



	POLES AND WIRES	CONFIGURATION			VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
		RECEPTACLE/ CONNECTOR	PLUG/ INLET	CLOCK HOUR						
WATERTIGHT IP67	2P3W			4h	125	RS320P4W	RS320C4W	.57-.71	RS320R4W	RS320B4W
	2P3W			6h	250	RS320P6W	RS320C6W	.57-.71	RS320R6W	RS320B6W
	2P3W			5h	277	RS320P5W	RS320C5W	.57-.71	RS320R5W	RS320B5W
	2P3W			7h	480	RS320P7W	RS320C7W	.57-.71	RS320R7W	RS320B7W
	3P4W			12h	125/250	RS420P12W	RS420C12W	.57-.71	RS420R12W	RS420B12W
	3P4W			9h	30250	RS420P9W	RS420C9W	.57-.71	RS420R9W	RS420B9W
	3P4W			7h	30480	RS420P7W	RS420C7W	.57-.71	RS420R7W	RS420B7W
	3P4W			5h	30600	RS420P5W	RS420C5W	.57-.71	RS420R5W	RS420B5W
	4P5W			9h	30Y120/208	RS520P9W	RS520C9W	.57-.71	RS520R9W	RS520B9W
	4P5W			7h	30Y277/480	RS520P7W	RS520C7W	.57-.71	RS520R7W	RS520B7W
	4P5W			5h	30Y347/600	RS520P5W	RS520C5W	.57-.71	RS520R5W	RS520B5W

IP44 Construction: No screw collars on male devices; female devices have flap covers only.

SPLASHPROOF IP44	2P3W			4h	125	RS320P4S	RS320C4S	.57-.71	RS320R4S	RS320B4S
	2P3W			6h	250	RS320P6S	RS320C6S	.57-.71	RS320R6S	RS320B6S
	2P3W			5h	277	RS320P5S	RS320C5S	.57-.71	RS320R5S	RS320B5S
	3P4W			12h	125/250	RS420P12S	RS420C12S	.57-.71	RS420R12S	RS420B12S
	3P4W			9h	30250	RS420P9S	RS420C9S	.57-.71	RS420R9S	RS420B9S
	4P5W			9h	30120/208	RS520P9S	RS520C9S	.57-.71	RS520R9S	RS520B9S

* See page H-401 for back box/mounting options.

UL Listing E2630, E47956

UL Classification E205590

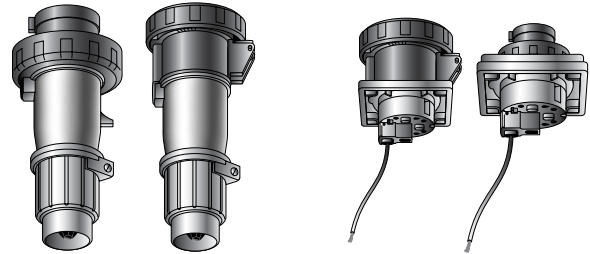
Liquidtight Conduit Adapter Kit

CAT. NO.	DESCRIPTION
2LTK4C50	20A 3W and 4W 1/2" NPT
3LTK4C75	20A 5W 3/4" NPT

UniGard® Pin and Sleeve IEC Connections

30 Amp

IP67 (shown)



	POLES AND WIRES	CONFIGURATION			VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
		RECEPTACLE/ CONNECTOR	PLUG/ INLET	CLOCK HOUR						
WATERTIGHT IP67	2P3W			4h	125	RS330P4W	RS330C4W	.675-.91	RS330R4W	RS330B4W
	2P3W			6h	250	RS330P6W	RS330C6W	.675-.91	RS330R6W	RS330B6W
	2P3W			7h	480	RS330P7W	RS330C7W	.675-.91	RS330R7W	RS330B7W
	3P4W			12h	125/250	RS430P12W	RS430C12W	.675-.91	RS430R12W	RS430B12W
	3P4W			9h	30250	RS430P9W	RS430C9W	.675-.91	RS430R9W	RS430B9W
	3P4W			7h	30480	RS430P7W	RS430C7W	.675-.91	RS430R7W	RS430B7W
	3P4W			5h	30600	RS430P5W	RS430C5W	.675-.91	RS430R5W	RS430B5W
	4P5W			9h	30Y120/208	RS530P9W	RS530C9W	.675-.91	RS530R9W	RS530B9W
	4P5W			7h	30Y277/480	RS530P7W	RS530C7W	.675-.91	RS530R7W	RS530B7W
	4P5W			5h	30Y347/600	RS530P5W	RS530C5W	.675-.91	RS530R5W	RS530B5W

IP44 Construction: No screw collars on male devices; female devices have flap covers only.

SPLASHPROOF IP44	2P3W			4h	125	RS330P4S	RS330C4S	.675-.91	RS330R4S	RS330B4S
	2P3W			6h	250	RS330P6S	RS330C6S	.675-.91	RS330R6S	RS330B6S
	2P3W			5h	277	RS330P5S	RS330C5S	.675-.91	RS330R5S	RS330B5S
	3P4W			12h	125/250	RS430P12S	RS430C12S	.675-.91	RS430R12S	RS430B12S
	3P4W			9h	30250	RS430P9S	RS430C9S	.675-.91	RS430R9S	RS430B9S
	4P5W			9h	30120/208	RS530P9S	RS530C9S	.675-.91	RS530R9S	RS530B9S

* See page H-401 for back box/mounting options.

UL Listing E2630, E47956

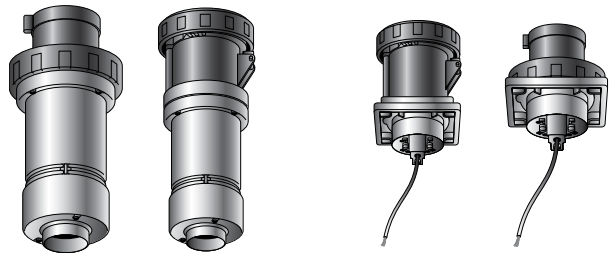
UL Classification E205590

























Liquidtight Conduit Adapter Kit

CAT. NO.	DESCRIPTION
3LTK4C50	30A 3W and 4W ½" NPT
3LTK4C10	30A 3W and 4W 1" NPT
3LTK4C75	30A 3W and 4W ¾" NPT
3LTK5C75	30A 5W ¾" NPT
3LTK5C10	30A 5W 1" NPT

UniGard® Pin and Sleeve IEC Connections

60 Amp



	POLES/ WIRES	CONFIGURATION			VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
		RECEPTACLE/ CONNECTOR	PLUG/ INLET	CLOCK HOUR						
WATERTIGHT IP67	2P3W			4h	125	RS360P4W	RS360C4W	.937–1.375	RS360R4W	RS360B4W
	2P3W			6h	250	RS360P6W	RS360C6W	.937–1.375	RS360R6W	RS360B6W
	2P3W			5h	277	RS360P5W	RS360C5W	.937–1.375	RS360R5W	RS360B5W
	2P3W			7h	480	RS360P7W	RS360C7W	.937–1.375	RS360R7W	RS360B7W
	2P3W			3h	250DC	RS360P3W	RS360C3W	.937–1.375	RS360R3W	RS360B3W
	3P4W			12h	125/250	RS460P12W	RS460C12W	.937–1.375	RS460R12W	RS460B12W
	3P4W			9h	30250	RS460P9W	RS460C9W	.937–1.375	RS460R9W	RS460B9W
	3P4W			7h	30480	RS460P7W	RS460C7W	.937–1.375	RS460R7W	RS460B7W
	3P4W			5h	30600	RS460P5W	RS460C5W	.937–1.375	RS460R5W	RS460B5W
	4P5W			9h	30Y120/208	RS560P9W	RS560C9W	.937–1.375	RS560R9W	RS560B9W
	4P5W			7h	30Y277/480	RS560P7W	RS560C7W	.937–1.375	RS560R7W	RS560B7W
	4P5W			5h	30Y347/600	RS560P5W	RS560C5W	.937–1.375	RS560R5W	RS560B5W

* See page H-401 for back box/mounting options.

UL Listing E2630, E47956

UL Classification E205590

Notes: All UniGard 60- and 100-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxiliary contact service.

Special construction without these pilot contacts is available. Add "XC" to end of Cat. No.

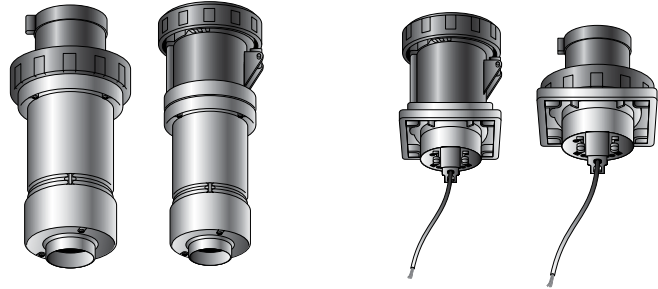
Liquidtight Conduit Adapter Kit*

CAT. NO.	DESCRIPTION
6LTK5C75	60A 5W ¾" NPT
6LTK5C10	60A 5W 1" NPT

* Additional sizes available on request.

UniGard® Pin and Sleeve IEC Connections

100 Amp



	CONFIGURATION			VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*	
	POLES/ WIRES	RECEPTACLE/ CONNECTOR	PLUG/ INLET							CLOCK HOUR
WATERTIGHT IP67	2P3W**			6h	250	RS3100P6W	RS3100C6W	1.2650–1.790	RS3100R6W	RS3100B6W
	2P3W**			7h	480	RS3100P7W	RS3100C7W	1.2650–1.790	RS3100R7W	RS3100B7W
	3P4W			12h	125/250	RS4100P12W	RS4100C12W	1.2650–1.790	RS4100R12W	RS4100B12W
	3P4W			9h	30250	RS4100P9W	RS4100C9W	1.2650–1.790	RS4100R9W	RS4100B9W
	3P4W			7h	30480	RS4100P7W	RS4100C7W	1.2650–1.790	RS4100R7W	RS4100B7W
	3P4W			5h	30600	RS4100P5W	RS4100C5W	1.2650–1.790	RS4100R5W	RS4100B5W
	4P5W			9h	30Y120/208	RS5100P9W	RS5100C9W	1.2650–1.790	RS5100R9W	RS5100B9W
	4P5W			7h	30Y277/480	RS5100P7W	RS5100C7W	1.2650–1.790	RS5100R7W	RS5100B7W
	4P5W			5h	30Y347/600	RS5100P5W	RS5100C5W	1.2650–1.790	RS5100R5W	RS5100B5W

* See page H-401 for back box/mounting options.

** Alternate vendor-supplied item; construction features will vary from specs in this catalog. Full IEC approval and mating guaranteed.
Contact Technical Services for inlet/receptacle mounting components.

UL Listing E2630, E47956

UL Classification E205590

Notes: All UniGard 60- and 100-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxiliary contact service.
Special construction without these pilot contacts is available. (Add "XC" to end of Cat. No.)

Liquidtight Conduit Adapter Kit

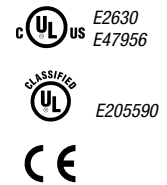
CAT. NO.	DESCRIPTION
10LTK5C10▼	100A 4W, 5W 1" NPT
10LTK5C125▼	100A 4W, 5W 1¼" NPT
10LTK5C150▼	100A 4W, 5W 1½" NPT

▼ For 4-wire and 5-wire plugs and connectors only.
Contact Technical Services for 3-wire plug and connector conduit adapters. 100A 3-wire plugs and connectors use PG48 backhandle thread.

UniGard® Pin and Sleeve IEC Connections

Performance — Electrical

Dielectric Voltage Withstand	3000 volts for 1 minute (fixed devices) 2200 volts for 1 minute (portable devices)
Maximum Working Voltage	600VAC/250VDC (minimum creepage and clearances per UL 840)
Current Interrupting/Load Breaking	Tested to 150% of full rated current for circuit interrupting
Temperature Rise	Maximum 30° C rise at full rated current after 50 cycles overload at 150% rated load at .75 pF
Endurance with Load	20 Amp: 5000 cycles — Load only
Per IEC309-1 Clause 21	30 Amp: 1000 cycles — Alternating load 60 Amp: 1000 cycles — Alternating load 100 Amp: 250 cycles — Alternating load



Performance — Mechanical

Cold (-25° C) Impact Resistance	Per UL 1682 Section 34 and IEC 309-1 Clause 24
Cable O.D. Accommodation	Round portable service cord from .57" O.D. through 1.79" O.D.
Terminal Identification	In accordance with UL 1682 standards and IEC390-1: as L1-L2-L3-N-G
Cable Pull-Out Force	Per UL 1682 Section 33 and IEC309-1 Clause 23
Product Identification	Molded-in product trademark(s) and UL approved product label

Performance — Environmental

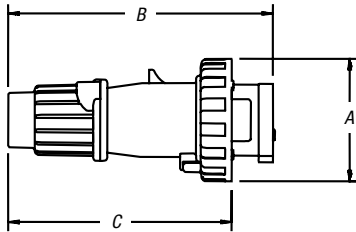
Moisture Resistance	Per IEC309-1; Watertight flap/screw cover on IP67 devices or splashproof flap cover on IP44 devices
Flammability	All components V1 or better per UL94, V0 product ratings available
Operating Temperatures	Maximum continuous 90° C/194° F; minimum -25° C/-13° F
Chemical Resistance	Resists standard industrial hydrocarbons, acids, bases and solvents
Corrosion Resistance	All metallic components stainless steel or nickel-plated brass sleeve pressure rings of zinc-plated steel

Materials

Housing	Valox®
Contact Carriers	Valox®
Cable Gland Nut	Valox®
Cable Bushing	Solid Neoprene, onion-ring type
O-Ring, Seals and Gaskets	Solid Neoprene
Pins & Sleeves	Nickel-plated brass
Sleeve Force Ring	Zinc-plated steel
Terminal Screws	Nickel-plated steel
Flap/Screw Cover Springs	Stainless steel
EZ Klik® Spring	Stainless steel
Mounting Flanges	Valox
Cast Enclosures/Adapters	Two-layer electrostatic epoxy-coated, copper-free aluminum enclosures (Valox Euro style NM also available)

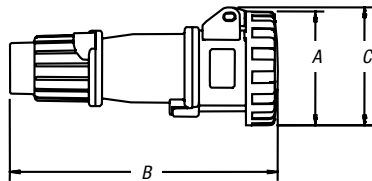
Valox® is a trademark of GE.

UniGard® Pin and Sleeve IEC Connections



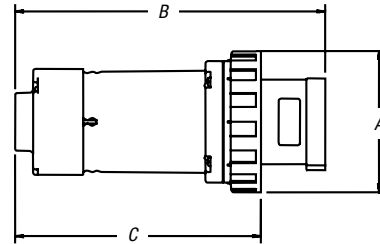
Plug IP67 16/20A and 30/32A

CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	6.20	157	5.23	133	.570-.710	14-18
16/20A 3P4W	3.17	81	6.47	164	5.51	140	.570-.710	14-18
16/20A 4P5W	3.48	88	7.02	178	6.06	154	.570-.710	14-18
30/32A 2P3W	3.66	93	7.37	187	6.13	156	.675-.910	17-23
30/32A 3P4W	3.66	93	7.37	187	6.13	156	.675-.910	17-23
30/32A 4P5W	3.96	101	8.15	207	6.91	176	.675-.910	17-23



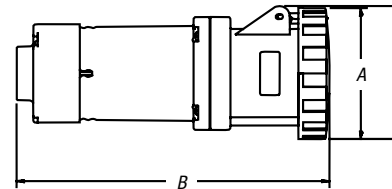
Connector IP67 16/20A and 30/32A

CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	6.75	171	2.97	75	.570-.710	14-18
16/20A 3P4W	3.17	81	7.04	179	3.28	83	.570-.710	14-18
16/20A 4P5W	3.48	88	7.62	194	3.75	95	.570-.710	14-18
30/32A 2P3W	3.66	93	8.04	204	4.04	103	.675-.910	17-23
30/32A 3P4W	3.66	93	8.04	204	4.04	103	.675-.910	17-23
30/32A 4P5W	3.96	101	8.83	224	4.03	102	.675-.910	17-23



Plug IP67 60/63A and 100/125A

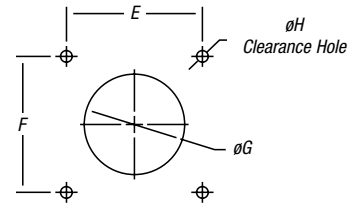
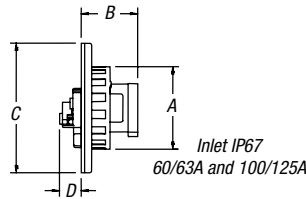
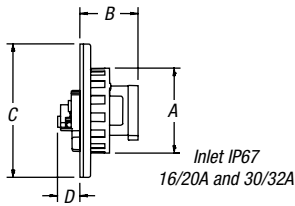
CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	9.68	246	7.67	195	.937-1.375	24-35
60/63A 3P4W	4.41	112	9.68	246	7.67	195	.937-1.375	24-35
60/63A 4P5W	4.41	112	9.68	246	7.67	195	.937-1.375	24-35
100/125A 3P4W	5.06	129	12.16	309	9.83	250	1.265-1.790	32-45
100/125A 4P5W	5.06	129	12.16	309	9.83	250	1.265-1.790	32-45



Connector IP67 60/63A and 100/125A

CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	10.52	267	4.47	114	.937-1.375	24-35
60/63A 3P4W	4.41	112	10.52	267	4.47	114	.937-1.375	24-35
60/63A 4P5W	4.41	112	10.52	267	4.47	114	.937-1.375	24-35
100/125A 3P4W	5.06	129	12.80	325	5.06	129	1.265-1.790	32-45
100/125A 4P5W	5.06	129	12.80	325	5.06	129	1.265-1.790	32-45

UniGard® Pin and Sleeve IEC Connections

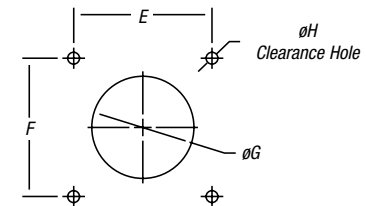
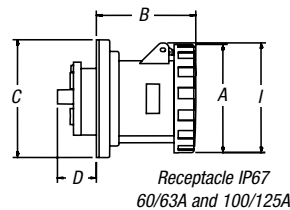
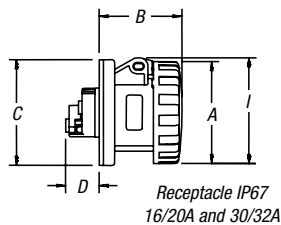


Inlet IP67 16/20A and 30/32A

CAT. NO.	A		B		C		D		E		F		G		H	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.0	76	.282	7.2
16/20A 3P4W	3.17	81	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.03	77	.282	7.2
16/20A 4P5W	3.48	88	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 2P3W	3.66	93	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 3P4W	3.66	93	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 4P5W	3.96	101	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.75	95	.282	7.2

Inlet IP67 60/63A and 100/125A

CAT. NO.	A		B		C		D		E		F		G		H	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
60/63A 3P4W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
60/63A 4P5W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
100/125A 3P4W	5.06	129	3.88	99	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2
100/125A 4P5W	5.06	129	3.88	99	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2



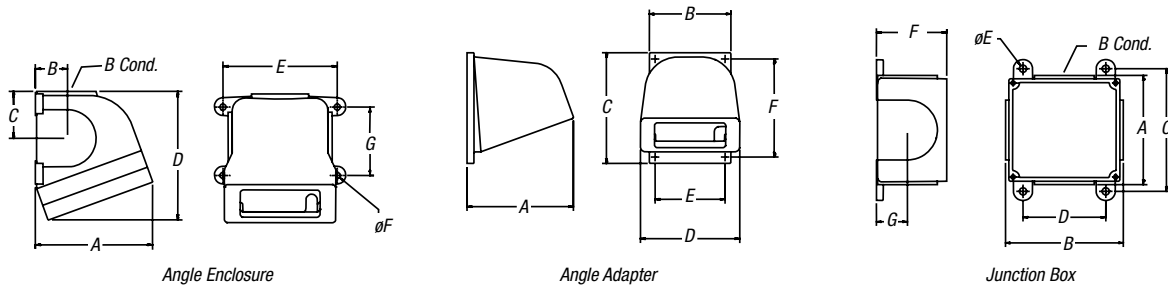
Receptacle IP67 16/20A and 30/32A

CAT. NO.	A		B		C		D		E		F		G		H		I	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	2.32	59	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	2.97	75
16/20A 3P4W	3.17	81	2.34	60	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	3.28	83
16/20A 4P5W	3.48	88	2.37	60	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	3.75	95
30/32A 2P3W	3.66	93	2.79	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.04	103
30/32A 3P4W	3.66	93	2.79	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.04	103
30/32A 4P5W	3.96	101	2.81	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.03	102

Receptacle IP67 60/63A and 100/125A

CAT. NO.	A		B		C		D		E		F		G		H		I	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
60/63A 3P4W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
60/63A 4P5W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
100/125A 3P4W	5.06	129	4.52	115	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2	5.06	129
100/125A 4P5W	5.06	129	4.52	115	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2	5.06	129

UniGard® Pin and Sleeve IEC Connections



20° Angle Enclosures*

CAT. NO.	CONDUIT SIZE	USE	A		B		C		D		E		F		G	
			INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
BE3-B75	¾"	20A and 30A Devices	3.34	85	.97	25	1.12	28	4.12	105	4.00	102	.25	6	2.38	60
BE3-B100	1"	20A and 30A Devices	3.34	85	.97	25	1.12	28	4.12	105	4.00	102	.25	6	2.38	60
AE6-B125	1¼"	60A Devices	5.13	130	1.41	36	2.05	52	5.62	143	5.00	127	.28	7	3.00	76
AE6-B150	1½"	60A Devices	5.13	130	1.41	36	2.05	52	5.62	143	5.00	127	.28	7	3.00	76
AE10-B150	1½"	100A Devices	7.05	179	1.81	46	2.68	68	6.88	175	5.50	140	.34	9	4.00	102
AE10-B200	2"	100A Devices	7.05	179	1.81	46	2.68	68	6.88	175	5.50	140	.34	9	4.00	102

* For use where there is no existing T&B Russellstoll JB series junction box installed. For 20/30A inlets, use 60A size.

20° Angle Adapters*

CAT. NO.	USE	A		B		C		D		E		F	
		INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
AA3	20A and 30A Devices	3.17	81	3.00	76	4.25	108	3.00	76	2.50	64	3.75	95
AA6L	60A Devices	5.23	133	4.00	102	5.43	138	4.88	124	3.44	87	4.81	122
AA10L	100A Devices	7.36	187	5.50	140	5.50	140	6.00	152	4.87	124	4.87	124

* To be used with JB series junction boxes or panel mount. For 20/30A inlets, use 60A size.

Rectangular Junction Boxes*

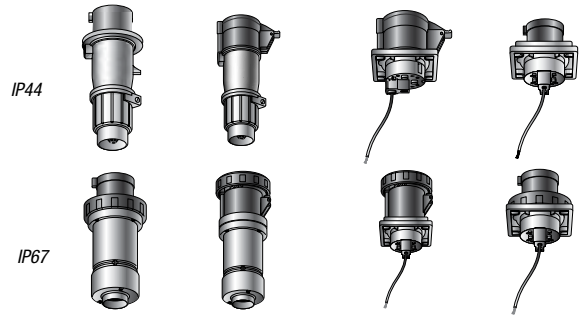
CAT. NO.	CONDUIT SIZE	USE	A		B		C		D		E		F		G	
			INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
JB3-B75	¾"	20A and 30A Devices	2.94	75	4.19	106	3.69	94	2.69	68	.25	6	2.38	60	1.25	32
JB3-B100	1"	20A and 30A Devices	2.94	75	4.19	106	3.69	94	2.69	68	.25	6	2.38	60	1.25	32
JB6-B125	1¼"	60A Devices	4.00	102	5.63	143	4.94	125	3.81	97	.34	9	3.00	76	1.50	38
JB6-B150	1½"	60A Devices	4.00	102	5.63	143	4.94	125	3.81	97	.34	9	3.00	76	1.50	38
JB10-B150	1½"	100A Devices	5.50	140	5.50	140	4.25	108	6.75	171	.34	9	3.75	95	2.00	51
JB10-B200	2"	100A Devices	5.50	140	5.50	140	4.25	108	6.75	171	.34	9	3.75	95	2.00	51

* Unless otherwise specified, junction boxes are furnished with one conduit size at location B. To be used with AA series angle adapters. For 20/30A inlets, use 60A size.

UniGard® Pin and Sleeve IEC Connections

International Ratings

Common polarizations shown. Other ratings are available; contact Technical Services. For 16A or 32A IP67 watertight ratings (-W suffix), substitute -W instead of -S in catalog number. Example: RS316P4W.



	POLES/ WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE	INLET
16 AMP IP44	2P3W			4h	110V	RS316P4S	RS316C4S	.57-.71	RS316R4S	RS316B4S
	2P3W			6h	250V	RS316P6S	RS316C6S	.57-.71	RS316R6S	RS316B6S
	3P4W			6h	380-415V	RS416P6S	RS416C6S	.57-.71	RS416R6S	RS416B6S
	4P5W			6h	220-240/ 380-415V	RS516P6S	RS516C6S	.57-.71	RS516R6S	RS516B6S

See **page H-400** for Conduit Adapter Options.

32 AMP IP44	2P3W			4h	110V	RS332P4S	RS332C4S	.675-.91	RS332R4S	RS332B4S
	2P3W			6h	250V	RS332P6S	RS332C6S	.675-.91	RS332R6S	RS332B6S
	3P4W			6h	380-415V	RS432P6S	RS432C6S	.675-.91	RS432R6S	RS432B6S
	3P4W			3h	380-440V	SPECIAL APPLICATION — CONTACT TECHNICAL SERVICES				
	4P5W			6h	220-240/ 380-415V	RS532P6S	RS532C6S	.675-.91	RS532R6S	RS532B6S

See **page H-401** for Conduit Adapter Options.

63 AMP IP67	2P3W			6h	250V	RS363P6W	RS363C6W	.937-1.375	RS363R6W	RS363B6W
	3P4W			6h	380-415V	RS463P6W	RS463C6W	.937-1.375	RS463R6W	RS463B6W
	4P5W			6h	220-240/ 380-415V	RS563P6W	RS563C6W	.937-1.375	RS563R6W	RS563B6W

See **page H-402** for Conduit Adapter Options.

125 AMP IP67	2P3W*			6h	250V	RS3125P6W	RS3125C6W	1.265-1.790	RS3125R6W	RS3125B6W
	3P4W			6h	380-415V	RS4125P6W	RS4125C6W	1.265-1.790	RS4125R6W	RS4125B6W
	4P5W			6h	220-240/ 380-415V	RS5125P6W	RS5125C6W	1.265-1.790	RS5125R6W	RS5125B6W

See **page H-401** for back box/mounting options.

Euro color is "red"; devices supplied in North America will use "blue" (mating is not affected).

*Alternate vendor supplied item; construction features will vary from specs in this catalog. Full IEC approval and mating guaranteed.
Contact Technical Services for inlet/receptacle mounting components.

UL Classification E205590

Note: All UniGard 63- and 125-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxiliary contact service.

Special construction without these pilot contacts is available. (Add "XC" to end of catalog number.)

UniGard® Pin and Sleeve IEC Connections

International Amperages — UniGard® Series Specifications



Performance — Electrical

Dielectric Voltage Withstand	3000 volts for 1 minute per IEC 309-1, Clause 19
Maximum Working Voltage	690VAC/250VDC (minimum creepage and clearances per IEC)
Current Interrupting/Load Breaking	Tested to 125% rated current at 110% rated voltage per IEC 309-1 clause 20
Temperature Rise	Maximum 50° C rise at rated current per IEC 309-1 Clause 22, Table 8
Endurance with Load Per IEC 309-1 Clause 21	16 Amp: 5000 cycles — Load only 32 Amp: 1000 cycles — Alternating load 63 Amp: 1000 cycles — Alternating load 100 Amp: 250 cycles — Alternating load

Performance — Mechanical

Cold (-25° C) Impact Resistance	Per IEC 309-1 Clause 24; -25° C with 75cm drop
Cable O.D. Accommodation	Round portable service cords from 14.5mm O.D. through 50mm O.D.
Terminal Identification	In accordance with IEC 309-1 standards; as L1-L2-L3-N-G
Cable Pull-Out Force	In accordance with IEC 309-1, Clause 23
Product Identification	Molded-in product trademark(s) and CE mark on packaging

Performance — Environmental

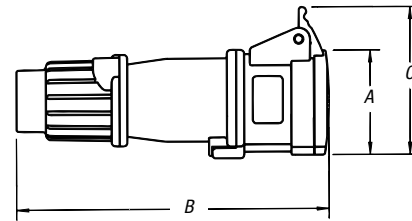
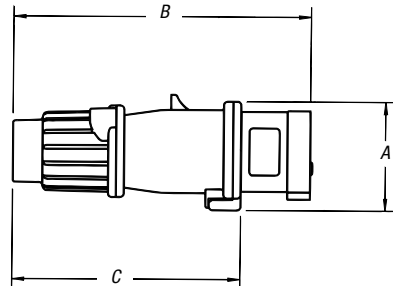
Moisture Resistance	Per IEC 309-1; watertight flap/screw cover on IP67 devices or flap cover on IP44 devices
Flammability	Per IEC 695-2-1; housing glow wire tested to 650° C; contact carrier insert tested to 850° C
Operating Temperatures	Maximum continuous 90° C/194° F; Minimum -25° C/-13° F with impact
Chemical Resistance	Resists standard industrial hydrocarbons, acids, bases and solvents
Corrosion Resistance	All metallic components stainless steel or nickel-plated brass Sleeve pressure rings of zinc-plated steel
UV Resistance	External thermoplastic components are UV stabilized IP67 Series 2 is suitable for outdoor use

Materials

Housing	Valox®
Contact Carriers	Valox®
Cable Gland Nut	Valox®
Cable Bushing	Solid Neoprene, onion-ring type
O-Ring, Seals and Gaskets	Solid Neoprene
Pins and Sleeves	Nickel-plated brass
Sleeve Force Ring	Zinc-plated steel
Terminal Screws	Nickel-plated steel
Flap/Screw Cover Springs	Stainless steel
EZ Klik® Spring	Stainless steel
Mounting Flanges	Valox®
Cast Enclosures/Adapters	Two-layer electrostatic epoxy-coated, copper-free aluminum enclosures (Valox® Euro style NM available)

Valox is a registered trademark of GE.

UniGard® Pin and Sleeve IEC Connections

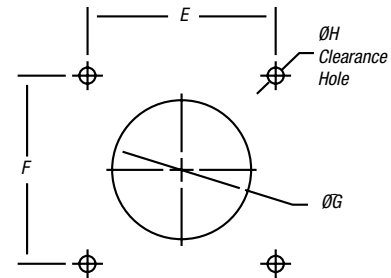
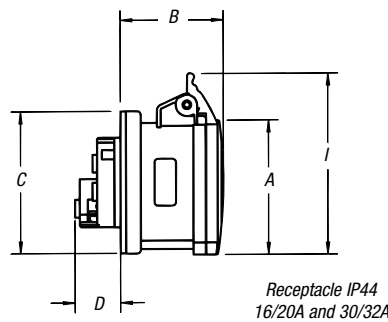
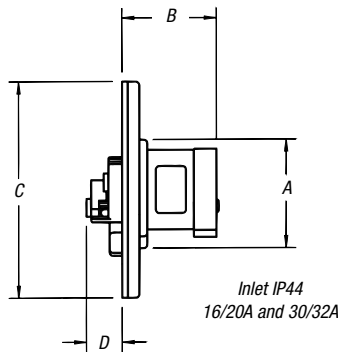


Plug IP44

CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.26	58	6.20	157	4.76	121	.570-.710	14-18
16/20A 3P4W	2.52	64	6.47	164	5.04	128	.570-.710	14-18
16/20A 4P5W	2.85	73	7.02	178	5.58	142	.570-.710	14-18
30/32A 2P3W	2.85	73	7.37	187	5.58	142	.675-.910	17-23
30/32A 3P4W	2.85	73	7.37	187	5.58	142	.675-.910	17-23
30/32A 4P5W	3.13	80	8.15	207	6.36	162	.675-.910	17-23

Connector IP44

CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.18	55	6.53	166	3.07	78	.570-.710	14-18
16/20A 3P4W	2.43	62	6.83	173	3.33	85	.570-.710	14-18
16/20A 4P5W	2.81	71	7.41	188	3.79	96	.570-.710	14-18
30/32A 2P3W	2.81	71	7.81	198	3.79	96	.675-.910	17-23
30/32A 3P4W	2.81	71	7.81	198	3.79	96	.675-.910	17-23
30/32A 4P5W	3.09	79	8.62	219	4.17	106	.675-.910	17-23



Inlet IP44

CAT. NO.	A		B		C		D		E		F		G		H	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.26	58	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	.282	7.2
16/20A 3P4W	2.52	64	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	.282	7.2
16/20A 4P5W	2.85	73	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	.282	7.2
30/32A 2P3W	2.85	73	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	.282	7.2
30/32A 3P4W	2.85	73	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	.282	7.2
30/32A 4P5W	3.13	80	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	.282	7.2

Receptacle IP44

CAT. NO.	A		B		C		D		E		F		G		H		I	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.18	55	2.11	54	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.07	78
16/20A 3P4W	2.43	62	2.13	54	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.33	85
16/20A 4P5W	2.81	71	2.17	55	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 2P3W	2.81	71	2.56	65	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 3P4W	2.81	71	2.56	65	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 4P5W	3.09	79	2.60	66	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	4.17	106

UniGuard® Pin and Sleeve IEC Connections

IEC 309 Safety Interlock — The UniGuard® Difference

The Only True Circuit Breaker Interlocked IEC 309 Receptacle (Outlet)

- Circuit breaker integrated interlock mechanism
- UL 489 Listed 22kAIC protection
- Alternate trip ratings available
- Auxiliary switch option

Watertight — IP67

- “W” suffixes (UL Type 4X construction)
- Rugged thermoplastic housings resist impact or abuse and provide excellent corrosion resistance
- Rugged V0-5VA flameproof housings
- Ideal for outdoor, wet, marine and washdown applications
- Unique industry-first circuit breaker interlock
- US: 20-, 30-, 60- and 100-amp sizes
- International: 16-, 32-, 63- and 125-amp sizes

Splashproof — IP44

- “S” suffixes (NEMA 3R construction)
- Suitable for indoor use where splashing liquids and other contaminants may interfere with electrical connections
- Ideal for most heavy commercial applications and light industrial applications
- US 20-, 30- and 60-amp ratings
- International 16-, 32- and 63-amp ratings



Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors



Protection and Safety in Power Delivery

- Red vertical “ON” indication
- Lock on and Lock “OFF” positions
- Branch circuit load and operation protection or switched-only version (shown)



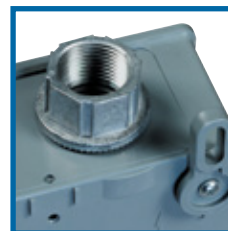
Mount It Anywhere

- Swivel 3- or 4-point feet variable footprint for flexible mounting
- Fits in web of 8" I-beams



Or Switched-Only Version

- Rugged UL Listed switch
- Proven performance components
- Through 600VAC 4P5W plus auxiliary contacts capable



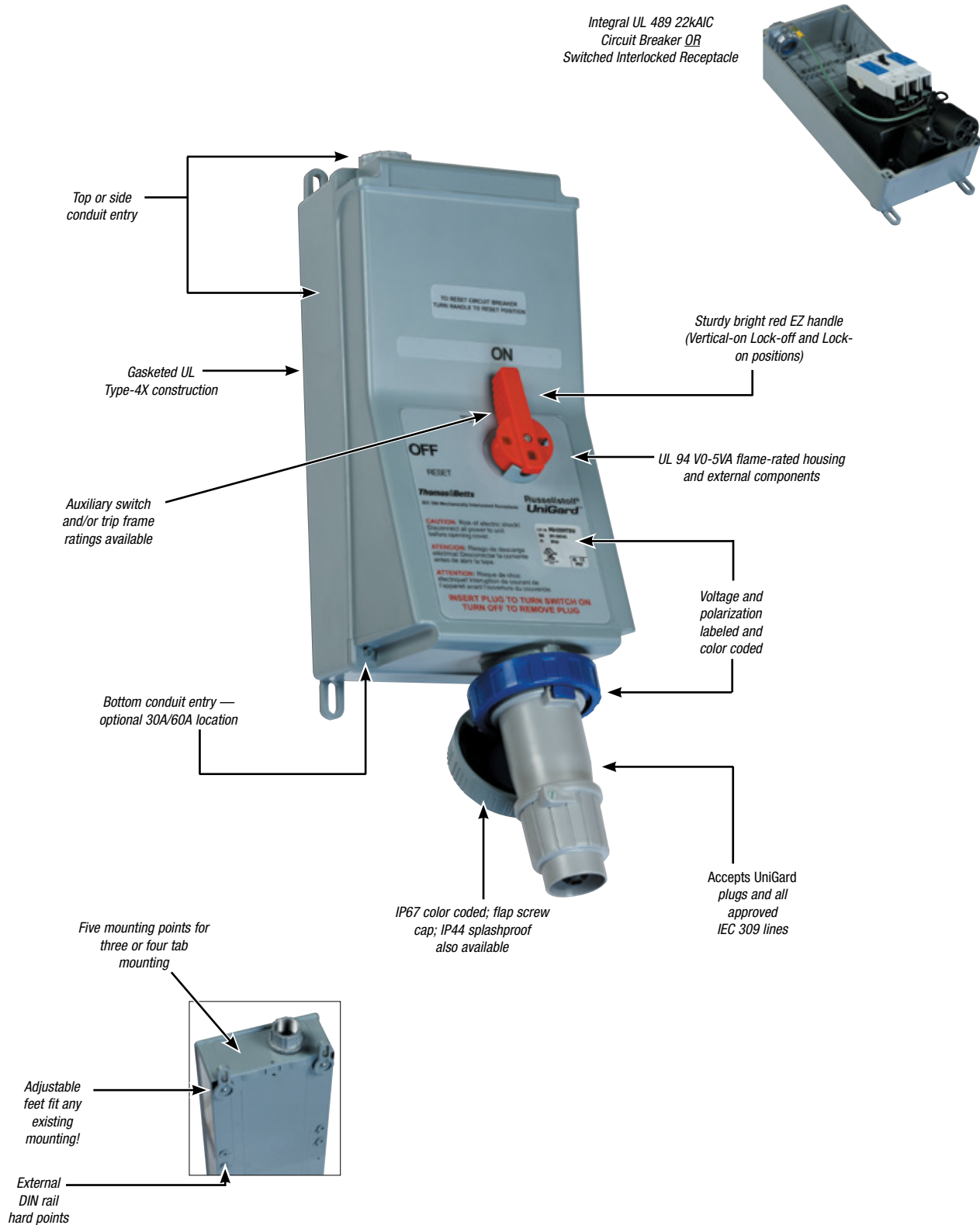
Wire It Up, Sideways or Down

- Top, side and bottom entry
- Industry standard entry sizes

TOP AND BOTTOM	TOP	SIDE ENTRY
20/30 Amp	60/100 Amp	All

UniGard® Pin and Sleeve IEC Connections

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors



UniGard® Pin and Sleeve IEC Connections

Russellstoll® UniGard® IEC 309 Circuit Breaker Interlocked Receptacle

16/20A, 30/32A, 60/63A and 100/125A International and U.S. Ratings IN ALL STANDARD VOLTAGE POLARIZATIONS:

RANGE	COLOR CODE	USAGE (N. AMER., R.O.W. EURO)	2P3W	3P4W	4P5
110–130V	YELLOW	N. Amer./Euro	4h	4h	—
208–250V	BLUE	N. Amer./Euro	6h	9h	9h
380–415V	RED	Euro	9h	6h/3h (spec)	6h
500V +	BLACK	N. Amer./Euro	—	5h	5h
277/480V	RED	N. Amer. (Black, Euro)	7h	7h	7h
277V	GRAY	N. Amer.	5h	—	—
125/250V	ORANGE	N. Amer.	—	12h	—
250/440V	RED	Latin Amer./N. Amer.	—	11h	11h/3h
to 600V, to 400 Hz	GREEN	N. Amer./Euro	2h	2h	2h

Contact T&B for other special polarizations.

Specifications for Any New or Replacement Project

2 options available

MT

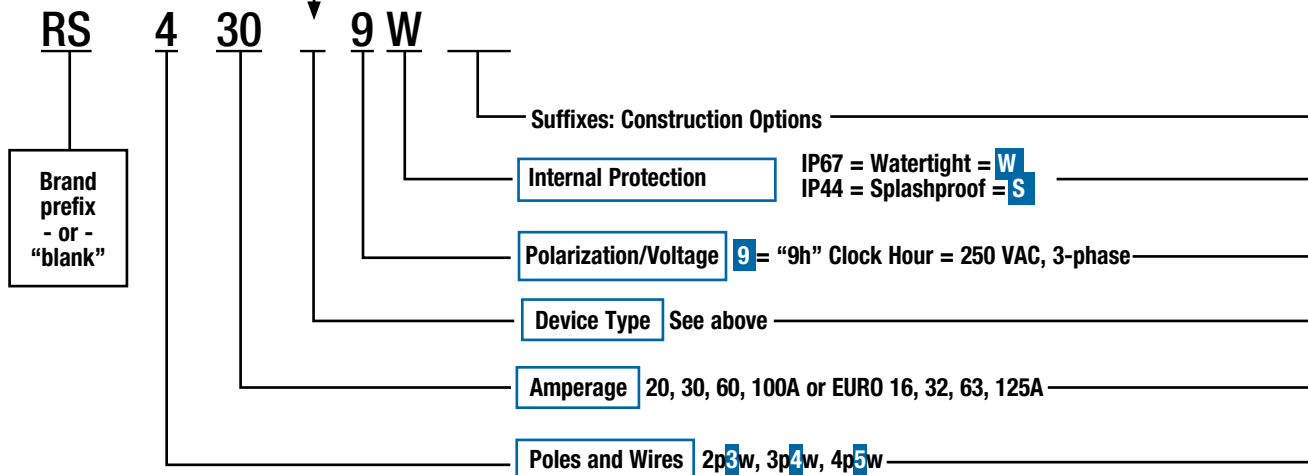
Integral Circuit Breaker (UL 231 and UL 489) Power Outlet

> (replaces all fused-switched competitor “FMIR” or “MIF” series) (US amperage only)

MI

Rotary Switched (UL 508 and UL 98) Manual Motor Controller Outlet

> (replaces all switched-only competitor “MI” or “MIR” series) (all amperages)



UniGard® Pin and Sleeve IEC Connections

Specifications: IEC 309 Interlocked Receptacles — North American Standards

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Maximum Working Voltage	480 volts RMS (circuit breaker version) 600 volts RMS (switch version)
Current Interrupting	Certified for current interrupting at full rated current and voltage
Short-Circuit Current Rating Operations	10,000 RMS symmetrical amperes Mechanical: 10,000 cycles Electrical: 6000 cycles
HP Ratings (switch version)	Complies with NEC® 430–151 ratings
Circuit Breaker UL Listed Interrupting Rating	22,000 AIC

Performance — Mechanical

Cold (-35° C) Impact Resistance	In accordance with UL 746C
Wiring Accommodations	Suitable for metallic conduit. Conduit entry locations at enclosure top and bottom (60A and 100A top only)
Terminal Identification	In accordance with UL, CSA and IEC 309 conventions
Product Identification	Identification, ratings and color code in accordance with UL, CSA and IEC 309 requirements
Lockout/Tagout	“ON” and “OFF” lockout/tagout capability at switch handle. Complies with OSHA Reg. 29CFR 1910.147
Mounting	External adjustable feet

Performance — Environmental

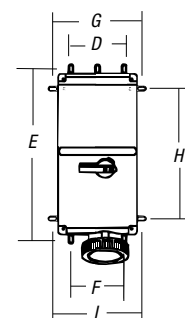
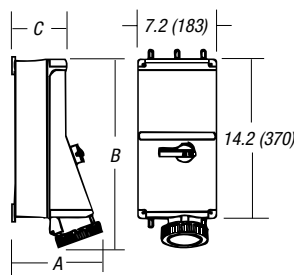
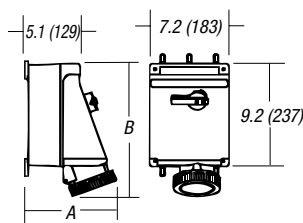
Moisture Resistance	Screw cap version: UL Type 4X, IP67 Flap cap version: IP44
Flammability	UL 94-5VA and VO classifications
Operating Temperatures	Maximum continuous: 60° C (140° F) Minimum continuous: -40° C (-40° F)
UV Resistance	UV-stabilized material
Chemicals	Resists most standard industrial hydrocarbons, acids, bases and solvents

Materials

Enclosure (all exterior components)	UL 94-5VA/VO, UV-stabilized, impact-modified Valox®
Contact Carrier	Molded arc-resistant UL 94-VO thermoplastic
Gaskets	Neoprene or EPDM
Contacts (sleeves)	Nickel-plated brass
Hardware (screws and springs)	Steel with zinc-plated blue chromate or nickel plating

Approvals and Compliances

UL 508 and UL 98 (switch version)
UL 231 and UL 489 (circuit breaker version)
UL 1682
CSA C22.2 No. 14, 182.1
IEC 309-1, -2



OVERALL DIMENSIONS (INCHES — MM)

OVERALL DIMENSIONS (INCHES — MM)

MOUNTING DIMENSIONS (INCHES — MM)

16/20A, 30/32A AND 60/63A SWITCH VERSIONS						30A AND 60A BREAKER AND 100/125A SWITCH AND BREAKER VERSIONS					16/20A SWITCH, 30A BREAKER, 100A BREAKER		
DIM.	IP44	IP67	IP44	IP67	IP44	IP67	IP44	IP67	IP44	IP67	IP67	DIM.	
A	7.5–140	8.0–203	7.7–196	8.2–208	8.0–203	8.5–216	7.7–196	8.2–208	8.0–203	8.5–216	9.8–249	D	5.5–140
B	10.8–273	10.9–277	11.2–284	11.4–289	11.9–302	12.2–309	16.4–417	16.5–418	17.0–432	17.4–443	17.7–450	E	10.0–254
C	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.6–149	F	5.5–140
												G	8.0–203
												H	7.5–191
												I	8.0–203

3-pt. and 4-pt. mounting positions available. 100A versions have 4-pt. mounting position only.

Adjustable mounting feet, vertical or horizontal.

Slotted through holes for easier alignment.

DuraTite® and Ever-Lok® Locking Connections

Russellstoll® Line Selections for Indoor Applications

DuraTite® to 3P4W 20A and 30A

A new thermoplastic option to 20/30A Standard Ever-Lok® plugs and connectors. 20A and 30A plugs will mate directly to Standard Ever-Lok® receptacles, with a new EZTab locking feature. For new installations, specify Ever-Lok® receptacles with DuraTite® plugs and connectors. Clamp or conduit options complete a flexible value option for new and existing installations.

Ever-Lok® Standard and Midget Series to 3P4W 15A through 50A

Steel self-locking housings make Standard and Midget Ever-Lok® connections famous for their endurance in punishing factory installations. Clamp, bushing or hub fitting cable entries are offered for both with Standard Ever-Lok® available at 20A, 30A and 50A over the 15A Midget Ever-Lok®. Standard voltage polarizations are maintained in these lines through 480VAC.

Heavy Service Ever-Lok® to 4P4W 30A through 100A

The standard in portable welding installations, from 30A to 100A. Rugged aluminum housings and self-locking upon insertion, HSE series products are ideal for indoor factory use. With unique handle designs, a simple 1/8 turn counter-clockwise releases plug for withdrawal. Switched/fused or circuit breaker interlocks in several configurations are also offered. See Automotive/Industrial Interlock section.

IEC (IP44) to 4P5W 20A through 100A

Thermoplastic International Standard 309-2 or CEE-17 type connector lines usage is growing in OEM, export and standard performance applications. The IP44 indoor-use style is splashproof when mated and directly interchangeable with other manufacturers. International designations shadow U.S. ratings: 20/16A, 30/32A, 60/63A and 100/125A. IP44 devices have NO locking features except flap covers, with catalog numbers "S" or "SW" suffixes.

Usage

- Any application where electrical connections need protection from water and/or dust entering the contacts or the wiring compartment
- Less credit cable sealing but easier-to-use device locking designs are employed
- Metal connectors are usually preferred with thermoplastic options increasing; thermoplastic devices must withstand normal industrial handling



Typical Application Groups

General Industrial

- Lighting Connections
- Indoor Welding Stations
- Machinery/Tool Connections
- Power Distribution Panels
- Convenience Power
- Battery Charging Equipment

Construction

- Generator Set Panels
- Portable Tools and Equipment
- Limited-Life Installations
- Portable Lighting Equipment

Instrumentation

- Portable Equipment
- Critical Power Connections
- Motor Power Connections
- Critical Robotics Power
- Test Equipment
- Laboratory/Test Stations

OEMs

- Export Machinery
- Critical Power Connections
- International Indoor Usage
- Transportable Equipment

DuraTite® and Ever-Lok® Locking Connections

Industrial Specification Grade Redefined.

Non-Metallic Self-Locking Plugs, Connectors and Receptacles

From our industry-standard Ever-Lok® series of plugs, connectors and receptacles, Russellstoll® has developed DuraTite® — the first non-metallic, self-locking pin and sleeve power interconnection system. In 20- and 30-amp ranges, DuraTite® mates with existing 15–30A Ever-Lok® receptacles already in use.

Industrial “Safety Grade” Construction

- 20- and 30-amp plugs and connectors (600VAC max.)
- Indoor industrial and heavy-duty use
- Durable, tough and flame safety rated housings
- DuraV® housing material specially selected for hot or cold washdown duty
- Flame safe UL94-V0 rated housings
- Superior performance in corrosive environments
- High-visibility yellow housings































Safe and Reliable Power Connections: Pin and Sleeve, Voltage Polarized

- Long life: Round, self-cleaning, constant-pressure pin and sleeve contacts, of solid CDA 360 brass for long reliable electrical life
- More power, operates cooler: Large circular electrical contact area allows more current flow with lower temperature rise
- Ground pin keyed for voltage polarization (O-ring seal)
- Voltage polarized for safe connection (U-ground) (pins shown with optional O-ring seals)

Easy To Wire

- “No Twist-Off” locking plugs: Integral threaded screw collars and compression-type bushings make wiring a snap
- Fast assembly and wiring: “Drop-In” rear loaded interiors use no assembly screws, versus 3–5 or more with other connectors. 30/50A connectors use unique E-Z Tite™ external gland lock screw
- Set-screw terminals: Are quick and easy to wire, with complete wire capture in deep pin/sleeve barrels

DuraTite® and Ever-Lok® Locking Connections

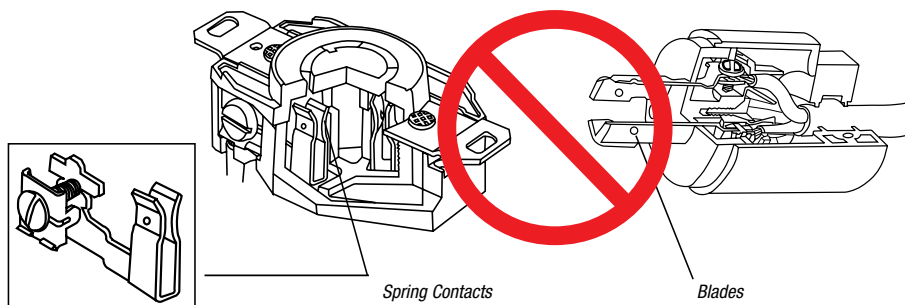
			CAT. NOS.						
			PLUG		CONNECTOR		STD. I.D. BUSHING: PLUG/ CONN.*	RECEPTACLE — EVER-LOK®	
									
			DURATITE®	EVER-LOK®	DURATITE®	EVER-LOK®			
@ 250V AMPS	VOLTAGE	FACE RECEP./ CONN.							
2P3W 20A	125VAC		5P23U1LD	8013U1 8153U1 8593U1	5C23U1LD	8023U1 8093U1 8683U1	.625	8003U1	8083U1
	250VAC		5P23U2LD	8013U2 8153U2 8593U2	5C23U2LD	8023U2 8093U2 8683U2	.625	8003U2	8083U2
	277		5P23U3LD	8013U3 8153U3 8593U3	5C23U3LD	8023U3 8093U3 8683U3	.625	8003U3	8083U3
	480		5P23U4LD	8013U4 8153U4 8593U4	5C23U4LD	8023U4 8093U4 8683U4	.625	8003U4	8083U4
	600		5P23U5LD	8013U5 8153U5 8593U5	5C23U5LD	8023U5 8093U5 8683U5	.625	8003U5	8083U5
	through 600 (all)		5P23U0LD	8013 8153 8593	5C23U0LD	8023 8093 8683	.625	8003N	8083N
2P3W 30A	125VAC		5P33U1LD	—	5C33U1LD	—	.700	NA	NA
	250VAC		5P33U2LD	—	5C33U2LD	—	.700	NA	NA
	277VAC		5P33U3LD	—	5C33U3LD	—	.700	NA	NA
	480VAC		5P33U4LD	—	5C33U4LD	—	.700	NA	NA
	600VAC		5P33U5LD	—	5C33U5LD	—	.700	NA	NA
	through 600 (all)		5P33U0LD	8015 8155 8656	5C33U0LD	8025 8095 8646	.700	8030N	8005N
3P4W 20A (10A, 600V)	125/250VAC		5P24U1LD	—	5C24U1LD	—	.625	NA	NA
	3Ø 250VAC		5P24U2LD	—	5C24U2LD	—	.625	NA	NA
	3Ø 480VAC		5P24U4LD	—	5C24U4LD	—	.625	NA	NA
	347/600VAC		5P24U5LD	—	5C24U5LD	—	.625	NA	NA
	through 600 (all)		5P24U0LD	8018 8158 8594	5C24U0LD	8028 8098 8684	.625	8008	8084
3P4W 30A (20A, 600V)	125/250VAC		5P34U1LD	—	5C34U1LD	—	.750	NA	NA
	3Ø 250VAC		5P34U2LD	—	5C34U2LD	—	.750	NA	NA
	3Ø 480VAC		5P34U4LD	—	5C34U4LD	—	.750	NA	NA
	347/600V		5P34U5LD	—	5C34U5LD	—	.750	NA	NA
	through 600 (all)		5P34U0LD	8014 8154 8597 8657	5C34U0LD	8024 8094 8687 8647	.750	8031	8004

Note: DuraTite® plugs and connectors will mate but not lock to metal plugs and connectors referenced above. DuraTite® will lock to existing metal receptacles, from standard Ever-Lok® line.

DuraTite® and Ever-Lok® Locking Connections

Bladed Plug and Receptacle

Spring-blade contact designs offer point contact only, with minimal mechanical support in receptacles. Higher heat is generated with use as contacts loosen due to age and dirt accumulation, resulting in failures. Exposed blade contacts can easily be damaged.



Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	6000 volts RMS (minimum creepage and minimum clearance per UL 840)
Circuit Interrupting/ Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF
Horsepower	Per NEC® 430-151 ratings

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords; 10 standard diameters from .405" to 1.00", custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull-Out Force	In accordance with UL 1682
Product Identification	Identification label and molded-in name

Approvals

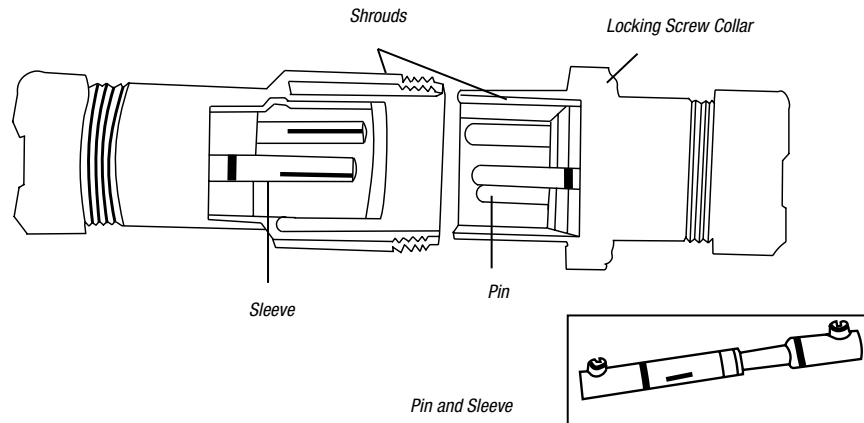


NEC is a registered trademark of the National Fire Protection Association, Inc.

DuraTite® and Ever-Lok® Locking Connections

Pin and Sleeve Connector and Plug

Pin and Sleeve design enables higher current flow at cooler temperatures due to the large circular contact area. Sleeves act as retainers for the pins, making a reliable connection. Shrouded pins and sleeves are protected from damage and casual access. Locking screw collars provide for a reliable, long-lasting connection.



Performance — Environmental

Moisture Resistance

Per UL 1682 Paragraph 49. Flap cover on receptacle, O-rings optional on all pins, sleeves and interiors. Watertight interiors with optional O-rings. Meets requirements for NEMA 3R/12 and IP44 V0 or better per UL 94

Flammability Operating Temperatures

Maximum continuous: 95° C/203° F
Minimum: -40° C/-40° F without impact

Chemicals

Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior

Molded arc-resistant UL 94-V0 phenolic thermoset

Housing, Gland Nuts

DuraV® UL 94-V0, high impact

Screw Collar Rings

Thermoplastic

O-Rings

Buna-N (Nitrile)

Contacts: Pins and Sleeves

Brass CDA 360

Terminals

Brass CDA 360

All Hardware

Stainless steel

Gland Friction

20 Amp — Nylon

Washer

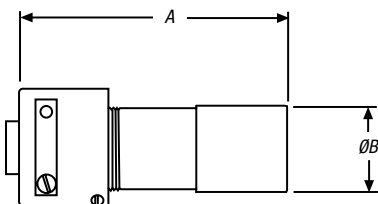
30 and 50 Amp — Aluminum

Cable Clamp Bushing

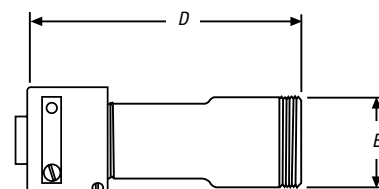
Neoprene

DuraTite® and Ever-Lok® Locking Connections

Plugs



Connectors



Receptacles

DuraTite® mates and locks to standard Ever-Lok® (see [page H-416](#)).

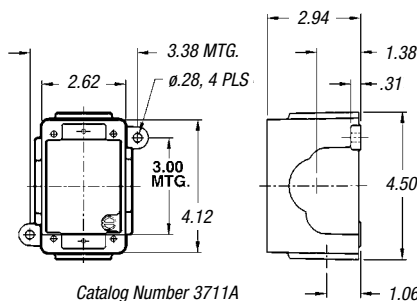
AMPS		A*	ØB	C*	ØD
20A	inches	3.87	1.53	4.40	1.79
	mm	98.3	38.9	111.8	45.5
30A	inches	6.00	1.79	6.25	2.05
	mm	152.4	45.5	158.8	52.1

* Dimensions will vary slightly with assembly.

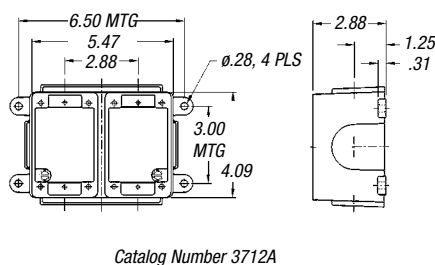
Accessories

Additional Boxes and Accessories Available: Ever-Lok® Section

Conduit Boxes (For Surface Mounting)

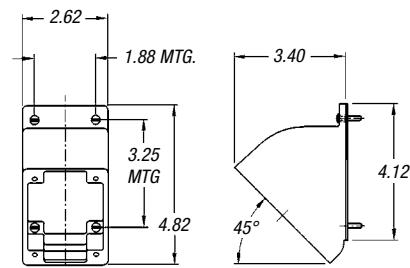


Catalog Number 3711A



Catalog Number 3712A

45° Angle Adapter



Catalog Number 3678A

	CAST ALUMINUM	CAST BRASS
Single	3711A	3731
Double	3712A	3732

Note: ¼" NPT Hole standard.

Additional accessories are available. Consult your Thomas & Betts representative.

CAST ALUMINUM	CAST BRASS
3678A	3678B

DuraTite® and Ever-Lok® Locking Connections

Standard: 10–50 Amp, Maximum 600VAC or 250VDC

Heavy Service: 30–100 Amp, Maximum 480VAC or 250VDC

Midget: 10–20 Amp, Maximum 250VAC or 250VDC

When an Ever-Lok® connection is made, it is a mechanical attachment that will not pull apart unless it is unlocked by hand.

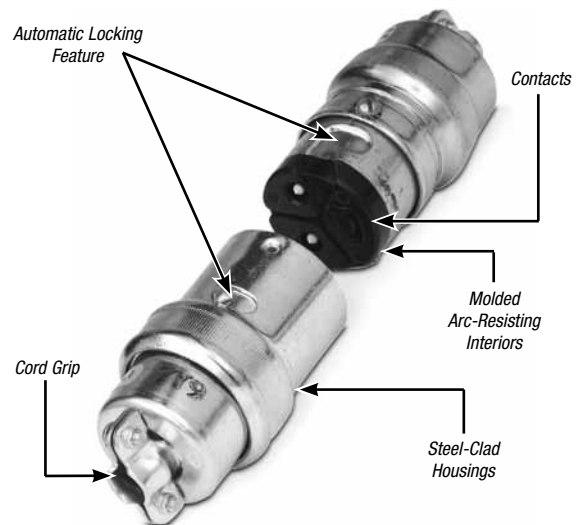
To install, line up the tabs and plug it straight in. External buttons or ribs lock with the mating internal housing automatically. When an Ever-Lok® connector plugs in, it stays in. Locked housings do the work so Ever-Lok® contacts can carry the load! A firm grip and a counter-clockwise reverse twist-release locking for easy removal.

Design Features

- 1. Automatic Locking** — Automatic locking feature mechanically attaches the plug casing to the receptacle or connector and eliminates strain on electrical contacts.
- 2. Positive Grounding** — Casings are positively grounded by means of phosphor-bronze ground straps integral with ground contacts. Equipment grounding is secured by separate set of contacts which “make first” and “break last” as required by UL.
- 3. Dust-Proof** — On clamp-type plugs and connectors, a washer is provided in each cap to be forced over the cord. This serves as a shield to prevent metal particles, dust, etc., from entering the interiors of plugs and connectors.

Bushing-type plugs and connectors are furnished with a gland nut and Neoprene cable bushing gland to exclude dust and moisture. A formed glide washer is also provided to facilitate tightening of the gland nut.

Receptacle covers are sealed to boxes by gaskets and have hinged flaps which are gasket-lined and equipped with strong springs to keep them closed and dust out.
- 4. Steel-Clad** — Plugs and connectors are plated steel. Plugs have encased locking spring in machine-assembled non-separable housings.
- 5. Cord Grip** — Plugs and connectors are provided with adjustable cord grips, preventing strains on connections.
- 6. Contacts** — Contacts are precision-made, self-wiping and self-aligning brass and nickel-plated brass.
- 7. Unit Assembly** — Contacts and terminals are permanently assembled in an arc-resisting composition body, permitting removal of interior as a unit for wiring. All connections are entirely enclosed, thus avoiding accidental short circuits and tampering by inexperienced personnel.
- 8. Handles Lined** — Shell handles have an HDPE liner to contain stray wire ends.
- 9. Interiors** — All interiors are molded arc-resisting composition.



DuraTite® and Ever-Lok® Locking Connections

DuraTite® line offers thermoplastic performance and Ever-Lok® interface.

Male Plugs



	250VAC RATING	RATING	CLAMP TYPE	MAX CABLE DIA.	BUSHING TYPE	CABLE BUSHING HOLE DIA.	HUB TYPE*	CONDUIT SIZE
2P3W	15 AMP	20 Amp, 125VAC 15 Amp, 250VAC 10 Amp, 600VAC	8013	½"	8153	⅝"	8593 8593CTN**	½" ½"
		20 Amp, 125VAC	8013U1	½"	8153U1	⅝"	8593U1 8593U1CT*	½" ½"
		15 Amp, 250VAC	8013U2	½"	8153U2	⅝"	8593U2	½"
		15 Amp, 277VAC	8013U3	½"	8153U3	⅝"	8593U3	½"
		15 Amp, 480VAC	8013U4	½"	8153U4	⅝"	Consult T&B Representative	
		15 Amp, 600VAC	8013U5	½"	8153U5	⅝"	Consult T&B Representative	
	30 AMP	30 Amp, 250VAC 20 Amp, 600VAC	8015	⅝"	8155	⅝"	8656	¾"
3P4W	15 AMP	20 Amp, 125VAC 10 Amp, 250VAC 15 Amp, 250VAC 10 Amp, 600VAC	8018	½"	8158	1⅛"	8594	½"
	30 AMP	20 Amp, 600VAC 30 Amp, 250VAC	8014	⅝"	8154	¾"	8597 8657	½" ¾"
	50 AMP	50 Amp, 250VAC 30 Amp, 250VAC 30 Amp, 600VAC	8314-S 8314	¾" 1⅞"	8354	1"	8396 8397	½" ¾"

* Hub with clamp added at size.

** Accommodates rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.

Notes: (for Plugs and Connectors):

Cable Bushing — Oil-resistant Neoprene cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost, when specified on order. See **page H-425** for available sizes. Bushing-type plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See **page H-425**.

"N" in catalog number refers to nickel-plated neutral pin replace.
Ex: 8013 with 8013N.

Special construction options for Ever-Lok® plugs include control Dummy Plugs™ for press lockout function. Consult Technical Services.

DuraTite® and Ever-Lok® Locking Connections

Female Connectors



CLAMP TYPE	MAX. CABLE RATING	BUSHING TYPE	CABLE BUSHING HOLE DIA.	HUB TYPE**	CONDUIT SIZE
8023	1/2"	8093	5/8"	8683N/8683CTN*	1/2"
8023U1	1/2"	8093U1	5/8"	8683U1/8683U1CT*	1/2"
8023U2	1/2"	8093U2	5/8"	8683U2	1/2"
8023U3	1/2"	8093U3	5/8"	8683U3	1/2"
Consult T&B Representative		Consult T&B Representative		Consult T&B Representative	
Consult T&B Representative		Consult T&B Representative		Consult T&B Representative	
8025	5/8"	8095	5/8"	8646	3/4"
8028	1/2"	8098	1 1/16"	8684	1/2"
8024	5/8"	8094	3/4"	8687/8687CT*	1/2"
				8647	3/4"
8324S	3/4"	8394	1"	8386	1/2"
				8387	3/4"

* Hub with clamp added at size.

** Accommodates rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.

DuraTite® and Ever-Lok® Locking Connections

Standard Service Female Receptacles

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors



	250VAC RATING	RATING	FEMALE RECEPTACLE ONLY WITH FLAP COVER^	RECEPTACLE WITH BOX FSWS-62*	2-GANG†
2P3W	15 AMP	20 Amp, 125VAC			
		15 Amp, 250VAC	8003	8083	8128
		10 Amp, 600VAC			
		20 Amp, 125VAC	8003U1	8083U1	8128U1
		15 Amp, 250VAC	8003U2	8083U2	8128U2
		15 Amp, 277VAC	8003U3	8083U3	8128U3
		15 Amp, 480VAC	8003U4	8083U4	8128U4
	30 AMP	15 Amp, 600VAC	8003U5	8083U5	8128U5
		30 Amp, 250VAC	8005	8030	8131
3P4W	15 AMP	20 Amp, 600VAC			
		20 Amp, 125VAC	—	—	—
		10 Amp, 250VAC	8008	8084	8129
		15 Amp, 250VAC	—	—	—
	30 AMP	10 Amp, 600VAC	—	—	—
		20 Amp, 600VAC	—	WITH FS BOX	WITH FD BOX
		30 Amp, 250VAC	8004	8031	8132
	50 AMP	50 Amp, 250VAC	—	WITH FD BOX	WITH FD BOX
		30 Amp, 250VAC	8304	8331	8334
		30 Amp, 600VAC	—	—	—

Notes:

^ For FS, FD, FSWS, FDWS and similar conduit fittings.

* Receptacle with box and cover.

** Provided with FDWS62 Box.

† Two-gang receptacles can also be provided in mixed configurations including NEMA bladed, etc. Consult Technical Services.

Male inlets (reversed contacts service): Use receptacle mountings but accept standard female connector.

Horsepower ratings:

½ hp, 1-phase, 230VAC

1 hp, 3-phase, 115VAC

Note: Standard Ever-Lok receptacles also accept DuraTite® plugs.

DuraTite® and Ever-Lok® Locking Connections

Reverse Service Male Receptacles



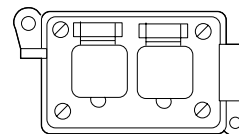
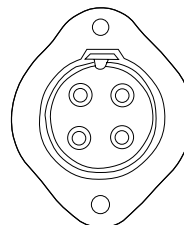
MALE INLET	MALE INLET WITH BOX**
8143	8143D
8143U1	8143U1D
8143U2	8143U2D
8143U3	8143U3D
CONSULT YOUR THOMAS & BETTS REPRESENTATIVE	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
CONSULT YOUR THOMAS & BETTS REPRESENTATIVE	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
8146	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
—	—
8144	8144D
—	—
8147	8147D
—	—
8374	8374
—	—

Specifications

- Receptacle Housing: Plated steel; receptacle with cover only; furnished with 6-52 mounting screws; for mounting on switch box or outlet box, use adapter plate 8091A; see **page H-424**
- Back Boxes: Cast aluminum, epoxy powder-coat finish; flap and screw caps aluminum, corrosion-resistant copper-free alloy or steel, CAD plated
- Plug: All cable entry styles of plugs with equivalent ratings fit above receptacles
- Conduit Boxes: Type FSWS-62 or FDWS-62 standard, cast aluminum; additional boxes available; see **page H-423**
- Gang Type: Can be furnished in gang or tandem units and in combination with other FS and FD devices; see **page H-423**
- Outlets: Unless otherwise specified, furnished with one ¼" outlet; additional outlets charged extra, specific size and location; consult Technical Services

DuraTite® and Ever-Lok® Locking Connections

Standard Service Female Receptacles



POLES WIRES	RATING	SINGLE RECEPTACLE		FLANGED PANEL MOUNT RECEPTACLE	DUPLEX RECEPTACLE	
		RECEPTACLE ONLY	WITH BACK BOX		RECEPTACLES ONLY	WITH BACK BOX
2P3W	10 Amp, 250VDC	8703	8753	8943	8733	8773
	20 Amp, 250VAC*					
	20 Amp, 125VAC	8703U1	8753U1	8943U1	8733U1	8773U1
	15 Amp, 250VAC	8703U2	8753U2	8943U1	8733U2	8773U2
3P4W	10 Amp, 125VDC	8704	8754	8944	8734	8774
	20 Amp, 250VAC**					
4P5W	10 Amp, 125VDC	8705	8755	8945	8735	8775
	20 Amp, 250VAC**					

Notes:

* ½ hp, 1-Phase, 230VAC

**1 hp, 3-Phase, 115VAC

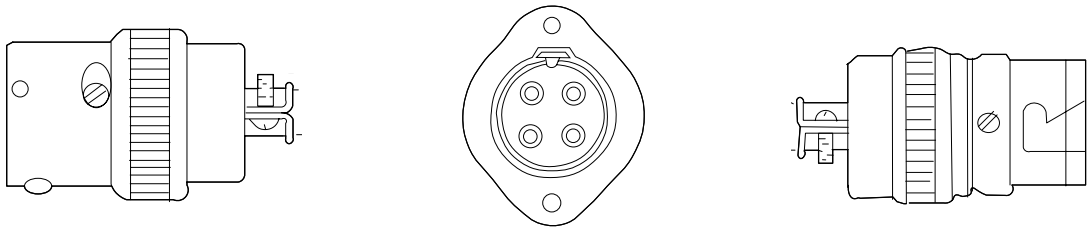
Specifications

- Receptacle Housing: Heavy gauge steel, plated
- Back Boxes: Type FSWS-62 standard, cast aluminum; Additional boxes available, see **page H-423**
- Gang Type: Can be furnished in gang or tandem units and in combination with other FS and FD devices; see **page H-423**
- Outlets: Standard, one ¾" top or bottom; additional outlets charged extra; see boxes listed on **page H-423**
- Plug and Connector Housings: Steel, plated
- Cable Diameter: Clamp Type: .500" max. cable diameter
- Bushing Type:
 - 2P3W — .563" diameter standard
 - 3P4W — .281" diameter standard
 - 4P5W — .594" diameter standard
- Cable Bushing: Oil-resistant Neoprene cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost when specified on order; see **page H-425** for available sizes

DuraTite® and Ever-Lok® Locking Connections

Standard Service Plugs and Connectors

Reverse Service

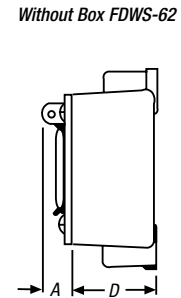
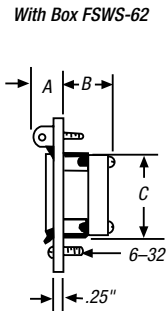
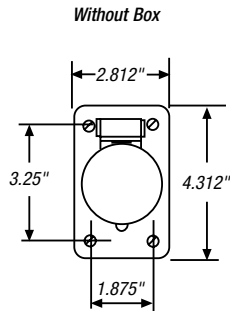


CLAMP TYPE^		MALE FLANGED PANEL MOUNT	CLAMP TYPE^	
MALE PLUG	FEMALE CONNECTOR		FEMALE PLUG	MALE CONNECTOR
8713	8723	8943R	8713R	8723R
8713U1	8723U1	8943U1R	8713U1R	8723U1R
8713U2	8723U2	8943U2R	8713U2R	8723U2R
8714	8724	8944R	8714R	8724R
8715	8725	8945R	8715R	8725R

^ Plugs and connectors are also available as bushing or hub type similar to those in standard Ever-Lok.
Please consult your Thomas & Betts representative.

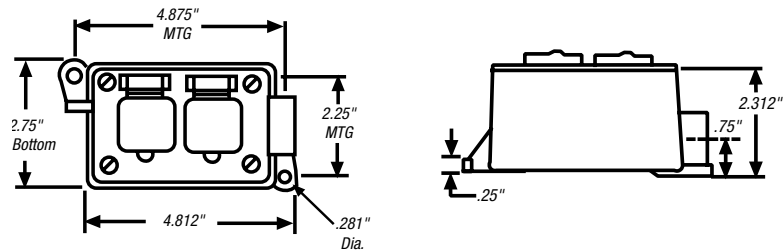
DuraTite® and Ever-Lok® Locking Connections

Female Receptacles and Reverse Service

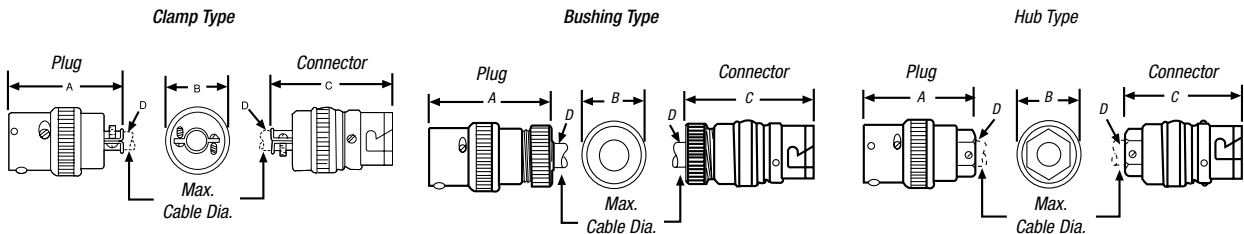


SIZE	STANDARD SERVICE				REVERSE SERVICE			
	A	B	C	D	A	B	C	D
Standard								
10 Amp	.875"	1.375"	2.375"	2.313"	.875"	2.000"	1.750"	2.937"
15 Amp	.875"	1.375"	2.375"	2.313"	.875"	2.000"	1.750"	2.937"
20 Amp	.875"	1.375"	2.375"	2.313"	.875"	2.000"	1.750"	2.937"
30 Amp	.875"	1.500"	2.875"	2.937"	.875"	1.500"	2.875"	2.937"
50 Amp	1.470"	1.875"	2.125"	2.937"	1.470"	1.875"	2.125"	2.937"
Midget	.687"	1.810"	1.280"	NA	.687"	1.810"	1.280"	NA

Midget Duplex



Plugs and Connectors



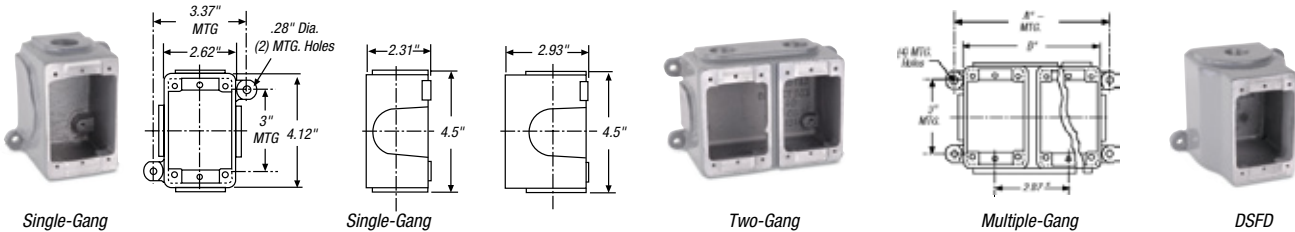
SIZE	CLAMP TYPE				BUSHING TYPE				HUB TYPE			
	A	B	C	D	A	B	C	D	A	B	C	D
Standard												
15-20 Amp	3.125"	1.750"	3.187"	.500"	3.250"	1.750"	3.375"	.750"	3.125"	1.750"	3.187"	.500"
30 Amp	3.437"	2.125"	4.250"	.625"	3.750"	2.125"	4.500"	1.125"	3.500"	2.125"	4.250"	.750"
50 Amp	4.750"	2.125"	4.750"	1.125"	4.875"	2.125"	4.875"	1.125"	4.500"	2.125"	4.625"	.750"
Midget	2.875"	1.440"	2.875"	.500"	3.000"	1.440"	3.000"	.625"	2.875"	1.440"	2.875"	.500"

DuraTite® and Ever-Lok® Locking Connections

Mounting Options for Midget and Standard Ever-Lok®

Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.
Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*
Single	FS	3701A	3721-RS	4.12" x 2.62" x 2.31"
	FD	3711A	3731-RS	4.12" x 2.62" x 2.94"
	DSFD	3781A	—	4.12" x 3.62" x 4.12"
Two	FS	3702A	3722-RS	4.12" x 5.5" x 2.25"
	FD	3712A	3732-RS	4.12" x 5.62" x 2.87"

* Dimensions are overall exclusive of conduit pads and mounting lugs.

Notes:

When Type FD devices are to be mounted in boxes, Type FD boxes should be used.
FS boxes will not accommodate FD devices.

Mounting — All the above boxes are for surface mounting. For flush mounting, see [page H-424](#).

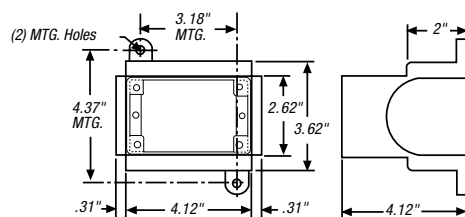
Boxes — Cast brass, natural finish; cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish.

Conduit Entries — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional conduit entries available — see price list. Specify size and location.

Maximum Conduit — FS and FD: 1", one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom. Cast iron available on special order — consult your Thomas & Betts representative.

DSFD

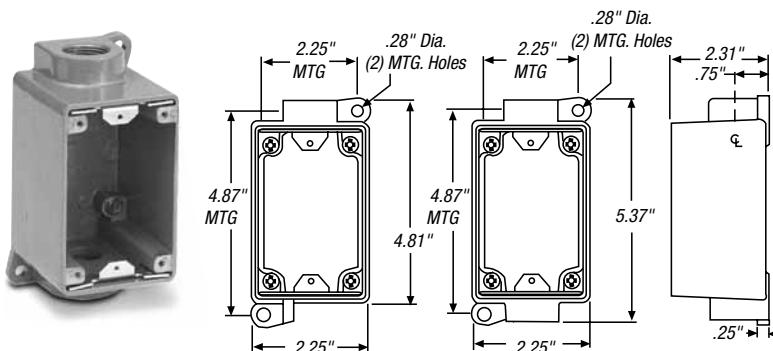


Multiple-Gang Dimensions

GANGS	A		B	
	FS	FD	FS	FD
2-Gang	6.50"	6.50"	5.50"	5.62"
3-Gang	11.25"	9.37"	10.37"	8.50"
4-Gang	14.12"	12.25"	13.25"	11.37"

Type FSWS and FDWS (with Mounting Shelf for Box-Mounted Devices)

Aluminum Die-Cast Boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.



CAT. NO.	CONDUIT ENTRIES	
	TOP	BOTTOM
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

Notes:

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder coat finish.

Conduit Entries — Standard as listed.

Mounting — All of the above boxes are for surface mounting.

DuraTite® and Ever-Lok® Locking Connections

Adapter Flush Frames*

GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	3671A	3681	5" x 3.5"
2	3672A	3682	5" x 6.5"

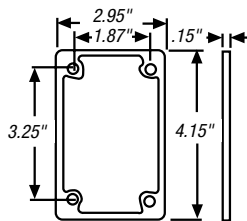
* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



Blank Cover*

Covers Standard FS/FD™ box openings.

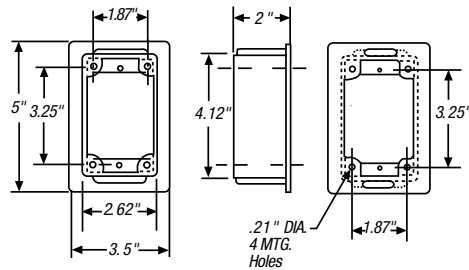


CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

Flush Wall-Mounting Extension*



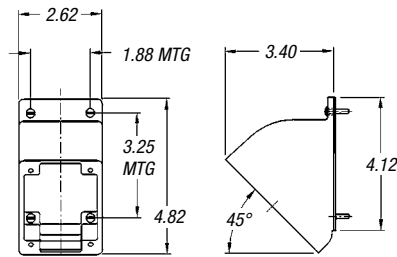
CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

45° Angle Adapter*

Mounts to any FS/FD™ box.



Catalog Number 3678A

CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

Adapter Sub-Plate

The addition of this adapter sub-plate will permit the use of Ever-Lok® conduit box-type receptacles in switch boxes or outlet boxes with raised covers, as listed. Used on standard (deep) stamped metal conduit boxes. Adapts two-hole to four-hole patterns.



CAT. NO.	MATERIAL
8091A	Cast Aluminum

DuraTite® and Ever-Lok® Locking Connections

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX. CABLE DIA.
10 Amp	3905	3905B	.62"
20 Amp	3906	3906B	1.12"
30 Amp	—	—	—

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish, cast brass.

Conduit Adapters



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED HOLE NPT
15 Amp	FSA11	FSA11B	.5"
	FSA12	FSA12B	.75"
30 Amp	FSA21	FSA21B	.5"
50 Amp	FSA22	FSA22B	.75"
	FSA23	FSA23B	1"

Cable Bushings

HOLE DIAMETER FOR CABLE	SIZE 1 MIDGET EVER-LOK	SIZE 2 STD. 15 AMP	SIZE 3 20, 30 AND 50 AMP
.250"	MG0	—	—
.313"	—	SG05	—
.375"	—	SG1	JG31
.438"	MG15	SG15	—
.500"	MG2	SG2	JG32
.531"	—	SG2A	—
.563"	MG25	SG25	JG325
.594"	MG2B	SB2B	—
.625"	—	SG3	JG33
.688"	—	SG3A	—
.750"	—	SG4	JG34
.875"	—	—	JG35
1.000"	—	—	JG36*
1.125"	—	—	JG361**

Material — Oil-resistant Neoprene.

Size 3 Cable Bushing:

* Style for maximum cable only.

** Special minimum wall style.

Notes:

Bushing specials available at time of order.

When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory selected to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

Example — Catalog No. SKP3G with adapter tapped 3/4" would be Catalog No. SKP3G/JG31.



Size 2
Cable Bushing



Size 3
Cable Bushing

DuraTite® and Ever-Lok® Locking Connections

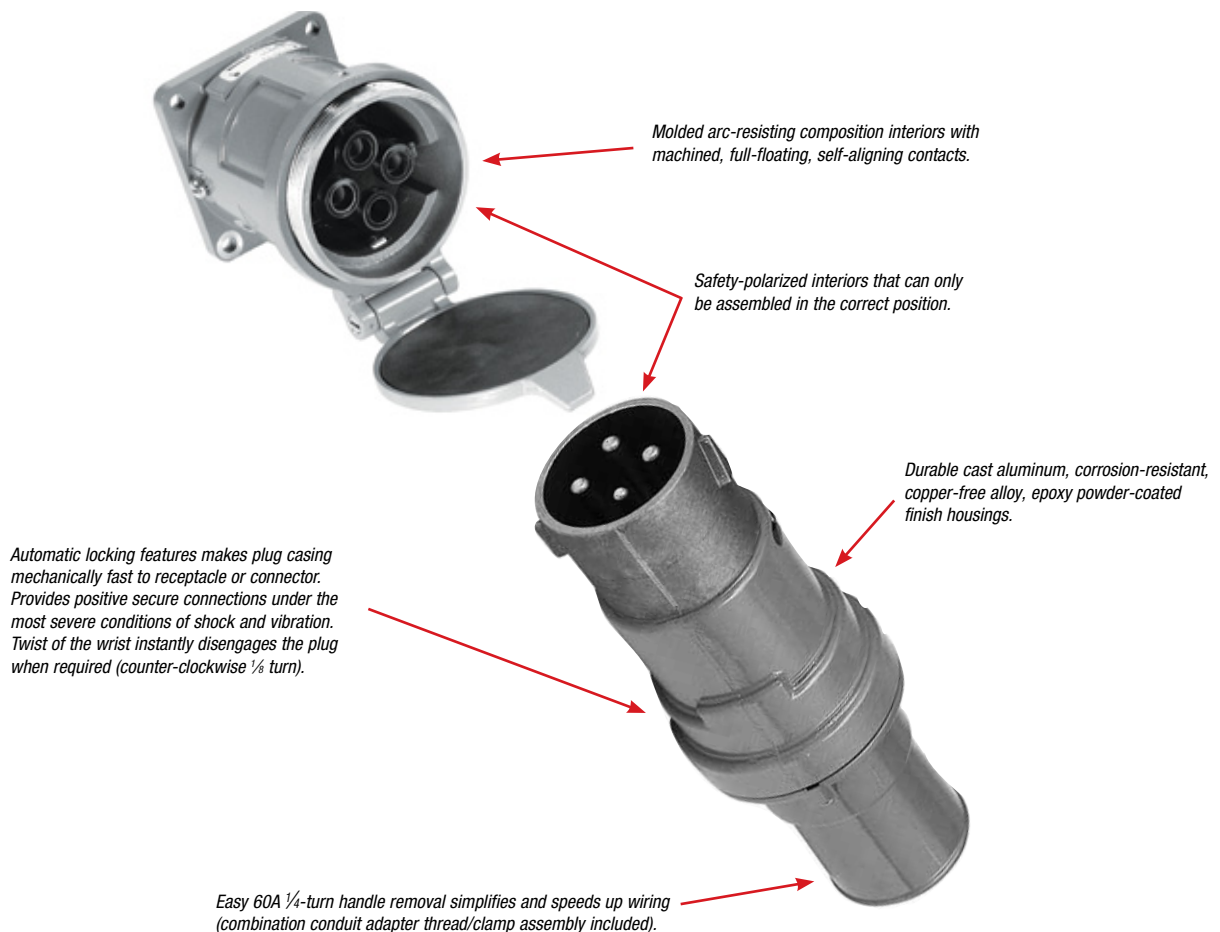
Heavy-Duty Automatic Locking Receptacles, Plugs and Connectors

30–100 Amp, 480VAC/250VDC

Heavy Service Ever-Lok® components stay plugged in so your portable equipment stays on. The industrial standard for portable welders and other industrial equipment locks in place automatically at insertion — no screw collars to bother with. With its contoured handle, an easy counter-clockwise twist releases the plug for withdrawal, even under full-rated load/circuit-interrupting conditions.

Simple and rugged, the Heavy Service Ever-Lok® self-locking system sets the standard for easy access in facilities, welding and industrial equipment use. All standard receptacle configurations are available, as well as reversed contact service options.

Design Features

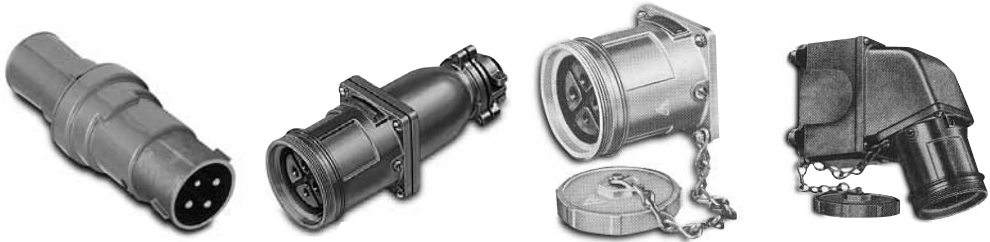


DuraTite® and Ever-Lok® Locking Connections

Plugs

Connectors

Receptacles



CONFIGURATION			HSF SERIES BASIC RECEPTACLE		HSA SERIES*
30 Amp	2P3W	8407	8443	HSF8403	8403
	3P4W	8408	8444	HSF8404	8404
60 Amp	2P3W	8417	8453	HSF8413	8413
	3P4W	8418†	8454	HSF8414	8414
100 Amp	3P4W	8428-72	8464-72	HSF8424-72	8424-72

Notes:

Reverse service available by adding "R" suffix to catalog number. Solder lugs on 100 amp only.

Connectors — Can be furnished with conduit adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See **page H-432**.

Flap covers are standard on all receptacles.

* Can be furnished with 45° angle adapter when specified on order. Add suffix -45 to catalog number.

† 8418 or F27194 Automotive 480VAC version plug.

Standard Cable Bushing

(see **page H-432** for other Bushings)

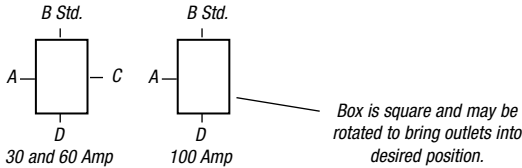
CURRENT RATING	BUSHING	MAX. AWG SIZE
30	7/8"	#8, 7-strand or flexible
60	1 1/8"	#4, 7-strand or flexible
100	1 1/2"	#2, 7-strand or flexible

Conduit Size

CURRENT RATING	STD. SIZE	MAX. SIZE
30	1"	1 1/4"
60	1"	1"
100	2"	2"

See **page H-431** for cable conduit adapters.




Outlet Location — Standard Series



DuraTite® and Ever-Lok® Locking Connections

Receptacle Mounting Options

Progressive Assembly

MOUNTING STYLE		TO ORDER USE:	CURRENT RATING		
			30 AMP	60 AMP	100 AMP
Standard Series HSA		Receptacle + Vertical or Square Mount Box + Angle Adapter or JAA3-45 (45°)	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA3 (20°) or JAA6-45 (45°)	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JAA6-AB6 (20°) or JAA10-45 (45°)	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JAA10 (20°)
Series HSR Straight		Receptacle + Vertical Mount Box + Straight Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JRA3	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JRA6-AB6	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JRA10
Series HSB		Receptacle + 30° Angle Adapter	Basic Receptacle* + JAAB3	Basic Receptacle* + JAAB6	Basic Receptacle* + JAAB10
Series HSE		Receptacle + Angle Enclosure 1" Std. Conduit Size	Basic Receptacle* + JE3 1½" Std. Conduit Size	Basic Receptacle* + JE6	N/A
Series HSH Horizontal		Receptacle + Horizontal Mount Box + Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JHA3 (20°)	N/A	N/A

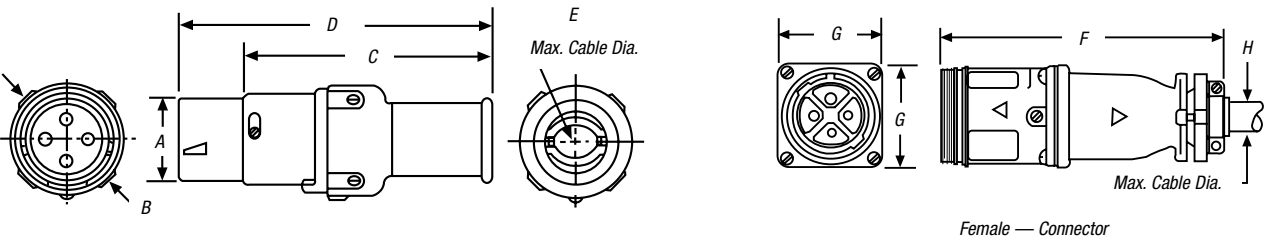
* Select appropriate receptacle by rating, configuration and voltage on **page H-427**.

Ordering — Order individual pairs or use series letters followed by receptacle I.D. (ref. HSA series number).

Example: HSB8414. (For HSA, use receptacle catalog numbers only.)

DuraTite® and Ever-Lok® Locking Connections

Plugs and Connectors

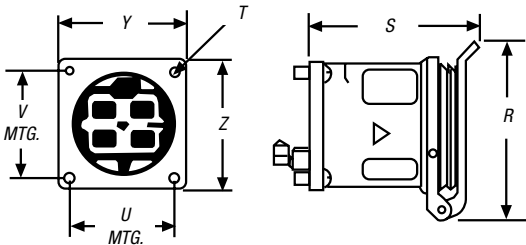


Dimensions for 2-, 3- or 4-Wire Weathertight Units

AMP	A	B	C*	D	E	F	G	H
30	2"	3"	5.625"	7"	1"	7.625"	2.750"	1.125"
60	2.625"	3.750"	7.687"	9.750"	1.50"	9.625"	3.500"	1.500"
100	2.625"	3.750"	7.687"	11"	1.50"	10.875"	4"	1.875"

* Length of plug exposed when engaged in receptacle or connector.

Basic Receptacles

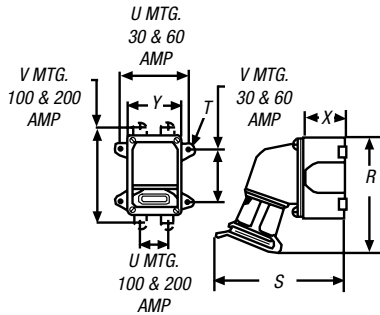


Dimensions for 3- or 4-Wire Units

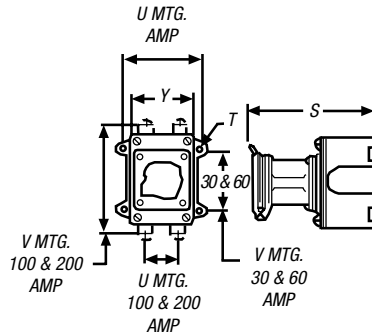
AMP	Y	V	U	T	S	R	PANEL OPENING
30	2.750"	2.250"	2.250"	.213"	3.250"	7.000"	2.250" D
60	3.500"	2.875"	2.875"	.281"	4.625"	8.875"	2.875" D
100	4"	3.375"	3.375"	.281"	5.875"	10.500"	3"

DuraTite® and Ever-Lok® Locking Connections

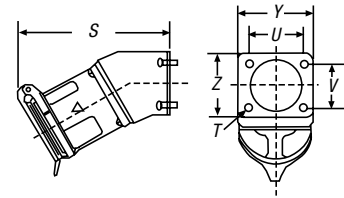
Standard Series HSA



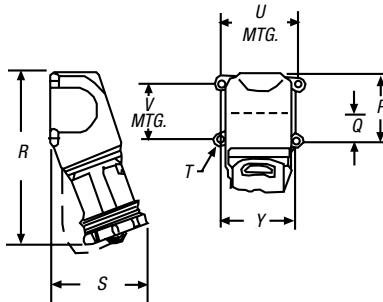
Series HSR



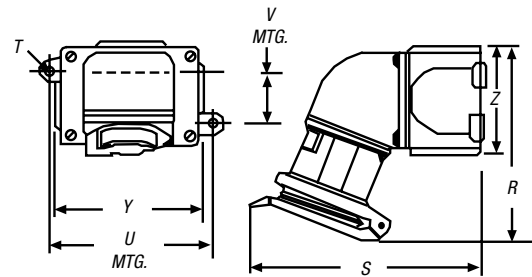
Series HSB



Series HSE



Series HSH



AMP	SERIES	Z	Y	X	V	U	T	Q	P	S	R	PANEL OPENING
30	HSA (20°)	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	7.375"	7.000"	—
	HSA (45°)	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	7.875"	6.625"	—
	HSR	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	6.750"	—	—
	HSB	3.125"	3.125"	—	2.250"	2.250"	.213"	—	—	6.250"	—	2.250"
	HSE	—	3.500"	—	—	4.000"	.250"	1.250"	2.375"	5.250"	7.250"	—
60	HSH	3.937"	4.500"	2.375"	3.687"	2.687"	.250"	—	—	7.250"	6.125"	—
	HSA (20°)	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	9.250"	8.875"	—
	HSA (45°)	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	9.875"	8.250"	—
	HSR	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	8.375"	—	—
	HSB	3.187"	3.625"	—	2.187"	2.625"	.281"	—	—	9.250"	—	2.500"
100	HSE	—	4.250"	—	3.125"	4.500"	.281"	1.562"	3.687"	6.750"	9.750"	—
	HSA (20°)	5.500"	5.500"	3.750"	6.750"	4.250"	.343"	—	—	10.750"	10.500"	—
	HSA (45°)	5.500"	5.500"	3.750"	6.750"	4.250"	.343"	—	—	11.750"	9.500"	—
	HSR	5.500"	5.500"	3.750"	6.750"	4.250"	.373"	—	—	12.250"	—	—
	HSB	3.187"	3.625"	—	2.187"	2.625"	.281"	—	—	9.250"	—	2.500"

Note: U = horizontal mounting hole centers; V = vertical mounting hole centers.

DuraTite® and Ever-Lok® Locking Connections

Replacement Interiors

For Receptacles, Connectors, Plugs and Male Inlets



POLES/WIRES	FEMALE INTERIORS: RECEPTACLES AND CONNECTORS			MALE INTERIORS: PLUGS		
	30 AMP	60 AMP	100 AMP	30 AMP	60 AMP	100 AMP
2P3W	ARU323	ARU623	—	APU323	APU623	—
3P4W	ARU334	ARU634	ARU134-6	APU334	APU634	APU134-6

Notes:
 Interiors — Arc-resisting composition with machined, full-floating, self-aligning contacts.
 Solder lug interior will not interchange with mechanical lug. If you have solder lugs, reorder solder lugs.

Conduit Adapters

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA62 Conduit Adapter

Plug or Connector Sizes

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA31	1/2"	JPA62	3/4"	JPA104	1 1/4"
JPA32	3/4"	JPA63	1"	JPA105	1 1/2"
JPA33	1"	JPA64	1 1/4"	JPA106	2"

Notes:
 Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated.
 Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector. Complete list price is the list price of the device plus list price of the adapter.
 Example: Cat. No. 8443 with adapter tapped 1" would be Cat. No. 8443/JPA33.

DuraTite® and Ever-Lok® Locking Connections

Cable Bushings

Boxed catalog numbers are standard bushing sizes. To order non-standard bushing, specify as follows: Example 8418/JG65.

Standard Cable Bushings

- Size No. 3, 6, 10 and 20



Upsize Cable Bushings

- Size No. 3, 6, 10 and 20



HOLE DIAMETER FOR CABLE	30 AMP	60 AMP	100 AMP
.375"	JG31	—	—
.500"	JG32	—	—
.563"	JG325	—	—
.594"	JG32B	—	—
.625"	JG33	JG63	—
.750"	JG34	JG64	JG104
.781"	JG341	—	—
.875"	JG35	JG65	JG105
.937"	JG355	—	—
1.000"	JG38*	JG66	JG106
1.125"	JG361*	—	—
1.188"	—	JG67	JG107
1.313"	—	—	JG108
1.375"	—	JG69*	—
1.500"	—	JG610*	JG1010
1.687"	—	—	JG1011
1.813"	—	—	—
1.875"	—	—	JG1013*

* Upsize cable bushings.

Note: When ordering, select bushing size slightly larger than your cable O.D. for best fit.

Material — Neoprene.

Identification letter inside hole.

Control Circuit Connections

Russellstoll Line Selections for Indoor and Outdoor Applications

SK/SKW Multi-Pin Control Circuit to 11P12W 20A

The toughest multi-circuit, screw-termination circular connector system; use self-locking SK components indoor and collar-locking SKW components outdoor; load breaking at 20 amps. Solid brass (silver-plated) contacts ensure long life and interiors can be rebuilt. All pin counts are available from 3P4W through 11P12W, gasketed interiors in SKW.

Switches 125/250VAC 10A, 20A and 30A

SPST and SPDT Tumbler Switches are offered in industrial and hazardous-duty styles. Heavy-duty, copper-free aluminum housings (brass available) around selected common ratings. Switches carry AC-only ratings (see Hazardous Duty section for explosion-proof switches).

Interlocks through 4P5W 30A through 400A

A broad offering of performance interlocks in sheet steel, cast aluminum or brass. Automotive/Industrial welding units include 60A and 100A versions, both Heavy Service Ever-Lok® and MaxGard® lines. Switched, fused and circuit breaker versions are available as well as switchgear selections. Custom enclosures wall-mount or column-mount in standard 8" I-beam webs.



Typical Application Groups

General Industrial Marine

- Lighting Systems
- Shore-to-Ship Power
- Welding Stations
- Portable Distribution Centers
- Shipboard Power Outlets
- Telephone Shore-to-Ship

Construction and Agriculture

- Generator Sets and Systems
- Portable Tools and Equipment
- Irrigation System Panels
- Portable Lighting and Equipment

Government, Municipal and Utilities

- Portable Building Power
- Army Corps of Engineers
- Utilities Panels
- Emergency Power Systems
- Sewage Pumping Stations
- Lighting and Controls

Industrial and OEM

- Factory Power Outlets
- HVACR Controls
- Machine Tool Controls
- Amusement Park Systems

Usage

- Any application where electrical connections need protection from water and/or dust entering the contacts or the wiring compartment
- Cable or conduit sealing and device locking designs are critical
- Metal connectors are usually preferred for long service life

Control Circuit Connections

20 Amp, 250 Volts AC or DC, 600 Volts AC Maximum Rating
Load-Breaking Multi-Circuit Receptacles, Plugs, Connectors and Inlets

Features and Benefits

Type SK

Type SK multi-circuit receptacles, plugs, inlets and connectors are designed for indoor or NEMA 1 automatic press, tool control and welder applications requiring rugged, shock-resistant devices capable of safely interrupting rated currents under load.

Receptacles and connectors have Neoprene gasket mounts and positive grounding path through separate contact. Equipment grounding contacts "make first" and "break last." Wiring space is generous. Listed ratings are for interrupting currents under load.

The time-tested Ever-Lok® automatic locking feature provides positive connections under the most severe conditions of shock and vibration. Yet a twist of the wrist instantly disengages the plug when required.



Control Circuit Connections

20 Amp, 250 Volts AC or DC, 600 Volts AC Maximum Rating
Load-Breaking Multi-Circuit Receptacles, Plugs, Connectors and Inlets

Features and Benefits

Type SKW

Type SKW multi-circuit receptacles, plugs, inlets and connectors are designed for outdoor NEMA 4, rough service and critical environment machinery, HVACR systems, servo control and other automatic/controlled functions requiring rugged, shock-resistant devices capable of safely breaking rated loads. These watertight and oil-tight devices are equipment grounded with ground contacts that "make first" and "break last." Wiring space is generous. Listed ratings are for full load interrupting currents.

Both series feature simple set-screw wiring termination in a circular connector with up to 11-pole 12-wire circuit capability. A wide selection of cable bushings can be specified upon ordering at no additional charge. Conduit adapters are also available for shielded or construction usage for both SK and SKW series.

Notes: For more than 12 circuits, miniature connectors or rectangular format, ask about T&B Pos-E-Kon® line.



Control Circuit Connections

Indoor, NEMA 1
20 Amp Load Breaking
250 Volts DC
600 Volts AC (Maximum Rating)

Standard Service



Connector



Reverse Service



POLES/ WIRES	FEMALE RECEPTACLE STYLE SKR	MALE PLUG STYLE SKP	FEMALE CONNECTOR STYLE SKC	MALE RECEPTACLE STYLE SKRR	CONNECTOR*/ FEMALE PLUG STYLE SKCU	CABLE BUSHING HOLE ID
2P3W	SKR3G	SKP3G	SKC3G	SKRR3G	SKCU3G	5/8"
3P4W	SKR4G	SKP4G	SKC4G	SKRR4G	SKCU4G	5/8"
4P5W	SKR5G	SKP5G	SKC5G	SKRR5G	SKCU5G	3/4"
5P6W	SKR6G	SKP6G	SKC6G	SKRR6G	SKCU6G	3/4"
6P7W	SKR7G	SKP7G	SKC7G	SKRR7G	SKCU7G	3/4"
7P8W	SKR8G	SKP8G	SKC8G	SKRR8G	SKCU8G	7/8"
8P9W	SKR9G	SKP9G	SKC9G	SKRR9G	SKCU9G	7/8"
9P10W	SKR10G	SKP10G	SKC10G	SKRR10G	SKCU10G	1"
10P11W	SKR11G	SKP11G	SKC11G	SKRR11G	SKCU11G	1"
11P12W	SKR12XG	SKP12XG	SKC12XG	SKRR12XG	SKCU12XG	1"

* Connectors: Both SKCU and SKC connectors will mate with standard service SKP plugs. SKC devices offer external shroud protection for female contacts. Both devices will lock with plug.

Note: With conduit fittings, plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See **page H-443**. Special construction: press control lockout dummy, Cat. #SKPD-.

Specifications

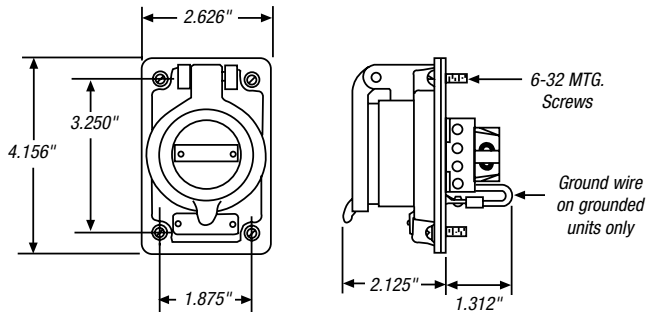
- Receptacle Housing:
 - Furnished with Neoprene gasket and 6-32 mounting screws
 - Type SKWR — Cast aluminum, corrosion-resistant copper free alloy
 - Style SKR — Heavy-gauge steel, plated
- Plug Housing:
 - Type SKP — Steel, zinc-plated with heavy-cast aluminum alloy cable clamp and cable bushing
 - Type SKWP — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Furnished with heavy-cast cable clamp and cable bushing
- Connector Housing: Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish. Furnished with heavy-cast cable clamp and cable bushing
- Conduit Boxes: Cast boxes for above receptacles are listed on **page H-440**. Type SK receptacles require FD series or DSFD box; can be furnished with single-gang outlet box at additional cost. When required, add suffix catalog number of box to catalog number of receptacle
- Cable Bushing: Oil-resistant Neoprene strain relief cable bushing regularly furnished with hole size as listed; other hole sizes available at no extra cost if specified on order. See **page H-443** for additional sizes
- Interiors: Contacts are removable and have pressure type terminals for 12 AWG maximum conductors
- Insulating Bodies: Arc- and impact-resisting mold composition
- Contacts: Silver plated with fully insulated pressure screw-type terminals
- Repair Kits: Pins/Sleeves Repair — Components for rebuild of 2-4 interiors

Male Devices **Cat. No. SKX12MS**
Female Devices **Cat. No. SKX12FA**

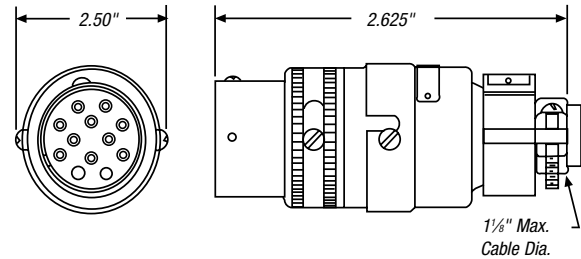
Control Circuit Connections

Standard Service

Female Receptacle — Style SKR



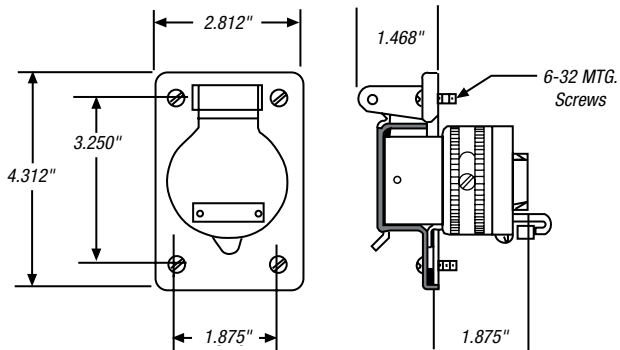
Male Plug — Style SKP



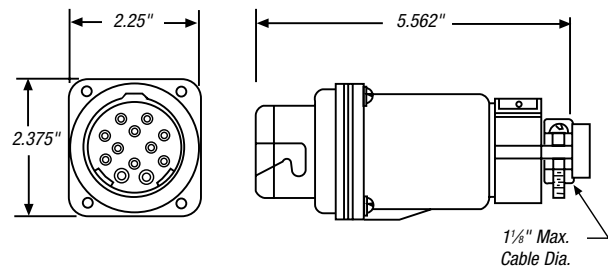
Note: All require FD or DSFD series box mounting.

Reverse Service

Male Receptacle — Style SKRR

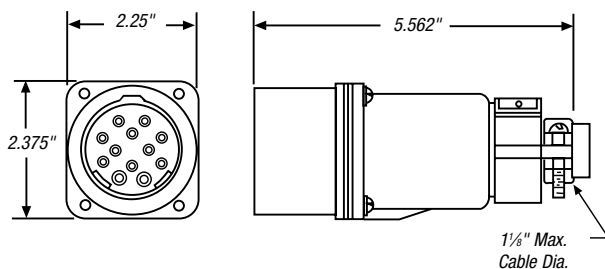


Female Plug — Style SKCU (non-shrouded connection)



Connector

Female Connector — Style SKC (shrouded style)



Control Circuit Connections

Outdoor, NEMA 4 (with screw cap)
20 Amp Load Breaking
600 Volts AC Max.
250 Volts DC



POLES/ WIRES	FEMALE RECEPTACLE STYLE SKWR	MALE PLUG STYLE SKWP	FEMALE CONNECTOR STYLE SKWC	MALE MOTOR PLUG STYLE SKWM	CABLE BUSHING HOLE ID
2P3W	SKWR3G	SKWP3G	SKWC3G	SKWM3G	5/8"
3P4W	SKWR4G	SKWP4G	SKWC4G	SKWM4G	5/8"
4P5W	SKWR5G	SKWP5G	SKWC5G	SKWM5G	3/4"
5P6W	SKWR6G	SKWP6G	SKWC6G	SKWM6G	3/4"
6P7W	SKWR7G	SKWP7G	SKWC7G	SKWM7G	3/4"
7P8W	SKWR8G	SKWP8G	SKWC8G	SKWM8G	7/8"
8P9W	SKWR9G	SKWP9G	SKWC9G	SKWM9G	7/8"
9P10W	SKWR10G	SKWP10G	SKWC10G	SKWM10G	1"
10P11W	SKWR11G	SKWP11G	SKWC11G	SKWM11G	1"
11P12W	SKWR12XG	SKWP12XG	SKWC12XG	SKWM12XG	1 1/8"

Note: SKWM male inlet accommodates SKWC Connector (female). Plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See [page H-443](#).

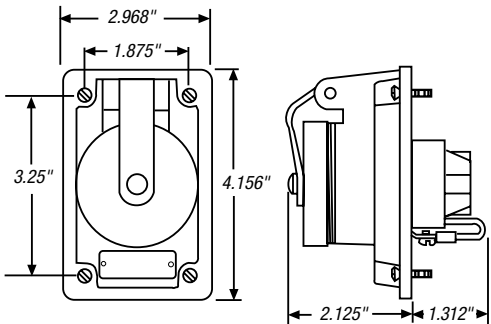
Specifications

- Receptacle Housing: Type SKWR — Cast aluminum, corrosion-resistant copper-free alloy. Furnished with Neoprene gasket and stainless steel 6-32 mounting screws.
- Plug and Connector Housing: Heavy-cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish; furnished with heavy-cast cable clamp and cable bushing.
- Conduit Boxes: Cast boxes for above receptacles are on [page H-440](#). Can be furnished with single-gang outlet box at additional cost. When required, add suffix catalog number of box to catalog number of receptacle.
- Cable Bushing: Oil-resistant, Neoprene strain relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See [page H-443](#) for additional sizes.
- Protective Caps: Waterproof caps complete with mounting cable
 - Male Devices **Cat. No. F26874C** (Cup Cap)
 - Female Devices **Cat. No. F04077** (Screw Cap)
- Repair Kits: Pins/Sleeves Repair — Components for rebuild of 2-4 interiors
 - Male Devices **Cat. No. SKX12MW**
 - Female Devices **Cat. No. SKX12FA**

Control Circuit Connections

Receptacle

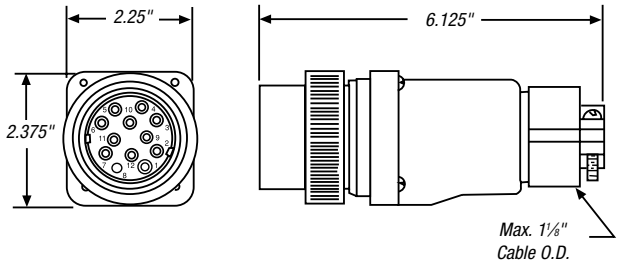
Style SKWR



Note: All require FD or DSFD series box mounting.

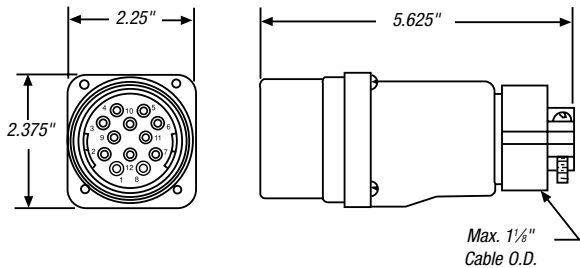
Plug

Style SKWP



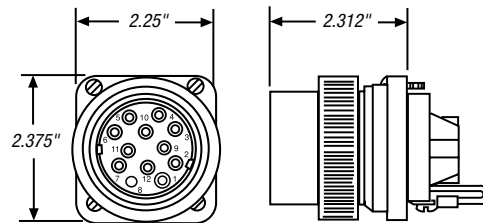
Connector

Style SKWC



Motor Plug

Style SKWM



Control Circuit Connections

Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.

Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



Single-Gang



Two-Gang



DSFD

GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*
Single	FS	3701A	3721-RS	4.12" x 2.62" x 2.31"
	FD	3711A	3731-RS	4.12" x 2.62" x 2.94"
	DSFD	3781A	—	4.12" x 3.62" x 4.12"
Two	FS	3702A	3722-RS	4.12" x 5.5" x 2.25"
	FD	3712A	3732-RS	4.12" x 5.62" x 2.87"

* Dimensions are overall exclusive of conduit pads and mounting lugs.

Notes:

When Type FD devices are to be mounted in boxes, Type FD boxes should be used. FS boxes will not accommodate FD devices.

Mounting — All the above boxes are for surface mounting. For flush mounting, see **page H-441**.

Boxes — Cast brass, natural finish. Cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder-coat finish.

Outlets — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional outlets charged extra — see price list. Specify size and location.

Maximum Conduit — FS and FD: 1"; one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom.

Cast iron available on special order — consult your Thomas & Betts representative.

Type FSWS and FDWS (with Mounting Shelf for Box-Mounted Devices)

Aluminum die-cast boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.



CAT. NO.	STANDARD OUTLETS	
	TOP	BOTTOM
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

Note:

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

Outlets — Standard as listed.

Mounting — All of the above boxes are for surface mounting.

Control Circuit Connections

Control Circuit Connector Accessories

Adapter Flush Frames*

GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	3671A	3681	5" x 3.5"
2	3672A	3682	5" x 6.5"

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.
Cast brass, natural finish.



Blank Cover*

Covers standard FS/FD™ box openings.

CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.
Cast brass, natural finish.



Flush Wall Mounting Extension*

CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.
Cast brass, natural finish.



45° Angle Adapter*

Mounts to any FS/FD™ box.

CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

* Furnished complete with gasket and screws.

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.
Cast brass, natural finish.



Adapter Sub-Plate

The addition of this adapter sub-plate will permit the use of Ever-Lok® conduit box-type receptacles in switch boxes or outlet boxes with raised covers, as listed. Used on standard (deep) stamped metal conduit boxes. Adapts two-hole to four-hole patterns.

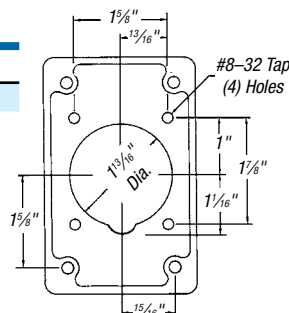
CAT. NO.	MATERIAL
8091A	Cast Aluminum



SKWM Mount Adapter Plate

Used to mount SKWM to FS/FD™ standard series boxes.

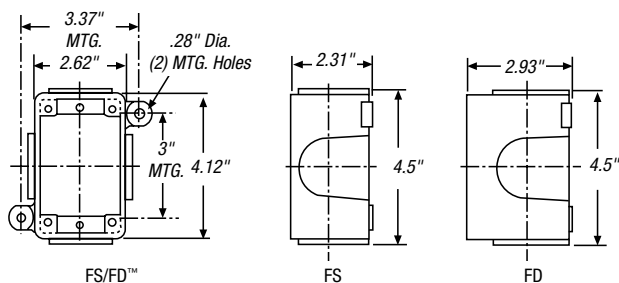
CAT. NO.	MATERIAL
SKWMFS	Aluminum



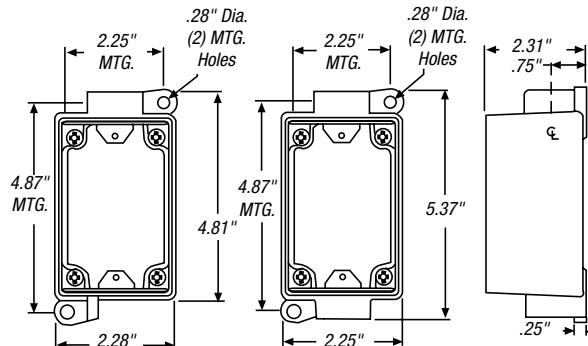
Control Circuit Connections

Type FS and FD

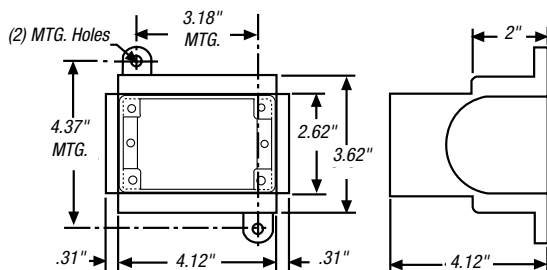
Single-Gang



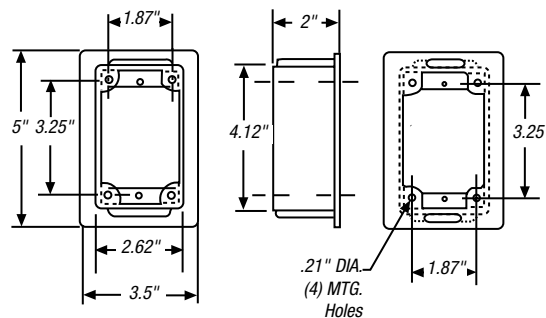
Type FSWS and FDWS



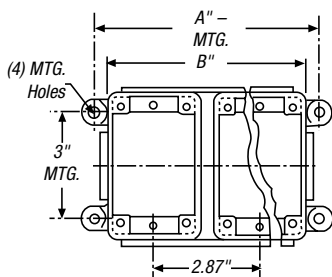
DSFD



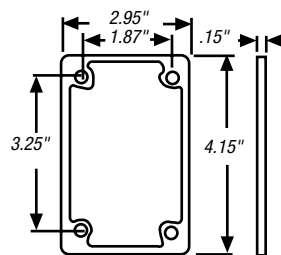
Flush Mounting Extension



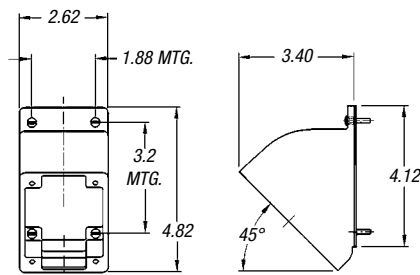
Multiple-Gang



Blank Cover



45° Angle Adapter



Multiple-Gang Dimensions

NO. OF GANGS	A		B	
	FS	FD	FS	FD
2-Gang	6.50"	6.50"	5.50"	5.62"

Control Circuit Connections

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX CABLE DIA.
20 Amp and SKW	3906	3906B	1 1/8"

Note: Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish or cast brass, natural finish.

Adapters for Conduit



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED HOLE NPSM
20 Amp and All SKW	FSA21	FSA21B	1/2"
	FSA22	FSA22B	3/4"
	FSA23	FSA23B	1"

Cable Bushings

HOLE DIAMETER FOR CABLE	SIZE 3 20 AMP
.375"	JG31
.500"	JG32
.563"	JG325
.625"	JG33
.750"	JG34
.875"	JG35
1.000"	JG36*
1.125"	JG361**

Material — Oil-resistant Neoprene.

Size 3 Cable Bushing:

* Style for maximum cable only.

** Special minimum wall style.

Notes: When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory separated by a "/" to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

Example: Catalog No. SKP9G with 1" bushing would be Catalog No. SKP9G/JG36.



Size 3 Cable Bushing

Industrial Interlocked Receptacles

Industrial interlocked receptacles are available in 30 through 400 Amp. Switched receptacles have mechanical linkages for added safety. Safety features include:

- Plugs cannot be inserted unless power is safely turned off
- Plugs cannot be removed until power is safely turned off
- Specialty designs may also automatically disengage power if plug is removed while power is on, either mechanically or electrically

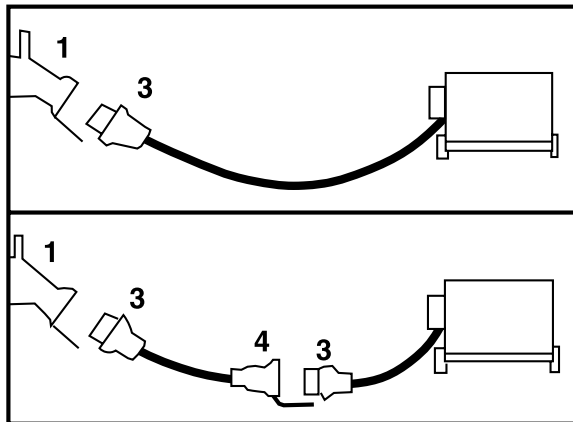
Applications

Applications where these units are most commonly used are:

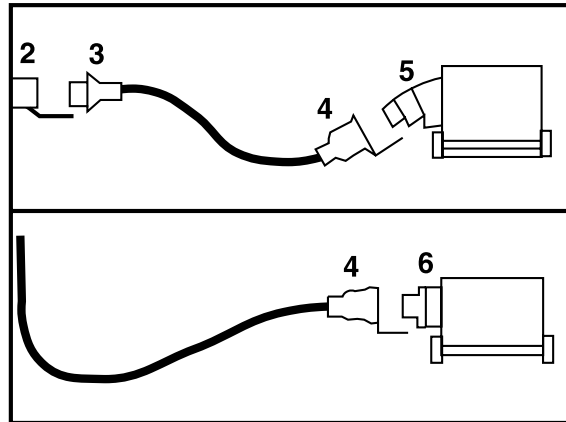
- Welding stations in automotive and heavy industry
- Temporary and portable power distribution for construction
- Marine shore-to-ship power
- Industrial machinery installation
- Portable power distribution, vehicle and gen-set power for aerospace
- Custom systems in all industries



Sample Installation: Fixed Power Source (Wall) to Remote/Portable Location



1. Receptacle (wall-mounted female)
2. Receptacle (panel-mounted female)
3. Plug (attachment)



4. Female connector
5. Male Inlet with angle adapter
6. Male inlet with straight adapter

Other installations: generator power sources, custom control circuits, multiple voltage service — contact Technical Services.

Industrial Interlocked Receptacles

Mounting Options

Industrial Wall-Mount Interlocks

- Indoor service NEMA 3R
- Fused protection
- 30–100A models, 600V
- Heavy Service Ever-Lok® or MaxGard® interfaces



Automotive/Heavy Industrial I-Beam Web-Mount

- Indoor service NEMA 12/3R
- Fused or circuit breaker protection
- 30–100A models, 600V
- Stepdown transformer-disconnect designs with convenience outlets
- Cast aluminum and sheet steel housing versions
- Mounts inside web of standard 8" I-beam column
- Interfaces with Heavy Service Ever-Lok®, MaxGard®, standard Ever-Lok® and FS/FD™



Marine/Heavy Industrial and Custom

- Outdoor service NEMA — 3R to 4X
- Switched or circuit breaker protection
- 30–400A models, 600V
- Cast aluminum or cast brass
- Mounting to customer specifications
- Interfaces with MaxGard®, FS/FD™ and more



Industrial Interlocked Receptacles

MaxGard® Fused-Disconnect** Interlocked Receptacle with Disconnect Switch

MaxGard® Fused-Disconnect Interlocked Receptacle with Safety Switch meets UL, NEC® and major automotive specifications. This unit is the maximum in:

Safety

- Door safety switch with three external lockout points
- Safety fuse pulls for standard class R fuses
- Backup door safety latch

Durability

- Heavy .060 steel galvaneel with baked enamel, NEMA 3R/12 construction
- Clear shield for test probes

Performance

- Standard 600V cartridge fuse clips and spacing
- Fully interlocked MaxGard® receptacle
- Angled front receptacle for easier access



Ordering Information

Maximum 600VAC or 250VDC

Notes: **Non-fused, non UL version available:

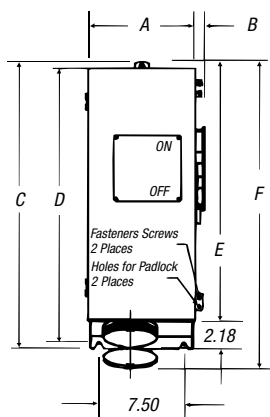
Specify DNRF _____.

Standard polarizations shown. Boldface figures are for voltage assignment; for different ratings, see page H-340.

Conduit Hubs

AMP	STD. NPT THREAD OUTLET	MAX.
30	1½"	2½"
60	2"	2½"
100	2"	2½"

Specifications on pages H-338–H-339.



		FUSED DISCONNECT** INTERLOCKED RECEPTACLE		MATING MAXGARD PLUG CAT. NO.	STD. BUSHING ID
	POLES/ WIRES	VOLTAGE	NEMA 12/3R CAT. NO.		
30 AMP	2P3W	125	DFRF31070▼	DS3107MP000	7/8"
	2P3W	250	DFRF32070	DS3207MP000	7/8"
	3P4W	30/250	DFRF33070	DS3307MP000	1"
	3P4W	30/480	DFRF34040	DS3404MP000	1"
	4P5W	277/480	DFRF35040	DS3504MP000	1 1/16"
60 AMP	2P3W	250	DFRF62070	DS6207MP000	1 1/16"
	3P4W	125/250	DFRF63070	DS6307MP000	1 1/16"
	3P4W	30/480	DFRF64040	DS6404MP000	1 1/16"
	4P5W	277/480	DFRF65040	DS6504MP000	1 1/2"
	2P3W	250	DFRF12070	DS1207MP000	1 1/16"
100 AMP	3P4W	125/250	DFRF13070	DS1307MP000	1 13/16"
	3P4W	30/480	DFRF14040	DS1404MP000	1 13/16"
	4P5W	277/480	DFRF15040	DS1504MP000	2"

▼ Control Contacts (position 9) use "K" example: DFRF1207K.
Always use liquidtight fittings to limit condensation entry.

Dimensions

AMP	A	B	C	D	E	F
30	9½"	¾"	25¾"	25"	22¾"	30"
60	9½"	¾"	25¾"	25"	22¾"	30"
100	9½"	¾"	25¾"	25"	22¾"	30"



Industrial Interlocked Receptacles

Fused-Disconnect Interlocked Receptacle/Safety Switch

Heavy Service Ever-Lok® 60 Amp

Standard fused/non-fused disconnect interlocked receptacle and safety switch is specified by major automotive manufacturers for welding disconnects and other applications. The Heavy Service Ever-Lok® system features "one-handed" insertion, locking and removal with your choice of switchgear!

Benefits

- Specified switchgear: GE or Square D
- Door safety switch with external lockout access
- Backup door safety latch
- Push-in plug locking: no screw collars needed
- Full interlocked outlet protection and functions
- Angled front receptacle in compact one-handed interlock

Options (Custom Capabilities)

- Other Russellstoll product interfaces
- 30-, 60-, 100- or 200-amp installations
- Specialty enclosures for your application
- Circuit breaker interlocked mechanisms

See **pages H-426-H-432** for full Heavy Service Ever-Lok line.

Features

- Heavy steel galvaneel with baked enamel finish
- NEMA 3R/12 construction
- Standard 600V class R fuses
- Listed components

GE Switchgear

CAT. NO.	MATING PLUG
TH3362JRS (60 AMP)	8418 or F27194 [†]

[†] F27194 Automotive, 480VAC label.

Notes: Mating Plugs sold separately.

Other styles available.

Square D (Mechanism)

CAT. NO.	MATING PLUG
ESDFH8414F00	8418 or F27194 [†]

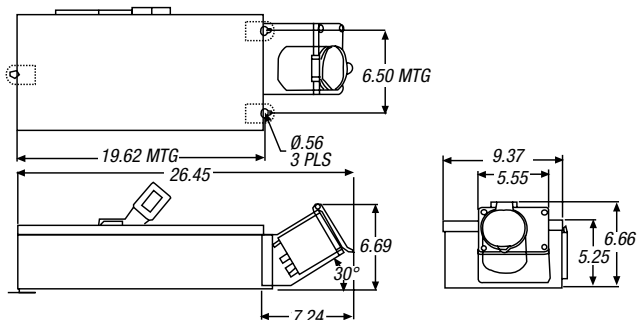
[†] F27194 Automotive, 480VAC label.

Notes:

Mating Plugs sold separately.

Other styles available.

Also available: Many options for mounting, configuration or interfaces.



Industrial Interlocked Receptacles

60 Amp, 480VAC plus 120 or 240VAC convenience outlets to specification 3P4W (100A also available)

Combination Interlocked Transformer Disconnect Automotive/Heavy Industrial I-Beam Web Mount

Benefits

Transformer Disconnects offer a combination of voltage outlets from a single facility 480V 3Ø service drop. Standard configurations include a fused, interlocked 480VAC, 60A 3Ø receptacle outlet and separately protected 120VAC, 15–20A convenience outlets. Custom configurations are available to meet your application requirements.

- Quickest way to expand or build a single voltage factory or facility, with voltage combinations available at every power drop
- Safest way to operate: with fuses and breaker protection for each receptacle. 60A plug cannot be inserted or removed unless power is off
- Most cost-effective way of providing power and convenience outlets in one location; wall mount or column mount in standard 8" I-beam pillars
- Easy access angled front 480VAC receptacle position
- Heavy-duty 14-gauge steel NEMA 3R/12 welded enclosure with gasketed door. Electrostatic epoxy powder-coat gray finish
- Dual lockout locations on main switch handle and door handle

Optional Construction Features

- Stepdown transformer 2kVA and secondary
- 30/60A outlet (Heavy Service Ever-Lok®, Angle Type or 30A MaxGuard®)
- Convenience outlet types (including NEMA bladed styles) and protection

Mechanical and Safety Features

- Three-point, two-way interlock function
 - Blade-type disconnect handle interlocked with door handle
 - Main disconnect uses steel rod arm interlock to 480VAC outlet
- High-strength 3-point door hinge design
- Standard 8" I-beam web vertical mounting or conventional wall mount

Ordering Information

- Many other configurations available



CAT. NO.	480VAC 60A RECEPTACLE	MATING PLUG	120VAC 20A RECEPTACLE	MATING PLUG
ERSFH8414FBB	8414Spl.	8418 or F27194†	8003N (x2)	8593CTN*
ERSFH8414FDC	8414Spl.	8418 or F27194†	8003U-1 (x2)	8013U-1*

* Other styles available.

† F27194 Automotive 480VAC label.

Notes: Mating Plugs sold separately.

100A also available — consult your Thomas & Betts representative.

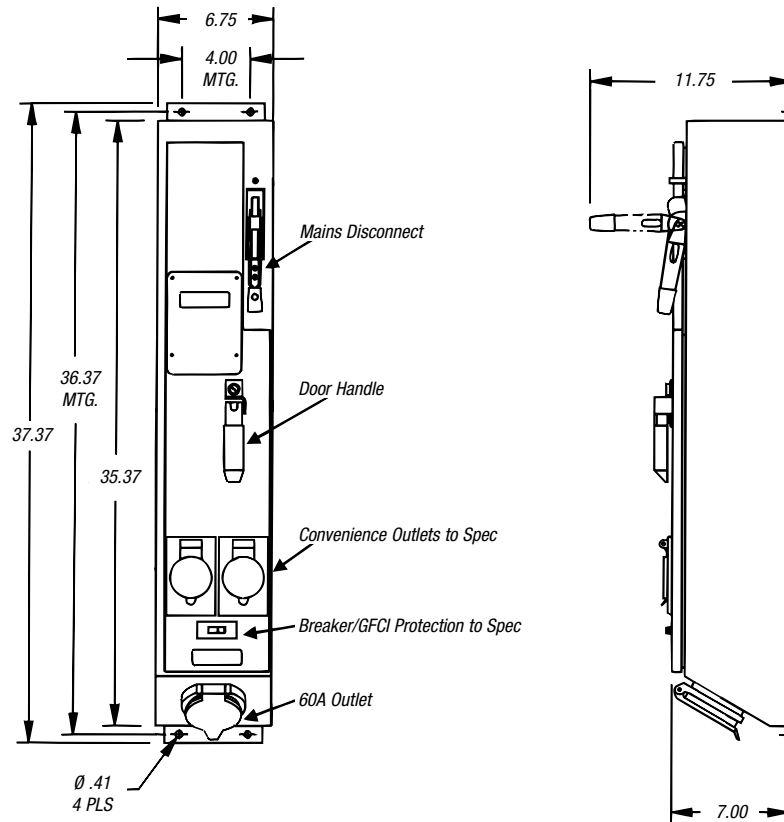
Specifications

Electrical and Safety Features:

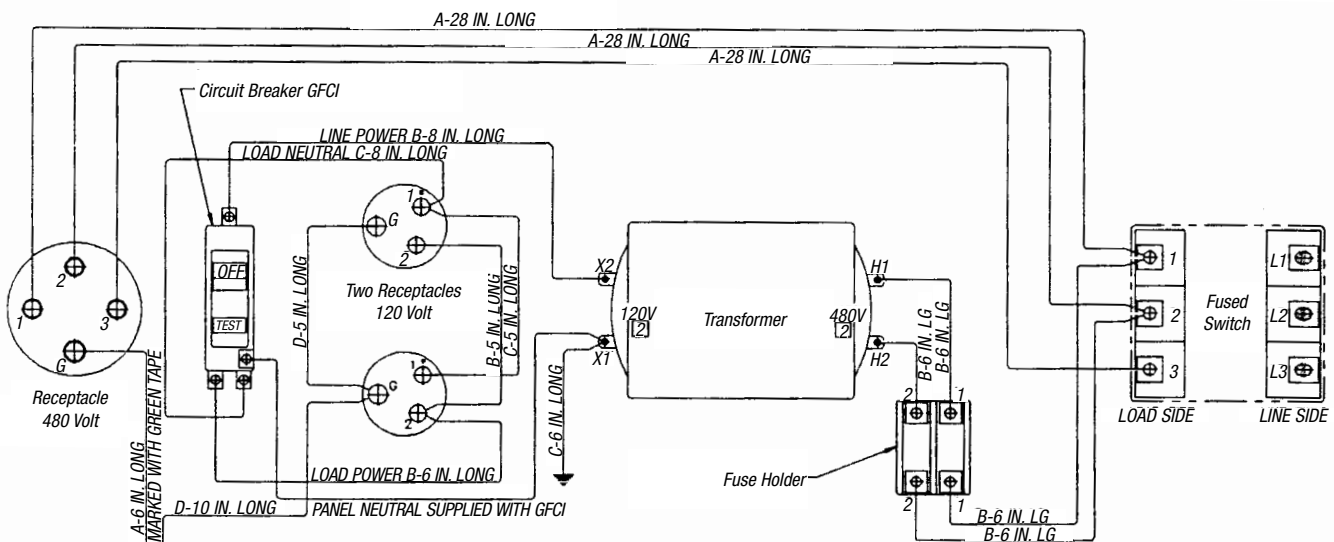
- Fused 480VAC 60A 3P4W Receptacle + Fused Dual 120VAC 20A 2P3W Outlets
- 20A Combination breaker/GFCI convenience outlets on door
- Heavy-duty (8-hour rated) 2kVA 480VAC–120VAC (fused primary) transformer

Industrial Interlocked Receptacles

Dimensions



Wiring Diagram



Industrial Interlocked Receptacles

60 Amp, 480VAC/250VDC, 3P4W Circuit Breaker Interlocked Receptacle Option

Ever-Lok® Mechanically Interlocked Receptacle and Switch Automotive/Heavy Industrial I-Beam Web Mount Heavy Service Ever-Lok® Mechanically Interlocked Receptacles and Switch

Features and Benefits

Mechanically interlocked between the receptacle and the switch. Designed so that when the plug is fully inserted, the switch interlock is automatically released, permitting the switch to be turned on. The plug cannot be removed from the receptacle until the switch is manually turned off.

- Switch: 60 amp, 480VAC, 3-pole, quick "make" and quick "break"
- Housings: heavy-cast aluminum corrosion-resistant copper-free alloy with gray electrostatic epoxy powder-coat finish. Furnished with oil-resistant gaskets
- Handle lock-out feature
- Circuit-breaker interlocked version available in standard and high AIC models
- One-handed insertion or removal: unique auto-locking collar engages upon insertion, 1/8 counter-clockwise turn disengages for removal
- Simple and rugged full interlock safety; plug cannot be inserted or withdrawn while power is on
- Fits in standard 8" I-beam web or wall mounting



INTERLOCK CAT. NO.	MATING TYPE	PLUG
CFCRA13-60	Switched only	8418 or F27194†
F32753‡	Circuit breaker	8418 or F27194†

† Automotive 480VAC.

‡ 70A Trip version F26313 and other variations also available.

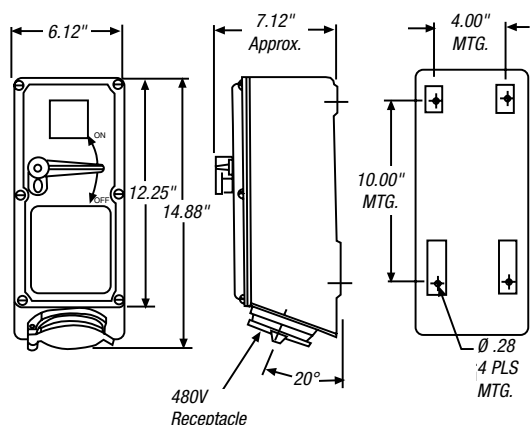
Notes: CFCRA13-60 replaces previous Cat. #FCSRA13-60.

Mating plugs sold separately.

Dimensions

Mechanically Interlocked Switch

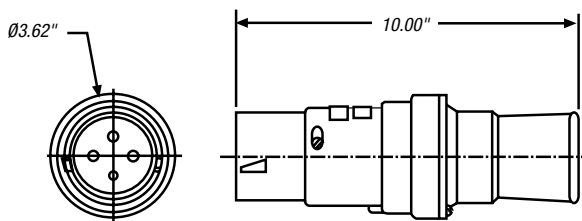
1 1/4" NPT Top Entry Std./Other Sizes Available



*17" dim. for F32753 unit

Mating Plug

60A, 3P4W, 8418 or F27194



Industrial Interlocked Receptacles

30 Amp, 480VAC, 3P4W (other polarizations available)

Interlocked Switch (30A, 480VAC) Automotive/Heavy Industrial I-Beam Web Mount Interlocked Switch (FS/FD™ Interface)

Features and Benefits

The FS/FD™ Interlocked Switch is made of heavy-duty cast aluminum. The mechanical interlock functions when the plug is fully engaged, enabling the switch to be operated. Basic interlock design has many variations including screw cover, brass and circuit breaker versions.

- Male plug cannot be plugged or unplugged under load
- Deadfront female receptacle for safety
- Weathertight receptacle made of cast aluminum, corrosion-resistant copper-free alloy, gray electrostatic epoxy powder-coat finish
- Compact size for limited space applications
- Available with UL style steel back boxes to user specifications

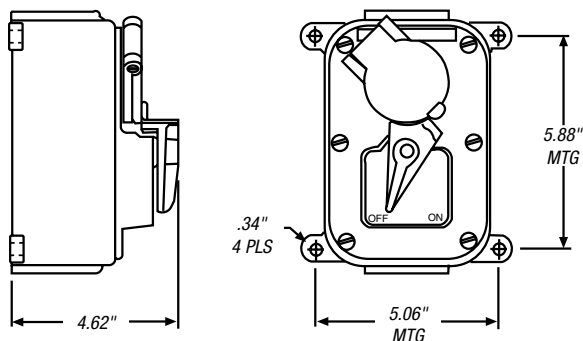


CAT. NO.	MATING PLUG
F34331	F34332

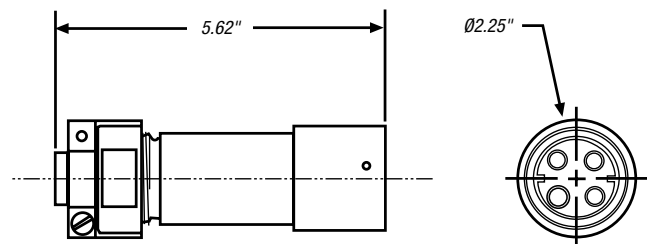
Mating plugs sold separately.

Dimensions

Interlocked Switch



Mating Plug



Industrial Interlocked Receptacles

Maximum 600VAC/250VDC

MaxGuard® NEMA 4X interlocks are ideal for demanding non-hazardous areas where dust, dirt, moisture and corrosion might be a problem — such as shipyards, food processing facilities, manufacturing operations or similar areas.

Safety

- Gated deadfront waterproof receptacle
- Standard, high AIC or NA/switch circuit breaker
- Protective screw cap for watertight protection

Durability

- Thick-wall cast copper-free aluminum housing with epoxy powder-coat finish
- Heavy-duty sliding bar interlock mechanism

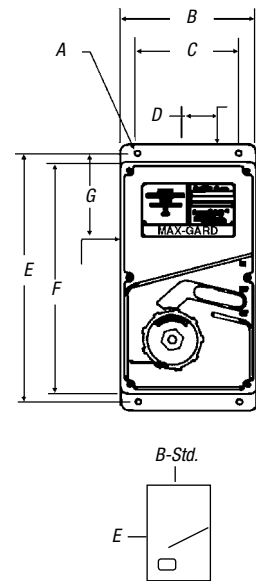
Performance

- Heavy on/off handle adds mechanical ability to electrical interlock function
- Standard conduit openings through top or side



Boldface figures are for voltage assignment; for different ratings, see **page H-346**.

	POLES/ WIRES	VOLTAGE	MECHANICALLY INTERLOCKED RECEPTACLE NEMA 4X CAT. NO.	MATING MAXGARD PLUG CAT. NO.	STD. BUSHING ID
30 Amp	2P3W	125	DBRF310703000	DS3107MP000	7/8"
	2P3W	250	DBRF320703000	DS3207MP000	7/8"
	3P4W	30250	DBRF330703000	DS3307MP000	1"
	3P4W	30480	DBRF340403000	DS3404MP000	1"
	4P5W	277/480	DBRF350403000	DS3504MP000	1 1/16"
60 Amp	2P3W	250	DBRF620706000	DS6207MP000	1 1/16"
	3P4W	125/250	DBRF630706000	DS6307MP000	1 1/16"
	3P4W	30480	DBRF640406000	DS6404MP000	1 1/16"
	4P5W	277/480	DBRF650406000	DS6504MP000	1 1/2"
100 Amp	2P3W	250	DBRF120710000	DS1207MP000	1 11/16"
	3P4W	125/250	DBRF130710000	DS1307MP000	1 13/16"
	3P4W	30480	DBRF140410000	DS1404MP000	1 13/16"
	4P5W	277/480	DBRF150410000	DS1504MP000	2"
200 Amp	3P4W	277/480	DBRF230720000	DS2307MP000	1 1/4"
	3P4W	30480	DBRF240420000	DS2404MP000	2 1/4"
	4P5W	277/480	DBRF250420000	DS2504MP000	2 1/2"
400 Amp	3P4W	277/480	DBRF430740000	DS4307MP000	3"
	3P4W	30480	DBRF440440000	DS4404MP000	3"
	4P5W	277/480	DBRF450440000	DS4504MP000	3 1/4"



Conduit Hubs: (at B or E)

AMP	STD. NPT THREAD OUTLET	MAX.
30	1 1/2"	2 1/2"
60	1 1/2"	2 1/2"
100	2"	2 1/2"

▼ **Control Contacts** (position 12) use "K" example: DBRF6104060K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF6104060KZ

Breaker Trip Ratings (positions 9, 10, 11) 30 amp use 030; 50 amp use 050; 60 amp use 060

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

For additional full line and polarization options, see MaxGuard section on **pages H-296–H-343**.

Dimensions

AMP	A	B	C	D	E	F	G
30	3/8"	8 3/4"	6 1/2"	1 1/2"	16 1/4"	15 1/8"	3 1/8"
60	3/8"	8 3/4"	6 1/2"	1 1/2"	16 1/4"	15 1/8"	3 1/8"
100	3/8"	8 3/4"	6 1/2"	1 1/2"	16 1/4"	15 1/8"	3 1/8"
200	9/16"	12 1/4"	9"	2 1/2"	26 1/4"	24 3/4"	5"
400	9/16"	15 1/2"	12"	3"	30 1/2"	29"	6"

Hazardous Location Plugs, Receptacles and Interlocks

Hazardous-Duty Applications

Russellstoll® Hazardous-Duty Plugs, Receptacles and Interlocks are designed to support a variety of installation needs throughout 20A, 30A, 60A and 100A ranges where Division 1, Class 1 NEC® guidelines require the utmost in safety.

Unique among others, the Russellstoll® MaxGard® also offers true O-ring sealed waterproof design protection in addition to standard threaded flame-path construction employed elsewhere. In rough service, washdown and outdoor applications, MaxGard® performance goes beyond normal XP ratings.

With coming increases in harmonized designations for classifications between NFPA/NEC® and IEC (International) hazardous area standards, a quick reference classification chart is provided below. In all cases, the customer must determine and approve proper area classification standards and degree of harmonized standards acceptance.



Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

HAZARDOUS MATERIALS ENVIRONMENT	U.S. NEC STANDARDS	EURO IEC STANDARDS
Gas or Vapor	Div. 1, Class I Div. 2, Class I	Zone 0 and 1 Zone 2
Dust	Div. 1, Class II Div. 2, Class II	Zone 10 Zone 11
Fibers/Flyings	Div. 1, Class III Div. 2, Class III	Zone 10 Zone 11
GROUP APPLICATIONS	NEC ART. 500 CLASS I: GROUPS	NEC ART. 505 ZONES 0, 1 AND 2
Div. 1 and 2, Class I	A: Acetylene	IIC
	B: Hydrogen	IIB
	C: Ethylene	IIB
	D: Propane	IIA

*The above chart is presented for quick reference only and should only be used in conjunction with noted Articles.
Further definition of harmonized standards will be supported by Russellstoll through appropriate specification efforts whenever practical.*

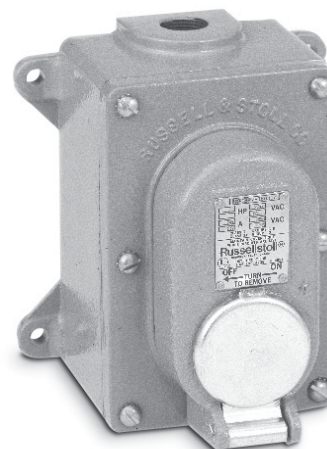
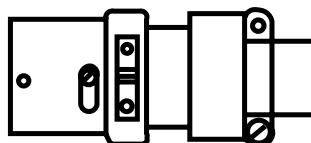
Hazardous Location Plugs, Receptacles and Interlocks

Explosion-Proof: Class I, Groups C and D Dust Ignition-Proof: Class II, Groups G

Interlocked Switch and Receptacles

These receptacles are for use in general Div. 1 classified industrial installations such as chemical plants, oil refineries, bulk stations, distilleries, solvent areas, mills, etc. A higher degree of safety is afforded by interlocking the plug with the switch, making it impossible to insert or withdraw plug under load.

When the polarized plug is inserted into the receptacle and the plug shell is turned clockwise, it turns the switch to the "on" position and vice-versa.



20 Amp, 575VAC
30 Amp, 250VAC

DESCRIPTION	FLAP COVER	SCREW COVER	PLUG	CABLE STD. BUSHING HOLE DIA.
2P3W 1 HP 220/575VAC	4240FC/ F16081A	4240SC	4241	5/8"
3P4W 2 HP 110/575VAC	4242FC	4242SC	4243	3/4"

Specifications

- Receptacle Housings: Cast aluminum; electrostatic epoxy powder coated finish
- Plugs: steel, cadmium plated. Furnished with aluminum alloy cable clamp and Neoprene cable bushing
- Outlets: standard 3/4" top, additional or larger outlets available. Maximum 1" four way. See diagram, use symbols when ordering
- Cable Bushing: Oil-resistant, Neoprene strain relief cable bushing regularly furnished with hole I.D. size as listed. Other hole sizes available. Consult Technical Services for catalog number
- Two-Gang Style: Consult Technical Services

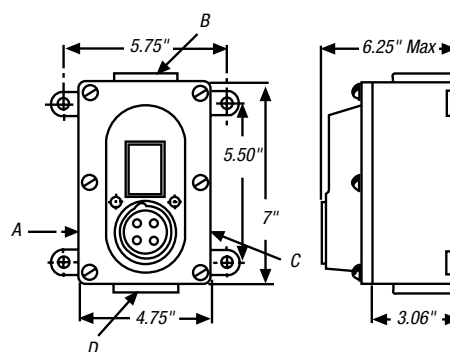
Approvals:



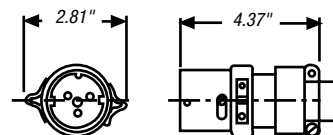
E10919



Dimensions



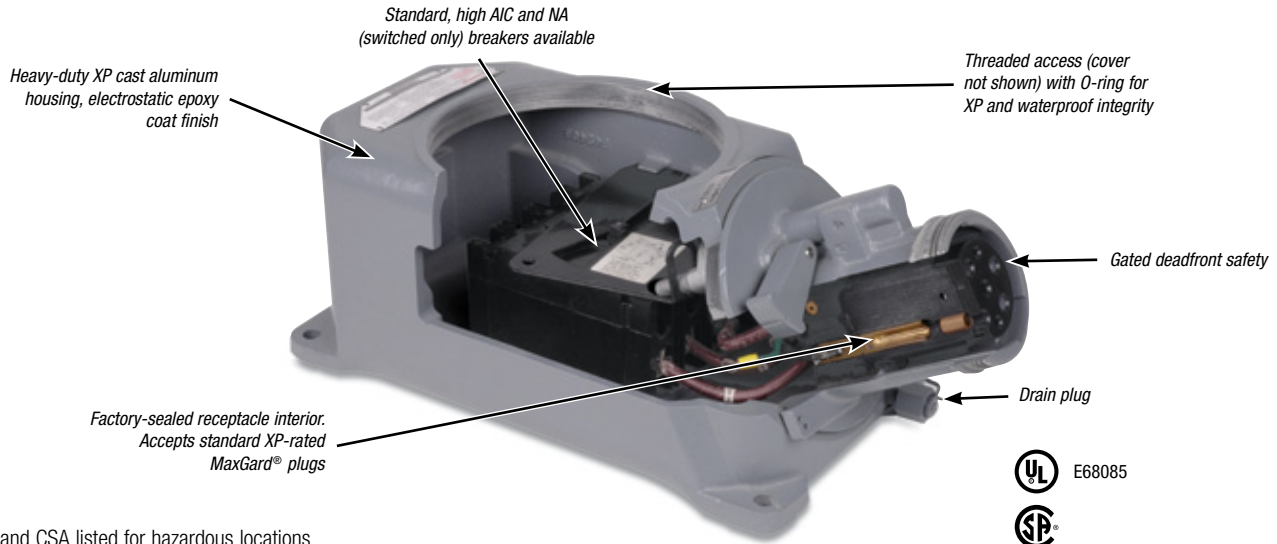
For 2-gang unit, width is 9 3/8".
Mounting Lugs — C to C 10 1/2" W x 5 1/2" H



Hazardous Location Plugs, Receptacles and Interlocks

Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30-, 60- and 100-amp sizes, all polarizations. Division 1, Class I and II.



UL and CSA listed for hazardous locations

Class I, Division 1, Groups B, C and D

Class II, Division 1, Groups F and G

UL File E10919

NEMA 7, 8, 9

CSA

DOT shipboard used above deck "green water"

NEMA 4X

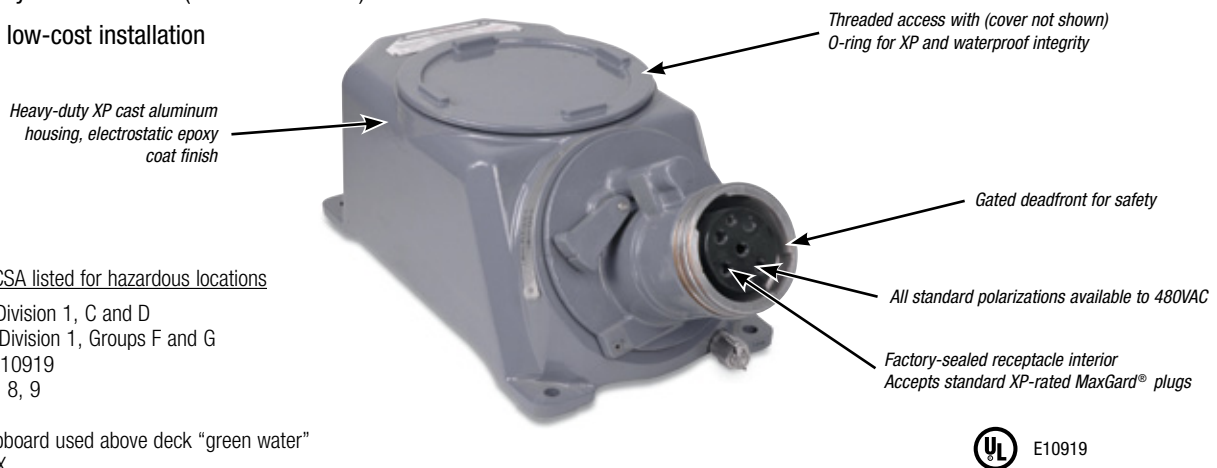
USCG approved

MaxGard® DBRE and DSRE Series Interlocks are the only devices certified both explosion-proof and waterproof, along with optional control contacts, and are fully UL Listed.

Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30A 480VAC max., all polarizations

- Factory-sealed interior (no filled conduits)
- Easy low-cost installation



UL and CSA listed for hazardous locations

Class I, Division 1, C and D

Class II, Division 1, Groups F and G

UL File E10919

NEMA 7, 8, 9

CSA

DOT shipboard used above deck "green water"

NEMA 4X

USCG approved

Hazardous Location Plugs, Receptacles and Interlocks

Maximum
600VAC or 250VDC



	POLES/ WIRES	VOLTAGE (VAC)	CAT. NO.	CAT. NO.	CAT. NO.	STD. BUSHING I.D.*
30 Amp						
	2P3W	125	DBRE310703000	DSE3107FR0	DS3107MP000	7/8"
	2P3W	250	DBRE320703000	DSE3207FR0	DS3207MP000	7/8"
	3P4W	30250	DBRE330703000	DSE3307FR0	DS3307MP000	1"
	3P4W	30480	DBRE340403000	DSE3404FR0	DS3404MP000	1"
	4P5W	277/480	DBRE350403000	DSE3504FR0	DS3504MP000	1 1/16"
60 Amp						
	2P3W	250	DBRE620706000	—	DS6207MP000	1 3/16"
	3P4W	30250	DBRE630706000	—	DS6307MP000	1 5/16"
	3P4W	30480	DBRE640406000	—	DS6404MP000	1 5/16"
	4P5W	277/480	DBRE650406000	—	DS6504MP000	1 1/2"
100 Amp						
	2P3W	250	DBRE120710000	—	DS1207MP000	1 11/16"
	3P4W	30250	DBRE130710000	—	DS1307MP000	1 13/16"
	3P4W	30480	DBRE140410000	—	DS1404MP000	1 13/16"
	4P5W	277/480	DBRE150410000	—	DS1504MP000	2"

Boldface figures are for voltage assignment; for different ratings, see **page H-340**.

* For specification information and additional bushing sizes, see MaxGard® section, **pages H-296–H-343**.

▼ **Control Contacts** (position 12) use "K" example: DBRF6104060K0

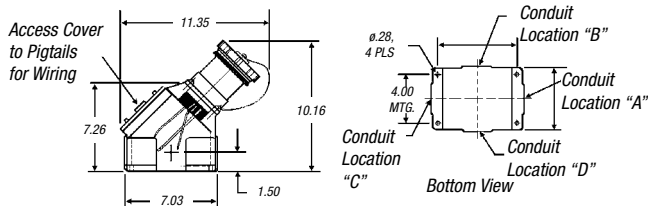
Shunt Trip Breaker (position 13) add "Z" to above: DBRF6104060KZ

Breaker Trip Ratings (positions 9, 10, 11) 30 amp use 030; 50 amp use 050; 60 amp use 060

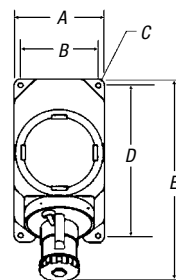
Non-Auto Sw. NAO (repl. "DBRE" with "DSRE")

Dimensions

Explosion-Proof Receptacle



Explosion-Proof Interlocked Receptacle



AMP	A	B	C	D	E
30	8 3/4"	7 1/2"	1/2"	14 3/4"	20"
60	8 3/4"	7 1/2"	1/2"	14 3/4"	20"
100	8 3/4"	7 1/2"	1/2"	14 3/4"	20"

Hazardous Location Plugs, Receptacles and Interlocks

Delayed-Action Receptacles

Explosion-Proof: Div. 1, Class 1, Groups C and D

Circuit-breaking receptacles, plugs and connectors ensure complete circuit breaking under full rated loads. Equipment grounding is provided by means of a separate pole that makes contact before and breaks contact after the circuit poles. The delayed action operation sequence is as follows:







Insert plug, turn left, push in to make electrical contact then turn right to prevent accidental disconnection. To withdraw plug, the reverse procedure is followed, which provides time for extinction of the arc and cooling before the plug can be completely withdrawn.

Receptacles



Plug



SURFACE MOUNT**						
RATINGS	POLES/WIRES	STRAIGHT	ANGLED	FLUSH MOUNT ▼	CABLE HOLE DIA.	
Type EFS						
20 Amp	2P3W	4462	4464FC	4445	4466	9/16" 
125VAC or 250VAC	3P4W	—	4465FC	4446	4467	19/32" 
Type DA						
30 Amp+	2P3W	—	4233BC	—	4237BC	5/8" 
250VAC or 480VAC	3P4W	RA4234BC	4234BC	—	4238BC	3/4" 
60 Amp*	2P3W	—	4263BC	—	4267BC	1¼" 
480VAC	3P4W	RA4264BC	4264BC	—	4268BC	1¼" 

Notes:

* Also available for use at 30 Amp, 480VAC.

** Can be furnished with flap or screw cap covers. When so required, add suffix "FC" for flap or suffix "SC" for screw cap to above catalog number. Price on application.

▼ Furnished with plaster gauge plate. Requires wall depth of 4" minimum.

+ 30 Amp Iron-Bodied Plug Family for replacement use only. Not UL Listed. (60 Amp carries full listing.)

Hazardous Location Plugs, Receptacles and Interlocks

Delayed-Action Receptacles (EFS and DA)

Specifications

- Receptacle Housings: EFS — Cast copper-free aluminum; DA — Cast iron, corrosion-resisting baked enamel finish
- Plug Housings: 20 Amp — Steel, cadmium plated; 30 Amp — Cast iron; 60 Amp — Steel and aluminum, natural finish. Plugs are furnished with aluminum alloy cable clamp and Neoprene cable bushing
- Connectors: Cast aluminum, natural finish. Furnished with aluminum cable clamp and Neoprene cable bushing
- Flush Plates: Brass, polished chromium finish
- Outlets: Furnished with one outlet top or bottom as follows. 20 Amp — $\frac{3}{4}$ "; 30 Amp — 1"; 60 Amp — $1\frac{1}{2}$ ". Additional or larger outlets charged extra. Maximum conduit sizes, four ways as follows: 20 Amp — 1"; 30 Amp — $1\frac{1}{2}$ "; 60 Amp — 2". Single gang — top and bottom only; two gang — one per gang top and bottom and one on each side. Specify size and location
- Cable Bushing: Oil-resistant, Neoprene strain-relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See **page H-459**.
- Surface Gang Units: EFS available and can be furnished in 2-gang units or in combination with other like devices
- Approvals: 20 and 60 Amp

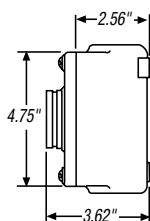
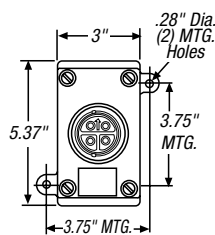
Dimensions



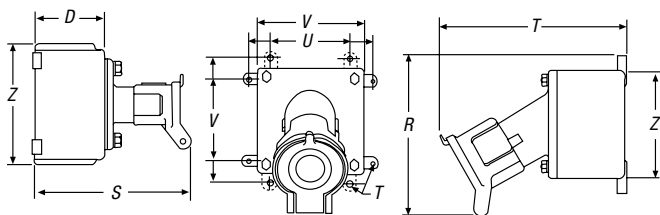
Surface-Mount Receptacles

Flush-Mount Receptacles

Type EFS (20 Amp) Straight

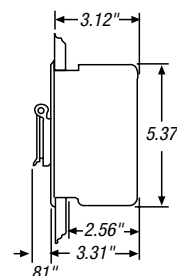
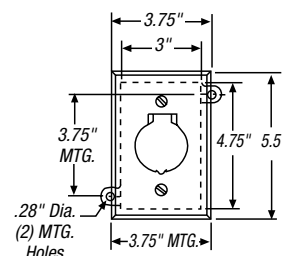


Type DA (30 and 60 Amp) Straight



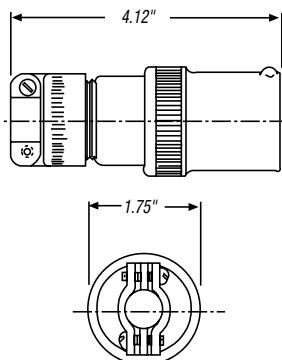
AMP		D	R	S	T	U	V	Y	Z
20	Angle	2.56"	—	6.12"	.28"	3.75"	3.75"	3"	5.37"
30	Straight	3.87"	—	8.62"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.06"	7.37"	8.37"	.28"	3.50"	5.50"	4.75"	4.75"
60	Straight	3.87"	—	9.25"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.87"	9"	9.25"	.34"	6.12"	5"	5.25"	6.75"

Type EFS

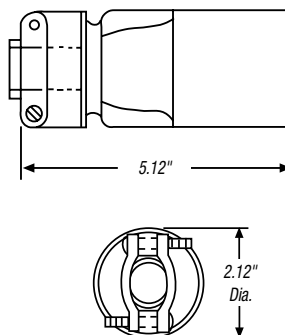


Plug

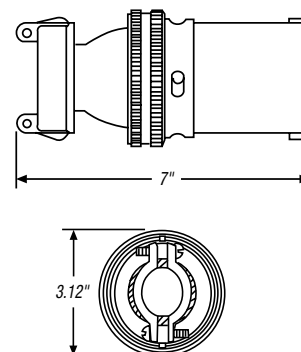
20 Amp Plug



30 Amp Plug



60 Amp Plug



Hazardous Location Plugs, Receptacles and Interlocks

For Explosion-Proof Plugs and Connectors

Cable Bushings

To order non-standard bushing, add cable bushing number to end of catalog number. This is furnished at no additional cost at time of order. For 60A devices, see J-line 60A chart on **page H-354**.



CAT. NO.	HOLE DIAMETER FOR CABLE
SG05	.312"
SG1	.375"
SG15	.438"
SG2	.500"
SG2A	.531"

20A CAT. NO.	HOLE DIAMETER FOR CABLE
SG25	.563"
SG2B	.594"
SG3	.625"
SG3A	.687"
SG4	.750"

Notes: Cable outside diameter should be at or slightly less than bushing I.D.

Bushings can compress approx. 10% at installation.

To order, add suffix as example: 4466/SG3.

Material — Oil-resistant Neoprene.

Aerospace/Industrial Static Ground Devices

Static grounding receptacles are used in airport and aerospace installations worldwide during fueling, testing and maintenance procedures. Normal mounting is concrete/tarmac floor inset, threaded onto copper ground rod.

Heavy brass construction cup includes optional cover and receptacle's contact pin. Accommodates a wide variety of single-contact (copper on steel wire) static ground wire clamps in service.

CAT. NO.	DESCRIPTION
GCC1	Ground cup with cover*
GC1	Ground cup without cover*
F06146	Replacement contact tip**

* Hub is tapped for 3/4"-10.

** Hub is tapped for 1/2"-13.

For 20 Amp Delayed-Action Circuit Receptacles

Flap Cover Assembly

CAT NO.	FINISH	USED ON CAT. NO.
F19054C	Chrome Plated	4445
F19054D	Natural Finish	4464

For 20 Amp Delayed-Action Circuit Plugs — Provides Extra Clamping Protection in Hard Service Applications

Combination Gland Nut and Cable Clamp



CAT. NO.	USED ON CAT. NO.
F24853C	4466
F24853D	4467

Material — Cast aluminum alloy, natural finish.



F07073
(cover only)

Safe Ground Indicator System

Prevents operation of pumps without a safe ground for static dissipation.

GSUL Safe Ground Indicator System

**Class I, Division 1, Groups C, D, and Zone 1, Groups IIB, IIA;
NEMA 7 Class II, Division 1, Groups E, F, G; NEMA 9**

Instant Visual Confirmation of Safe Ground

The Russellstoll® GSUL Safe Ground Indicator System is designed to ensure that a safe ground has been established for dissipating ever-present static electricity from tank vehicles, carriers, drums and other conductive equipment before allowing the transfer of flammable materials. The GSUL indicates the establishment of a safe ground via two parallel-connected green signal lights. Two lights are used for redundancy — if one lamp burns out, visual indication of safe grounding will be maintained by the other.

Intrinsically Safe Circuitry

The GSUL Safe Ground Indicator System features an intrinsically safe, low-energy ground-sensing circuit, which does not carry sufficient electrical energy to cause ignition in classified Hazardous Locations.

In operation, the ground-sensing circuit extends through the grounding clamp and its connection to the ground indicator, the metal portion of the vehicle between the jaw terminals of the clamp and earth ground electrode.

Pumps Won't Operate Until Safe Ground Is Established

A control relay in the GSUL Safe Ground Indicator System provides interlocked control of pump motors at the loading platform. The electronic control circuit will be de-energized while the green lights are off. Attaching the clamps to the tank closes the interlocking contact and energizes the control circuits to the motors.

Applications

Volatile or classified areas such as:

- Tank farms
- PetroChem
- Cosmetics
- Grain mills
- Vehicular or rail transport

Specifications

- Enclosure: Cast copper-free aluminum with epoxy powder-coated finish
- Outlets: Regularly furnished tapped ¾" NPT
- Relay Contacts: Rated ½ HP, 10A, 120VAC; ½ HP, 10A, 240VAC
- Certifications: UL Listed, CSA Certified



E33553



Unit shown with
covers removed

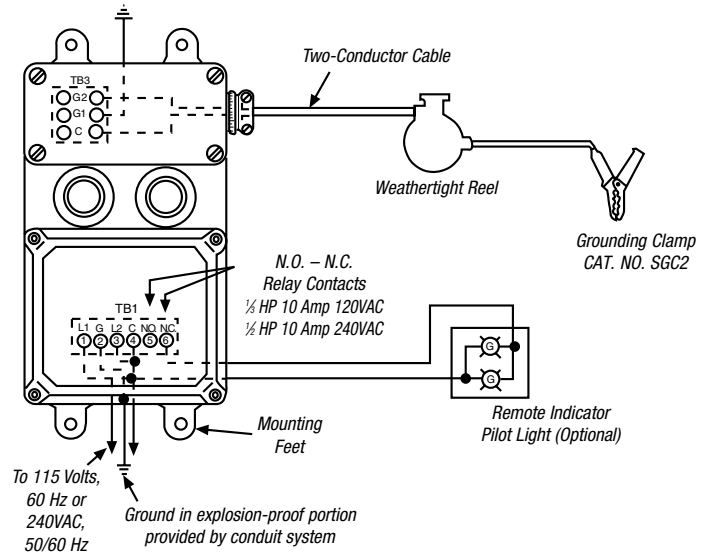
Safe Ground Indicator System

GSUL Safe Operating Features

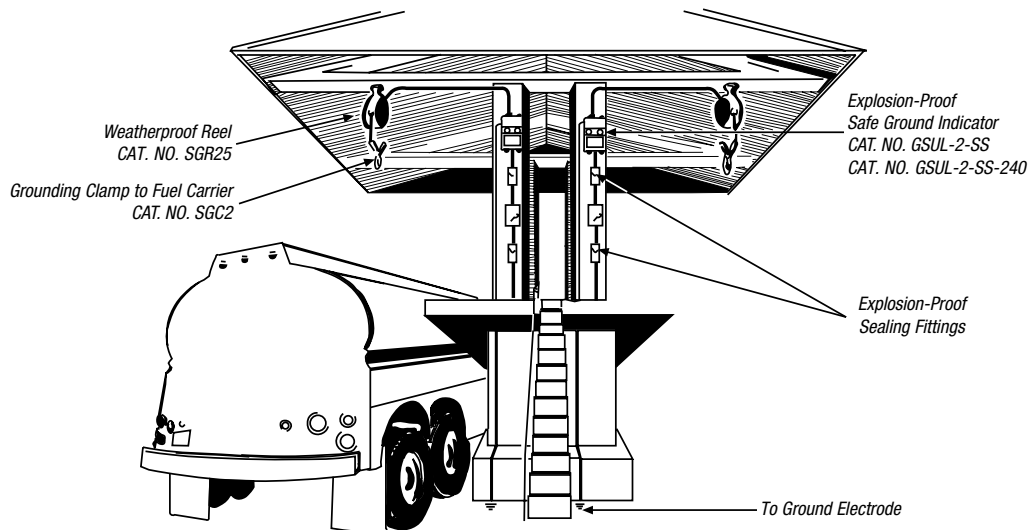
- Two redundant, parallel green indicator lights glow when safe ground is established
- Lamps offer approximately 20,000 hours of operating life
- Unit may be ordered without lights where remote visual indication is desired
- Intrinsically safe, simplified circuitry
- Integral, intrinsically safe wiring compartment with approved strain-relief fitting for connection of cable from grounding clamp
- Solid-state actuating and control circuits mounted on removable printed circuit board
- Enclosure protects components against moisture
- Control relay provided for interlocked control of pump motor at loading rack
- Grounding clamp (ordered separately) provides dual isolated tip contacts in a heavy-duty cast-aluminum handle design

Wiring Diagram

Ground Electrode Connection
(1 electrode required not provided by Russellstoll)



Typical Installation



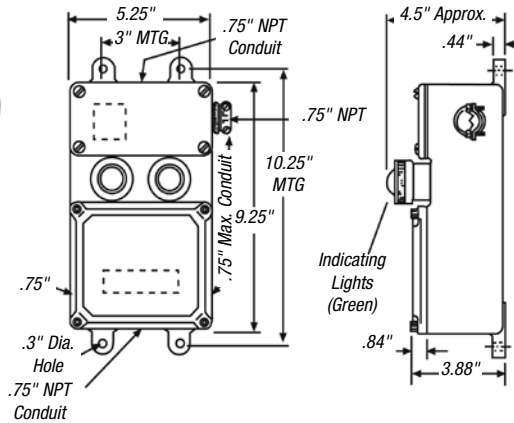
Loading rack illustration suggests a typical installation, which includes an Explosion-Proof Switch, Explosion-Proof Sealing Fittings, Weathertight Reel and the GSUL-2-SS Safe Ground indicator with 2-wire grounding clamp.

Safe Ground Indicator System

Russellstoll® GSUL Safe Ground Indicator System



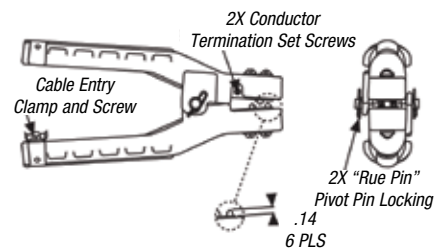
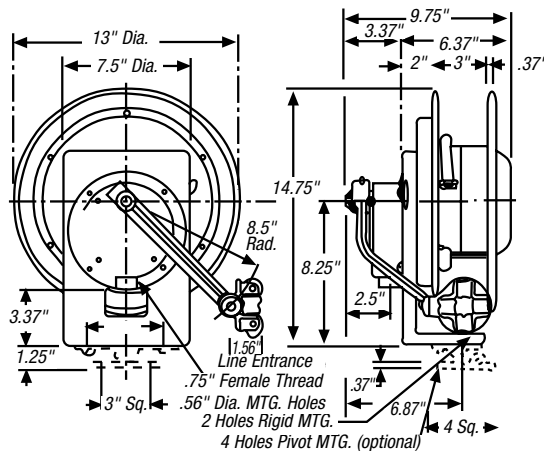
GSUL-2-SS



SGC2



SGR25
SGR50
SGR75



CAT. NO.	DESCRIPTION
GSUL2SS	Safe Ground Indicator with Indicator Lights, 120V, UL/CSA
GSUL2SS-240	Safe Ground Indicator with Indicator Lights, 240V, CSA
SGC2	Safe Ground Static Clamp
SGR25	Weathertight Retracting Reel with 25 ft. of 12/2 SJO-W Cable
SGR50	Weathertight Retracting Reel with 50 ft. of 12/2 SJO-W Cable
SGR75	Weathertight Retracting Reel with 75 ft. of 12/2 SJO-W Cable
Replacement Parts for GSUL	
C13662	Printed Circuit Board, 120 Volts (includes relay)
6X24RCB	Printed Circuit Board, 240 Volts (includes relay)
F30674	Control Relay
F30602	Lamp Socket Assembly
ELAG	Pilot Light Globe Assembly (green)
310993	Lamp for GSUL2SS
Replacement Parts for SGC2	
GX2TK	Ground Clamp Repair Kit

Computer System Interconnections

Russellstoll Line Selections for Indoor and Outdoor Applications

DuraGard® to 4P4W 20A through 60A

The toughest construction in thermoplastic safety, durability and performance by design, in UL 94-V0 flame-rated DuraV® material. With DurOring sealed pins, sleeves and interiors are watertight even unmated. 30A and 50A unique circuit breaker interlock line in DuraV® are the best choices in all standard voltage polarization options through 600VAC (Interlock to 480VAC).

Angle Type to 3P4W 60A use

The original 60A main power computer system connector, Angle Type plugs are also available in specialty UL 94-V0 material (aluminum connectors). As part of the MRO usage 30–200A Angle Type Line, the 60A connector is still commonly used today. Other lines such as MaxGard® should be used for changeout when possible.

Spec Grade to 4P4W 20A and 30A

Otherwise similar to the DuraGard®, Spec Grade refers to blue Lexan plugs only made to the same original FS/FD™ design standards as DuraGard®, in UL 94-5VA flame-rated material. Spec Grade features DurOring sealed pins, and sleeves and interiors are watertight even unmated. Spec Grade devices have been superseded by DuraGard® ratings for OEM use.

MaxGard® 30A to 4P5W

For DP/Computer System Applications, a special MaxGard® polarization reflects DP installations. Special thermoplastic housing and back handle are supplied for these applications. Use wherever 4P5W installations are required.

FS/FD™ to 3P4W 15A through 30A

The original 15/20/30A computer system connectors, the FS/FD™ line in aluminum continues in MRO usage. Many installations can also mate directly or convert to DuraGard® units. Our large installed base can be supported with any construction and product options. Convert to DuraGard® when possible.

UniGard® to 4P5W 20A to 100A

Thermoplastic International standard 309-2 or CEE-17 type connector lines usage is growing, especially in OEM, export and standard performance applications. The IP67 style is watertight when mated and directly interchangeable with other manufacturers. International designations shadow U.S. ratings: 20/16A, 30/32A, 60/63A and 100/125A. IP67 devices have screw collars or flap/screw covers, with catalog number "W" suffixes.

Computer System Interconnections

More than 30 years ago, Russellstoll® offered the first pin and sleeve connectors that met the demanding needs of the Data Processing industry, and we've been leading the way ever since.

The expanding technology of the Computer System Industry is creating more sophisticated applications, which require safe, reliable connections that exceed the tough demands of today's applications. Russellstoll's commitment to excellence offers you that and more... Safety, Durability, Reliability and Performance on our complete line of plugs, receptacles and connectors.

Pin and sleeve power connections are chosen for Computer System interconnections because of the absolute performance required in today's mainframe and peripheral installation. Pin and sleeve connections have been proven to be more reliable in service than any bladed device. Data centers stay in service because Russellstoll® keeps them connected.

Usage

- Any application where electrical connections must be protected from humidity, water, condensation and/or dust entering the wiring compartment and contacts
- Cable-to-connector sealing and device locking designs are critical
- Thermoplastic connectors preferred: some with aluminum conduit grounded shell
- Connection integrity needs are absolute; data center systems cannot go down
- Underfloor data center applications and wall-mount installations

Typical Application Groups



- Telephony Equipment
- Switching Rack Systems
- Power Distribution Units
- Test and Laboratory Equipment
- Mainframes from 30–270A
- Peripherals
- Data Storage Devices
- Military or Critical Power Supplies

Computer System Interconnections

Quick Selection Chart



SERIES*	FS/FD™ AND ANGLE TYPE	SPEC GRADE	DURAGARD®	UNIGARD®
Available Ranges (Amp)	20, 30 and 60*	20 and 30	20, 30, 50 and 60	30 (IEC)
Safety Grade™ UL Flame-Rated High-Temp Thermoplastic	UL 94-V0 Aluminum	UL94-5VA	UL94-V0	UL94-V0
Easy-to-Wire Rear-Loaded Interiors	—	✓	✓	✓
Single Rated Safety Voltage Polarizations	20A	20A 30A	20A 30A 50A 60A	30A (9h-IEC)
Waterproof O-Ring Seal (pins, sleeves and interiors)	—	✓	✓	✓
2nd Internal Ground Lug (cable shielding alt.)	—	✓	(optional)	—
External Cable Clamp	✓	—	✓	✓
External Gland Nut Lock	—	—	✓	✓

* 60A devices are specially designed versions of Russellstoll Angle Type (7328DP).



TüV For TüV listed devices, contact Technical Services.

Computer System Interconnections

Plugs



		VOLTAGE	PLUG SAFETY POLARIZATION	STD. CABLE BUSHING**	FS/FD™ ALUMINUM•	SPEC GRADE UL 94-5VA	SEE BUSHING CHART DURAGARD® UL 94-V0*
2P/3W	15/20 Amp	Up to 600VAC/ 250VDC		.625" .455" .405"	3720	3720DP (.375) 3720DP/0455 3720DP/0405	9P23U0
		125VAC		.625" .455" .405"	3720U1	3720DPU1 (.375) 3720DPU1/0455 3720DPU1/0405	9P23U1
		250VAC		.625" .455" .405"	3720U2	3720DPU2 (.375) 3720DPU2/0455 3720DPU2/0405	9P23U2
	30 Amp	Up to 600VAC		.760" .700" .625"	3750	3750DP	9P33U0
	50 Amp	Up to 600VAC		1.000" .925" .750"	—	—	9P53U0
	60 Amp	125VAC		1.000"	—	—	9P63U1
		250VAC		1.000"	—	—	9P63U2
3P/4W	20 Amp	Up to 600VAC/ 250VDC		.688" .625" .606"	3730	— 3730DP/0625 3730DP	— 9P24U0 —
	30 Amp	Up to 600VAC		1.100" 1.000" .875" .760"	3760	3760DPG/1100 3760DPG/1000 3760DPG/0875 3760DPG0760	— 9P34U0♦ — —
	50 Amp	Up to 600VAC 250VDC		1.000" .925" .750"	—	—	9P54U0
	60 Amp	125/250VAC		1.000"	—	—	9P64U1
		250 3Ø VAC		1.000"	—	—	9P64U2
	60 Amp	Special Angle Type Up to 600VAC		1.375" 1.188" 1.020" .750"	7328-78^	— — — —	7328DP/1375 — 7328DP† 7328DP/0750
				Angle Type			
4P/5W	30 Amp	3ØY 120/208 VAC	 MaxGard	.775"	—	—	DS3516MPDP+

Notes: All 20A devices are compatible. 30A FS/FD™ receptacles and connectors will accept all styles of mating plugs.

* For a more complete listing of UL 94-V0 rated devices, consult DuraGard® information on **pages H-357–H-375**.

** Consult your Thomas & Betts representative for additional cable bushing sizes not listed.

† 7328 DP series thermoplastic can replace 7328 metallic.

• 30A FS/FD™ aluminum plugs may not directly exchange with DuraGard® plugs. FS/FD metal mating devices must be used.

Computer System Interconnections

Connectors



Receptacles



FS/FD™ ALUMINUM	DURAGARD® UL94-V0*	FS/FD™ ALUMINUM•	DURAGARD® UL94-V0*
3913	9C23U0	3743	9R23U0W ▼
3913U1	9C23U1	3743U1	9R23U1W ▼
3913U2	9C23U2	3743U2	9R23U2W ▼
3933 ■	— 9C33U0 ■ —	3753 ■	9R33U0W ▼ ■
—	9C53U0	—	9R53U0W ●
—	9C63U1	—	9R63U1
—	9C63U2	—	9R63U2
3914	— 9C24U0 —	3744	9R24U0W ▼
3934 ■	— 9C34U0 ◆ ■ — —	3754 ■	9R34U0W ▼ ■
—	9C54U0	—	9R54U0W ▼
—	9C64U1	—	9R64U1
—	9C64U2	—	9R64U2
7428-78^	— — — —	—	SCF7324-78
DS3516FP+	—	DS3516FR+	—

◆ Standard 0.750 Bushing.

■ DuraGard® receptacles and connectors 30/50A will accept only DuraGard® or Spec Grade. FS/FD™ Aluminum 30A plugs must be used with FS/FD™ metal connectors or receptacles.

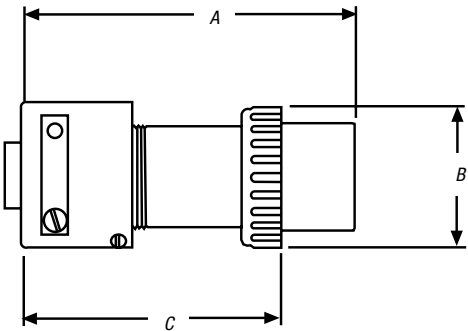
^ Angle Type Line

+ MaxGard® Line — for further information, see **pages H-296-H-343**.

▼ Requires 3711A conduit FD box or 3781A DSFD Box (50A).

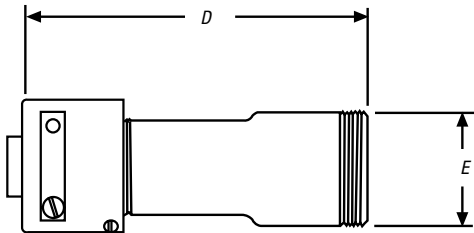
Computer System Interconnections

Plugs



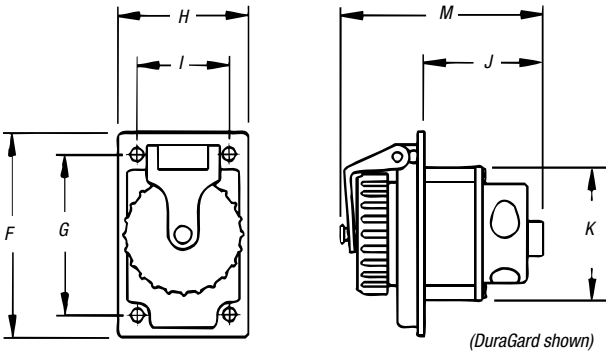
RECEPTACLE		A	B	C
SIZE				
FS/FD™	20 Amp	3 5/8"	2"	2 1/4"
	30 Amp	3 3/4"	2 1/4"	2 3/8"
Angle Type DP (Thermoplastic)	60 Amp	8"	2 1/2"	3 3/4"
Spec Grade DuraGard®	20 Amp	3 1/4"	2 1/8"	2 1/8"
	30 Amp	5"	2 3/8"	3 5/8"
	50 Amp	5 1/4"	2 3/8"	3 5/8"

Connectors



RECEPTACLE		D	E
SIZE			
FS/FD™	20 Amp	4"	1 7/8"
	30 Amp	4 5/8"	2 1/8"
Angle Type (Metallic)	60 Amp	9 1/8"	3 1/2"
Spec Grade DuraGard®	20 Amp	4 1/8"	1 7/8"
	30 Amp	5 1/8"	2 1/8"
	50 Amp	5 1/8"	2 1/8"

Receptacles

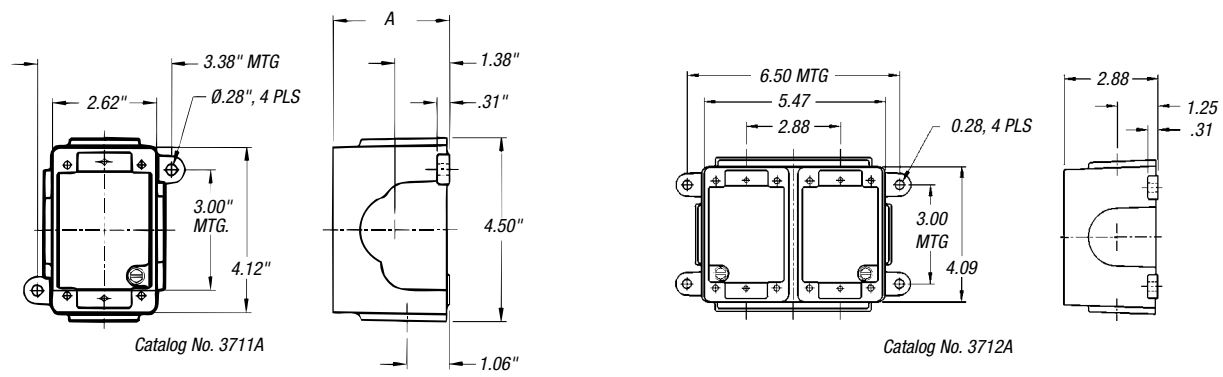


RECEPTACLE		F	G	H	I	J	K	M
SIZE								
FS/FD™	20 Amp	4 1/8"	3 1/4"	2 5/8"	1 7/8"	1 1/8"	2 1/4"	2 1/2"
	30 Amp	4 1/8"	3 1/4"	2 5/8"	1 7/8"	1 3/8"	2 3/4"	2 5/8"
Angle Type (Metallic)	60 Amp	3 1/2"	2 7/8"	3 1/2"	2 5/8"	—	2 1/2"	6"
DuraGard®	20 Amp	4 1/8"	3 1/4"	2 5/8"	1 7/8"	1 1/2"	2"	3 3/8"
	30 Amp	4 1/8"	3 1/4"	2 5/8"	1 7/8"	2 1/2"	2 3/4"	4 1/8"
	50 Amp	4 1/8"	3 1/4"	2 5/8"	1 7/8"	2 1/2"	2 3/4"	4 1/8"

Computer System Interconnections

All Conduit Boxes/Angle Adapters are Copper-Free, Cast Aluminum, Epoxy Powder Coat Finish.

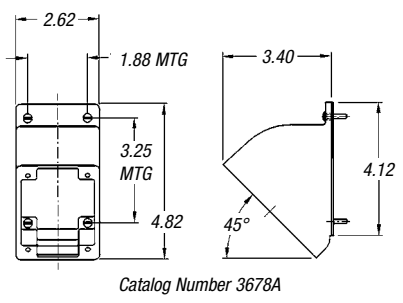
Conduit Boxes (for Surface Mounting)



RECEPTACLE SIZE	CAT. NO.	
	SINGLE-GANG	DOUBLE-GANG
20, 30 and 50 Amp	3711A	3712A
60 Amp*	JB6-1	—
50 Amp	3781A	—

* Various mounting options available. 4" deep (not shown)

Angle Adapter



Catalog Number 3678A

RECEPTACLE SIZE	CAT. NO.	
	45°	20°
20, 30 and 50 Amp	3678A	—
60 Amp*	JAA6-45	JAA6-AB6

Mounts to conduit boxes to angle receptacle downward for easier access, no moisture retention on surfaces and better plug-cable drop bend relief.

* Various mounting options available.

Conduit Adapter

Kit includes gland nuts for plugs or connectors.



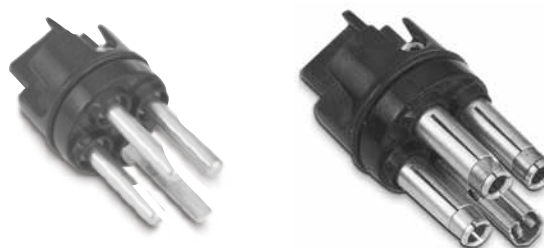
PLUG/CONNECTOR SIZE	TAPPED HOLE SIZE	CAT. NO.		
		FS/FD™	SPEC GRADE	DURAGARD®
20 Amp	1/2"	FSA11	—	9X2C50
	3/4"	FSA12	—	9X2C75
	1/2"	FSA21	—	9X3C50
30 Amp	3/4"	FSA22	—	9X3C75
	1"	FSA23	—	—
50 Amp	3/4"	—	—	9X5C75
	1"	—	—	9X5C10
	3/4"	JPA62	—	—
60 Amp	1"	JPA63	—	—
	1 1/4"	JPA64	—	—
	1 1/2"	JPA65	—	—
Angle Type	1 1/2"	JPA65	—	—

Computer System Interconnections

Plug/Connector Replacement Items

	SPEC GRADE	DURAGARD®	SPEC GRADE	DURAGARD®	
Item Color	Blue	Yellow	Blue	Yellow	Black
Plug/Connector Amperage	20A	20A	30A	30A	50A
Gland Nut	C17077C	C17077A	C17076CX	C17076AX	C17076BX
Nylon Locking Screw	N/A	NA	B16983	B16983	B16983
Bushing, Clamp, Nut and Screw Kit (Inc. Nylon Locking Screw — 30/50A)	B17019CPR	B17019APR	B17018CPR	B17018APR	B17018BPR
Bushings	To Spec	To Spec	To Spec	To Spec	To Spec
Glide Washer	863-8	863-8	500RS	500RS	500RS
Gland Nut Assembly	B17019CR	B17019AR	B17018CR	B17018AR	B17018BR

Note: Minimum purchase quantities apply.



Replacement Interiors

			CAT. NO.	
AMPERAGE		VOLTAGE POLARIZATION	MALE INTERIOR ASSEMBLY	FEMALE INTERIOR ASSEMBLY
—	—	125VAC	9XM23U1	9XF23U1
2P3W	20	250VAC	9XM23U2	9XF23U2
—	—	Through 600VAC/250VDC	9XM23U0	9XF23U0
2P3W	30	Through 600VAC/250VDC	9XM33U0	9XF33U0
2P3W	50	Through 600VAC/250VDC	9XM53U0	9XF53U0
3P4W	20	Through 600VAC/250VDC	9XM24U0	9XF24U0
3P4W	30	Through 600VAC/250VDC	9XM34U0	9XF34U0
3P4W	50	Through 600VAC/250VDC	9XM54U0	9XF54U0

Notes: For replacement bushings, see DuraGard® section, **page H-371**.

Interiors with ground straps are specials.

Computer System Interconnections

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	600 volts RMS (minimum creepage distance and minimum clearance per UL 840)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC
Horsepower	Per NEC® 430–151 ratings

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords per UL standard 62 and CSA C22.2 No. 49.1
Terminal Identification	In accordance with UL 1682
Cable Pull-Out Force	In accordance with UL 1682
Product Identification	Identification label and molded-in name
Lockout/Tagout	Lockout/Tagout hole in 30/50A DuraGard® plug complies with OSHA Reg. 29 CFR 1910.147 (VO 30A and 50A plugs only)

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49. Watertight flap screw cover on receptacle, O-Rings on all VO/5VA pins and sleeves (excludes 60A) VO/5A per UL 94 (DuraV® also 5VA in some applications)																						
Flammability																							
Operating Temperatures	<table border="1"> <thead> <tr> <th></th><th>VO</th><th>5VA</th><th>Metal</th></tr> </thead> <tbody> <tr> <td>Maximum</td><td>95° C (230° F)</td><td>130° C (266° F)</td><td>130° C (266° F)</td></tr> <tr> <td>Continuous</td><td>(230° F)</td><td>(266° F)</td><td>(266° F)</td></tr> <tr> <td>Minimum</td><td>-40° C (-40° F)</td><td>-29° C (-20° F)</td><td>-40° C (-40° F)</td></tr> <tr> <td>without Impact</td><td>(-40° F)</td><td>(-20° F)</td><td>(-40° F)</td></tr> </tbody> </table>				VO	5VA	Metal	Maximum	95° C (230° F)	130° C (266° F)	130° C (266° F)	Continuous	(230° F)	(266° F)	(266° F)	Minimum	-40° C (-40° F)	-29° C (-20° F)	-40° C (-40° F)	without Impact	(-40° F)	(-20° F)	(-40° F)
	VO	5VA	Metal																				
Maximum	95° C (230° F)	130° C (266° F)	130° C (266° F)																				
Continuous	(230° F)	(266° F)	(266° F)																				
Minimum	-40° C (-40° F)	-29° C (-20° F)	-40° C (-40° F)																				
without Impact	(-40° F)	(-20° F)	(-40° F)																				
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents (DuraV® and Metal)																						

Approvals



TÜV

Conforms to NEMA 4, 4X and 6 (DuraGard® and Spec Grade)

Contact Technical Services

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

Materials

	FS/FD™	SPEC GRADE	DURAGARD® SAFETY GRADE™
Contact Carrier Interior	Thermoset/Thermoplastic (20A and 30A)	Arc-Resistant UL 94-V0 Phenolic Thermoset	Arc-Resistant UL 94-V0 Phenolic Thermoset
Housing, Gland Nuts	Cast Aluminum	Lexan® UL 94-5VA	DuraV® UL 94-V0
Screw Collar Rings	—	High-Impact Thermoplastic	High-Impact Thermoplastic
O-Rings	—	Buna-N (Nitrile)	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass	Brass CDA 360	Brass CDA 360
Hinge Pins (Receptacle)	Stainless Steel	—	Stainless Steel
Terminals	Brass	Stainless Steel	Stainless Steel
All Hardware	Stainless Steel	Stainless Steel	Stainless Steel
Gland Glide Washer (or Internal Cable Grip)	Brass	Nylon	20 Amp — Nylon 30 and 50 Amp — Aluminum
Cable Clamp Bushing	Neoprene	Neoprene	Neoprene

Lexan® is a registered trademark of GE.

Computer System Interconnections

Custom Products

Interlocked Branch Distribution Centers

Utilize an existing higher amperage service and split it into multiple lower-current service outlets. The outlets are individually interlocked with circuit breaker protection. Branch Distribution Centers are UL Listed and CSA Certified and can be configured for many inlet/outlet combinations.

Standard Dual Configuration

- 60A male inlet
- 2–30A individually interlocked female outlets, each circuit breaker protected
- Heavy-duty NEMA 4 welded, gasketed enclosure

Benefits

- **Saves rewiring costs** in a facility when installing small-sized, lower-current machines using existing electrical service
- **Quickest and most cost-effective** way to expand or reconfigure a single service with multiple service outlet combinations possible at every power drop
- **Safest way to operate:** UL Listed 22kA interrupt capacity interlocked circuit breaker protection for each branch outlet receptacle, in a NEMA 4 enclosure

Electrical and Safety Features

- One: 250VAC, 3P4W, 60 amps, male inlet feeding;
Two: 250VAC, 3P4W, 30 amps, IEC 309-2 (9h Blue) female receptacle outlets, each protected by 22kAIC circuit breaker; each mechanically interlocked
- Power is manually energized only after plug is inserted; externally visible trip indicator handles on each interlock
- Automatic shut off when plug is removed before contacts disengage; ground sleeves “make first, break last”
- “Trip-free” safety mechanism where outlets are not powered unless plug is inserted
- Full NEMA rated UL 489 listed 22kA circuit breakers, available to 480V at 30 amps. 60 amp and other options available



Applications

- **Data Processing:** CPU/disk arrays/peripherals; new, smaller multiple units
- **Industrial/Manufacturing Lines:** Reorganization, process reconfiguration
- **Portable Power:** Machinery, tools, test and diagnostic equipment

Mechanical and Safety Features

- All internal wiring is complete: a drop-in, plug-in specified device
- DP underfloor (horizontal) installation standard; vertical or other mounting conventions optional
- Electrostatic epoxy powder-coat gray finish over 14-gauge steel, NEMA 4 welded enclosure with gasketed access cover
- Screw cover protects outlet receptacles (flap cap option)
- Long-life stainless steel and nylon external hardware, copper-free aluminum castings, O-ring seals (to device spec) and brass electrical contacts

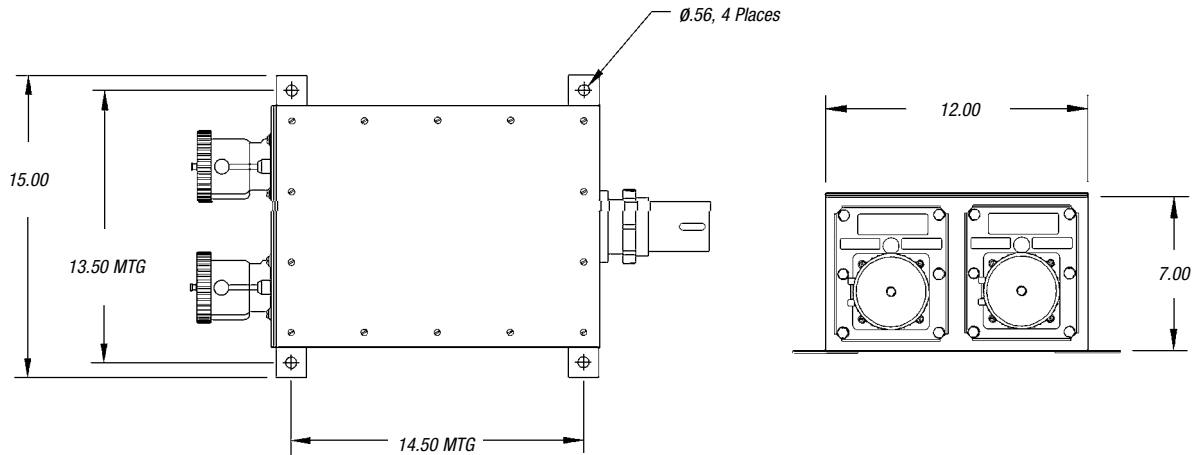
CAT. NO.	INLET SIDE		OUTLET SIDE*	
	250VAC, 60A MALE INLET	MATING CONNECTOR	250VAC, 30A OUTLET RECEPTACLE	MATING PLUG
ER206M39	7528 Spl.	7428-78	RS430MM9W (x2)	RS430P9WV0

* IEC 309-2 configuration, 9h, 3P4W.

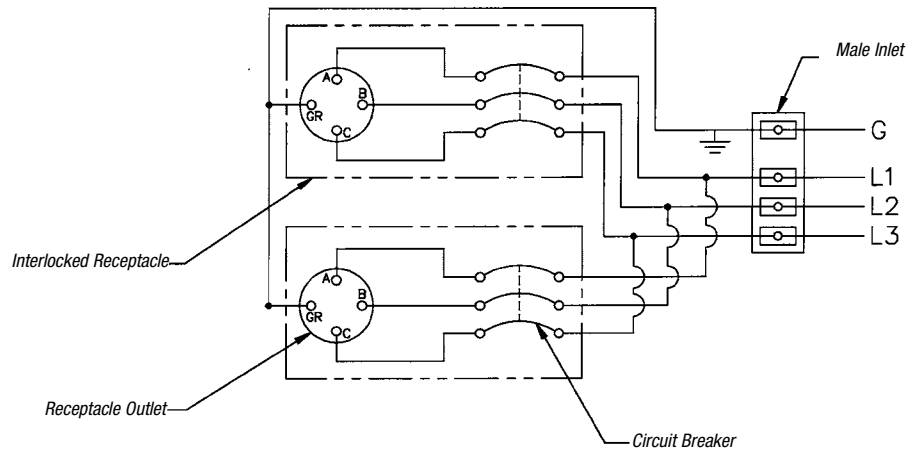
Notes: External mating plugs and connectors sold separately.
Other configurations available. Consult factory or your Thomas & Betts representative.

Computer System Interconnections

Outline Dimensions



Schematic Diagram



Mipco™ Connections for Refrigerated Containers

Plug Into Mipco™ Power

Mipco™ plugs, connectors and receptacles are used extensively in ports, terminals, transport and shipboard applications to provide a safe, watertight electrical connection for refrigerated containers. Mipco™ construction and design benefits are a quality benchmark:

- **No corrosion:** Aluminum receptacles are copper-free aluminum castings with a unique two-layer electrostatic epoxy powder-coat finish. Stainless steel and brass components are used extensively.
- **Tougher and better:** Thermoplastic receptacle, connectors and plugs are made from AMTUF™ high-abuse Nylon thermoplastic and DuraV® high-strength thermoplastic. Wide range chemical, UV withstand, impact and overall performance characteristics set the standard for construction.
- **Safety Listed and Approved:** We lead with safety in UL/CSA listings, approvals and certifications. “Recognized” or “non-listed” offshore supplier components just aren’t the same.



The Mipco™ Advantage

Safety

- Safety ground pin “makes first”, “breaks last” for optimum operator safety
- Internal O-ring seals provide watertight integrity, even without plug engaged or cap in place
- Thermoset interiors provide the safest insulation under extreme conditions
- Color-coded housings provide easy identification of mating components

Durability

- AMTUF™ housings provide three times the impact and temperature resistance of polycarbonate. Extremely resistant to oil, fuel, grease and most common solvents
- Neoprene cable compression bushings with locking collars provide a watertight, tug-proof connection

Reliability

- Solid brass contact sleeves with beryllium copper compression springs minimize heat rise and corrosion
- Waterproof cable sealings and locking screw collars ensure waterproof connections

Easy Installation & Service

- Fast assembly and wiring with “drop-in” rear loaded interiors
- A variety of optional bushing sizes available for plugs and connectors to ensure sealing to your cable
- Readily available service parts:
 - Interior assemblies
 - Gland nut assemblies
 - Screw collars
 - Flap cap/screw cap assemblies

Mipco™ Connections for Refrigerated Containers

Waterproof Cable Sealing:

- Nut with cable locking clamps
- Neoprene compression bushing cable sealing/locking system

Fast, Easy, Rear Load Wiring & Assembly:

- Terminal set screws

The Most Durable Materials Available

- AMTUF™ high-impact housings
- Thermoset interiors

Waterproof Locking Connections:

- Locking screw collars with gasket seals
- IP67 minimum

Dry Wiring Compartments

- Interior O-ring seals around compartments, and each pin and sleeve ensure waterproof connections

High Reliability, High-Performance Connections

- CDA 360 solid brass pin & sleeve
- Ground contacts “makes first”, “breaks last”

Long-Lasting, Self-Cleaning Connections

- Full round pin & sleeve contacts for maximum contact area and coolest connection

Dry Wiring Compartments






- Interior O-ring seals around compartments, and each pin and sleeve ensure true “waterproof connections”

333MPXT and 333FCV shown






Mipco™ Connections for Refrigerated Containers

Plugs and Connectors

Male Plugs

CAT. NO.	DIMENSIONS	RATING
334MPXT	 	30 AMP 250VAC 60 Hz 3P4W
333MPXT ★	 	32 AMP 380/440VAC 50/60 Hz 3P4W IEC 309-2 480VAC USA
534MPXT	 	50 AMP 250VAC 60 Hz 3P4W
634MP2XT	 	60 AMP 250VAC 60 Hz 3P4W
634MP4XT	 	60 AMP 480VAC 60 Hz 3P4W

Female Connectors

CAT. NO.	DIMENSIONS
334FC •	
333FCV ▲ (DuraV® Housing)	 Snap Cap is not Shown in this view
534FC •	
634FC2 •	
634FC4V ▲ (DuraV Housing)	

Additional bushing sizes available for plugs and connectors to ensure sealing to your cable. See [page H-478](#) for ordering information.

• Polycarbonate housing.

▲ DuraV® housing, UL94V-0 flame rated.

★ AMTUF® housing.

Mipco™ Connections for Refrigerated Containers

Receptacles

Non-Metallic Female Receptacles

CAT. NO.	DIMENSIONS	RATING
3034FRXTS		30 AMP 250VAC 60 Hz 3P4W
3334FRVS ▲		32 AMP 380/440VAC 50/60 Hz 3P4W IEC 309-2 480VAC USA
5034FRXTS ★		50 AMP 250VAC 60 Hz 3P4W
6234FRXTS ★		60 AMP 250VAC 60 Hz 3P4W
6434FRXTS ★		60 AMP 480VAC 60 Hz 3P4W

Metallic Female Receptacles

CAT. NO.	DIMENSIONS
3034FRS	
3334FRF	
5034FRS	

For all Receptacles — Flap Cap, order using suffix "F". Example 3334FRVF.
Screw Cap, order using suffix "S". Example 3034FRXTS.

Additional bushing sizes available for plugs
and connectors to ensure sealing to your
cable. See **page H-478** for ordering information.

- Polycarbonate housing.
- ▲ DuraV® housing, UL94V-0 flame rated.
- ★ AMTUF® housing.

Mipco™ Connections for Refrigerated Containers

Accessories for Plugs and Connectors

Additional Bushing Sizes

CAT. NO.	WASHER & BUSHING I.D.
B16779AR	.750
B16779BR	.875
B16779CR	.620
B16779DR	.700
B16779ER	1.000
B16779FR	.800
B16779GR	.545
B16779HR	.925

For 30, 32, 50 and 60A standard devices.



Accessories for Non-Metallic Receptacles¹

Junction Box and Straight Adapter²

STRAIGHT ADAPTER CAT. NO.	JUNCTION BOX CAT. NO.	RECEPTACLE RATING
SAM50	JM99	30A, 250V
SAM32	JM99	32A, 380/440V (480V)
SAM50	JM99	50A, 250V
SAM60	JM99	60A, 250V
SAM60	JM99	60A, 480V



Straight Adapter and Junction Box shown assembled.

Junction Box and Straight Adapter

STRAIGHT ADAPTER CAT. NO.	JUNCTION BOX CAT. NO.	RECEPTACLE RATING
AM50	JM99	30A, 250V
AM32	JM99	32A, 380/440V (480V)
AM50	JM99	50A, 250V
AM60	JM99	60A, 250V
AM60	JM99	60A, 480V

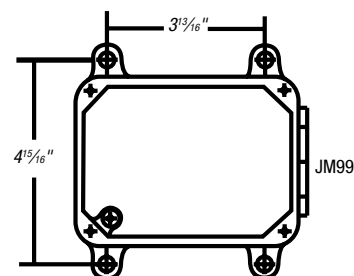
Notes:

1. Does not exclude 32-amp metallic receptacles.

2. Adapter and Junction Box may differ from photo.


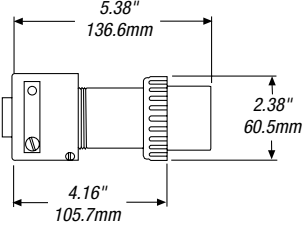

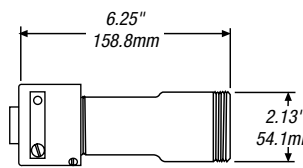

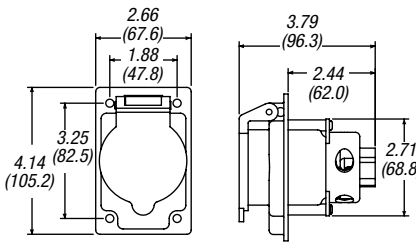

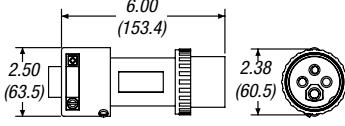

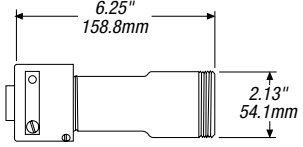

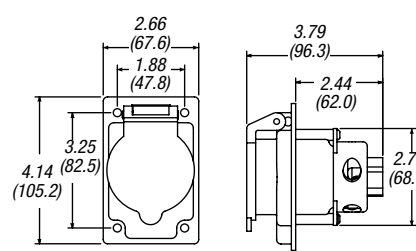


Angle Adapter and Junction Box shown assembled.



Mipco™ Connections for Refrigerated Containers

Reversed Contacts Service — 30A and 50A, 250VAC

Female Plugs			Male Connectors and Receptacles	
CAT. NO.	DIMENSIONS	RATING	CAT. NO.	DIMENSIONS
334FP•	 	30 AMP 250VAC, 60 Hz 3P4W	334MC ▲	 
			334MR ▲	 
534FP•	 	50 AMP 250VAC, 60 Hz 3P4W	534MC ▲	 
			534MR ▲	 

Note: Many additional bushing sizes available; see [page H-478](#).

• Polycarbonate housing.

▲ DuraV® housing, UL94V-0 flame rated.

★ AMTUF® housing.

Mipco™ Connections for Refrigerated Containers

Fixed Receptacles with Monitor Switches

These receptacles include a micro switch mounted at the rear of the interior. The switch is mechanically activated by plug (ground pin) insertion. Applications include electrical interlocking, control circuits and safe switch or monitor systems. (Micro switch is a separate circuit.)

CAT. NO.	DIMENSIONS	RATING	
3334FRVSMS ▲*		32 AMP 380/440VAC 50/60 Hz, 3P4W IEC309-2 480VAC USA	
6234FRMS* ★		60 AMP 250VAC 60 Hz 3P4W	

* Flap Cap also available.

Polycarbonate housing used on 6234FRMS.

▲ DuraV® housing used for 3334FRVSMS; replaces 3334FRPSMS.

★ AMTUF® housing.

Special Rated Plugs and Connectors

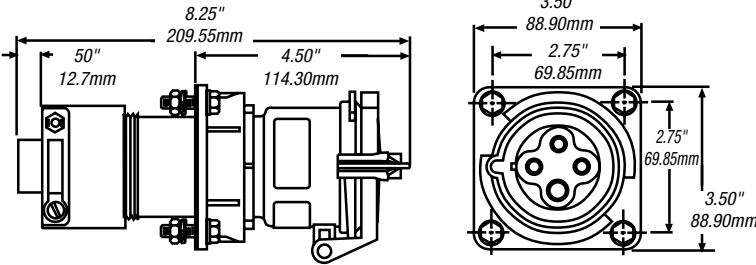

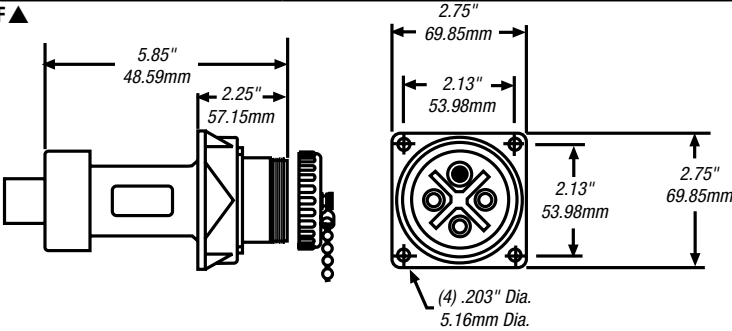

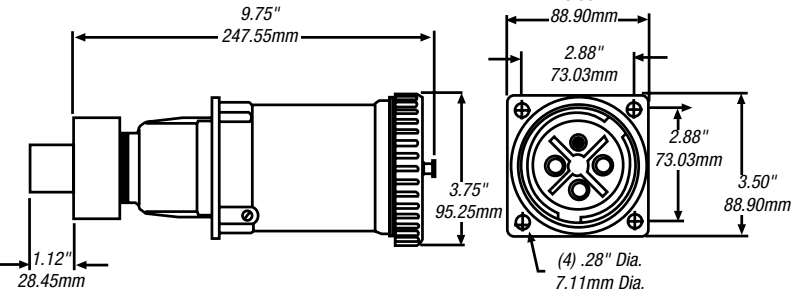

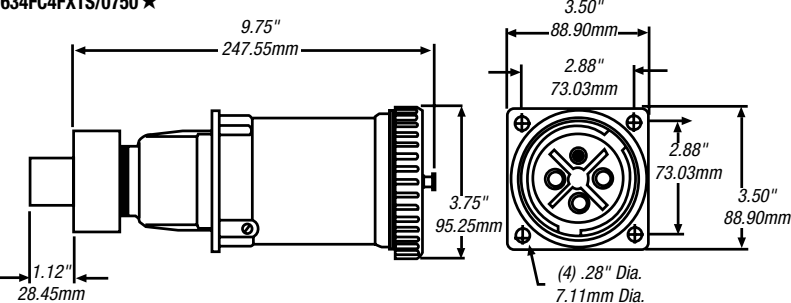

20 Amp and Australian

CAT. NO.	DIMENSIONS	RATING	CAT. NO.	DIMENSIONS
Male Plugs			Female Connectors	
223MP2		20 AMP 250VAC, 60 Hz 2P3W	223FC2	
334MP5		32 AMP Australian Standard 440/500 VAC, 50 Hz 3P4W	334FC5	

Mipco™ Connections for Refrigerated Containers

Flanged Connectors

Flanged connectors are used in many trailer-mount or underslung applications where connector needs to be mounted through a bulkhead plate or other fixed position.

CAT. NO.	DIMENSIONS	RATING	
333FCVF ▲		32 AMP, 380-440VAC 50/60 Hz, 3P4W IEC 309-2 (480) VAC-USA	
534FCF ▲		50 AMP, 250VAC 60 Hz, 3P4W	
634FC2FXT ★		60 AMP, 250VAC 60 Hz, 3P4W	
634FC4FXTS/0750 ★		60 AMP, 480VAC 60 Hz, 3P4W	

* Polycarbonate housing.

▲ DuraV® housing, UL94V-0 flame rated.

★ AMTUF® housing.

Mipco™ Connections for Refrigerated Containers

Converter Plugs

Converter plugs and converter cords facilitate the connection of a plug and receptacle with different ratings. Vessel sharing has become increasingly common, resulting in refrigerated containers with plug configurations that do not match the existing shipboard or port terminal receptacles. The converter plug eliminates the need for time-consuming and expensive temporary changeovers when these situations are encountered.

CAT. NO.	DIMENSIONS	RATING	
3260CPV▲ 32 Amp 380/440V Male Plug		60 Amp 480VAC Female Connector	
5060CP 50 Amp 250VAC Male Plug		60 Amp 250VAC Female Connector	
6032CP▲ 60 AMP 250VAC Male Plug		32 Amp 380/440VAC Female Connector	
6050CP 60 AMP 250VAC Male Plug		50 Amp 250VAC Female Connector	

▲ DuraV® housings.

Converter Cord Sets

Converter cord sets are also available using a Mipco™ plug and connector, with two feet (.6 meters) of suitably rated, four-conductor cable. They are available with any plug/connector combination of the same voltage. Contact Technical Services to specify.



Mipco™ Connections for Refrigerated Containers

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	Minimum creepage distance and minimum clearance per UL 840
Temperature Rise	Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at 75 pF

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords. 10 standard diameters from .405 to 1.00, custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull-Out Force	In accordance with UL 1682
Product Identification	Identification label or molded in name

Performance — Environmental

Moisture Resistance	Per UL1682 Paragraph 49. Watertight/flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged
Flammability	HB or better per UL94 (housing) V0 or better per UL 94 (interior)
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -29° C/-20° F w/o impact (Polycarbonate) -40° C/-40° F w/o impact (AMTUF™ and DuraV®)
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior	Molded arc-resistant UL94-V0 thermoset
Housing, Gland Nuts, Screw Collar Rings	Polycarbonate, high-impact thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel or brass
Bushing Glide Washer	20 Amp — Nylon 30, 50 & 60 Amp — Aluminum
Cable Clamp Bushing	Neoprene or Santoprene

Approvals

Meets requirements for NEMA 4, 4X, & IP 67.
UL Listed and CSA Certified.



• E2630/E47956



• LR14096

Mipco™ Connections for Refrigerated Containers

No One Does It Like Mipco™

Mipco™ Interlocked Reefer Power Outlets are used extensively in port terminals and shipboard applications to provide a safe, watertight electrical connection for refrigerated containers. They feature a heavy-duty, interlocked UL/CSA listed and circuit breaker-protected electrical power outlet. This ensures the outlet cannot be switched "live" until a plug is fully engaged and the actuator rod is pushed to the "On" position. Pulling the actuator rod to the "Off" position manually de-energizes the circuit. The circuit de-energizes automatically if the plug is accidentally withdrawn while in the "On" position. Also, the interlock mechanism "breaks" the circuit while the pin and sleeve contacts are still engaged. This provides total operator safety and protection against shock hazard while eliminating arcing damage to the plug and receptacle.

The modular design pioneered by Mipco™ allows for quick, easy installation and maintenance. Mipco™ engineers designed the Interlocked Reefer Power Outlet for the utmost safety, durability and reliability.



M433-30F22



M464-30S22

The Mipco™ Advantage

Safety

- Interlock Mechanism protects against shock hazard and cannot be overridden like other designs
- Plug cannot be inserted or withdrawn under load. Ground pin activates interlock
- Thermoset interiors provide the safest insulation under extreme conditions
- UL 489 listed circuit breaker for optimum operator and circuit protection
- Non-conductive knob is oversize for safe, easy operation

Durability

- Heavy-duty ½" diameter stainless steel actuator rod offers superior resistance to corrosion and abuse
- UL 489 listed circuit breaker is resettable after circuit interruption
- Heavy-gauge stainless steel platform and aluminum receptacle housing resists corrosion and physical damage
- O-ring sealed insulator, contact sleeves, ground pin, interlock actuating pin and actuator rod ensure watertight integrity of wiring compartment when screw cover or plug is removed

Reliability

- Segmented solid brass contact sleeves with beryllium copper compression springs minimize heat rise and corrosion
- UL 489 listed circuit breaker provides branch circuit protection per NEC®

Easy Installation & Service

- Mipco's "modular design" makes installation and maintenance fast and inexpensive with easy accessibility to individual parts
- 4-screw, 3-wire receptacle service
- One-piece interlock mechanism requires no adjustment and simplifies maintenance
- Complete line of service parts readily available:
 - Receptacle assembly
 - Circuit breaker assembly
 - Interior assembly
 - Linkage kits
 - Hardware kits
 - Flap cap/screw cap assemblies

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

Mipco™ Connections for Refrigerated Containers

The compact frame choice with nominal inrush current protection.

22kAIC, 480V Interlocked Reefer Power Outlet

Power & High Voltage — Russellstoll® Pin & Sleeve Power Connectors

Mechanical Interlock Mechanism

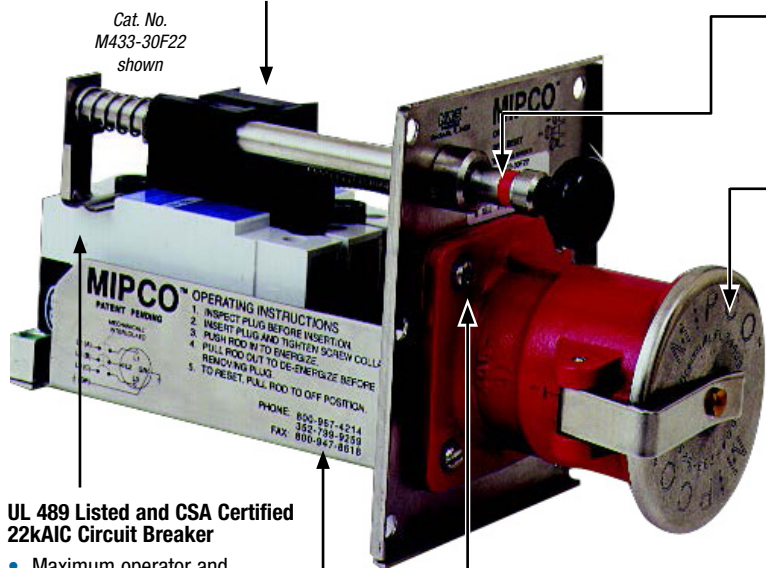
- Protects against shock hazard
- Eliminates arcing damage
- Automatically de-energizes the circuit upon plug withdrawal; even if actuating rod is jammed in the On position

Heavy-Duty Actuating Rod

- Superior durability
- Located away from the receptacle for maximum operator safety
- Withstands user abuse

Stainless Steel Self-Aligning Flap Cap

- Ensures a positive environmental seal
- Maximum corrosion resistance
- Withstands user abuse



UL 489 Listed and CSA Certified 22kAIC Circuit Breaker

- Maximum operator and circuit protection
- Branch circuit protection per NEC®

Receptacle Mounting Design

- Easy installation and service (four stainless steel screws, three wires)

Heavy-Gauge Stainless Steel Platform

- Maximum durability from user abuse
- Corrosion resistant

Metallic Receptacle Housing

- Withstands physical abuse
- Corrosion resistant

O-Ring Sealed Interiors and Sleeves

- Seals wiring compartment from environment
- Eliminates accidents and burnouts

Segmented Contact Sleeves with Compression Springs

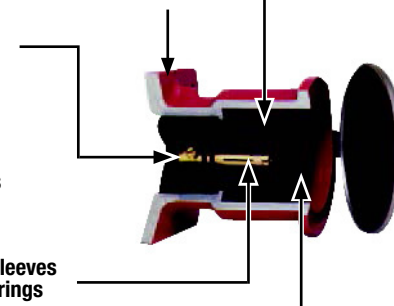
- Consistent contact pressure
- Minimizes heat rise and corrosion
- Self-cleaning pins and sleeves for longer life

Ground Pin Actuates Interlocking Mechanism

- Ensures grounding integrity with ground pin
- Receptacle is de-energized upon plug removal. When plug is reinserted, switch can be operated

Thermoset Interiors

- Resist high heat and arcs



Mipco™ Connections for Refrigerated Containers

Interlocks with Metallic Receptacle Housings



M432-30S22



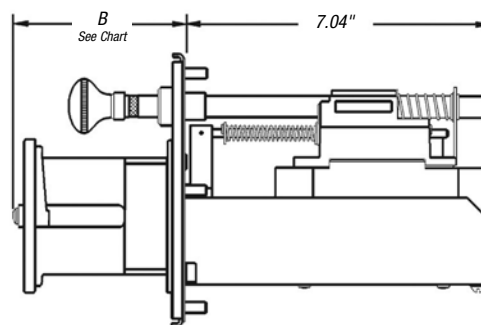
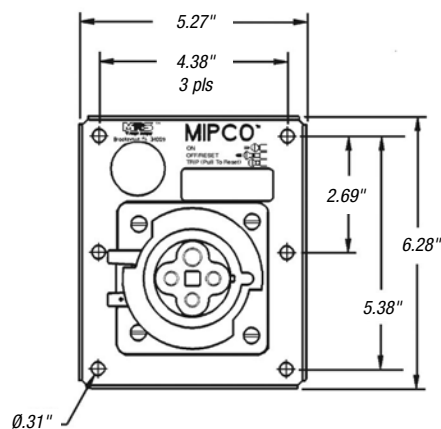
M433-30F22



M452-50S22



M464-30S22



CAT. NO.						
FLAP CAP	SCREW CAP	AMPS	VOLTAGE RATINGS	POLES, WIRES	TRIP RATING AMPS ¹	MATING PLUG CAT. NO.*
M432-30F22	M432-30S22	30	250V, 60 Hz	3P4W	30	334MPXT
M433-30F22	M433-30S22	32	380/440V 50/60 Hz ¹	3P4W	30	333MPXT
M452-50F22	M452-50S22	50	250V, 60 Hz	3P4W	50	534MPXT
M462-50F22	M462-50S22	60	250V, 60 Hz	3P4W	50	634MP2XT
M464-60F22	M464-60S22	60	480V, 60 Hz	3P4W	60	634MP4XT

*Mating plugs are sold separately.

¹Other trip ratings available upon request.

¹480VAC/60 Hz US Common Rating.

AMPERAGE	B
30 & 50A	3.23"
32A	4.00"
60A	5.10"

Mipco™ Connections for Refrigerated Containers

Catalog Number Construction Guide

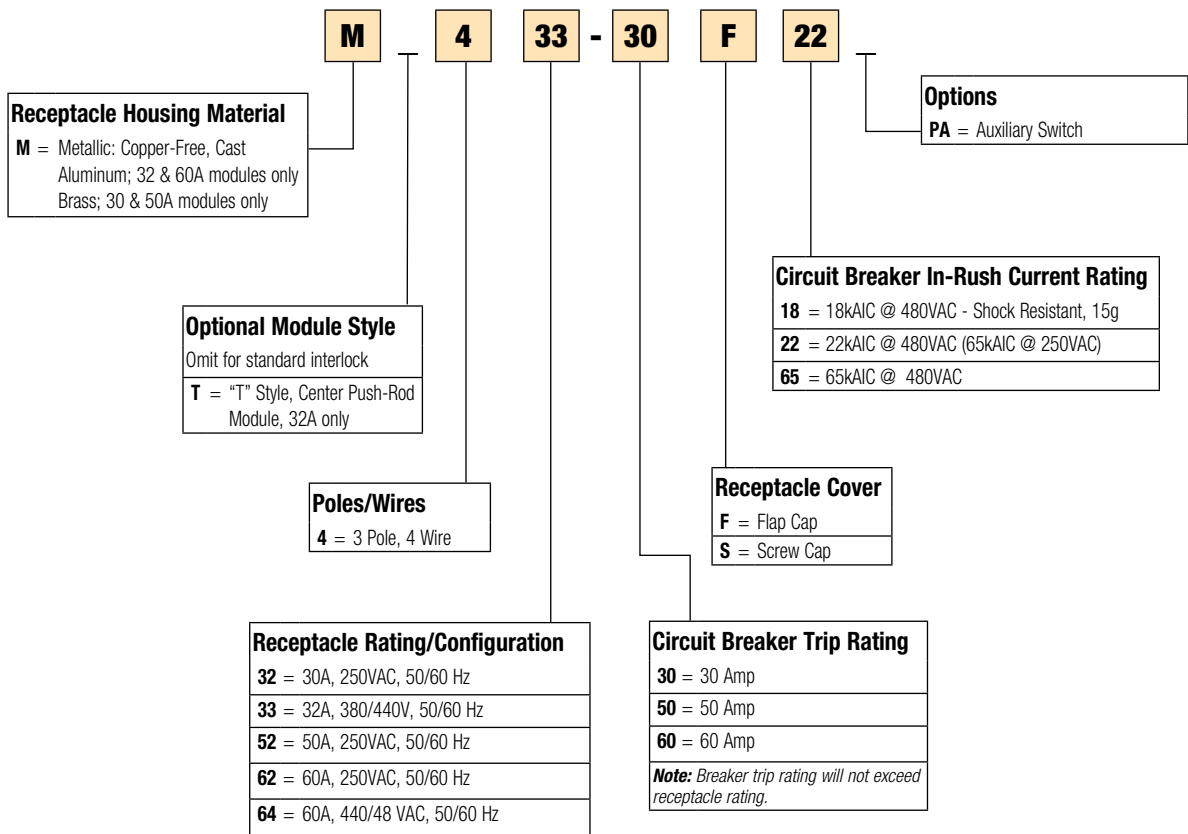
Mipco™ interlocked reefer power outlet catalog numbers are easily specified using the guide below.

Options include auxiliary switch construction.



Indicates field that must be filled in to complete order.

Note: Availability of selected configuration will be verified at quotation time.



Mipco™ Connections for Refrigerated Containers

Interlocks Complete with Single-Gang Cast Aluminum Enclosure

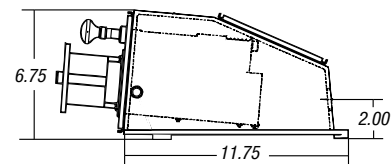
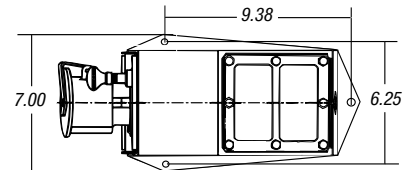


1BM432-30F22

CAT. NO.		AMPS	VOLTAGE RATINGS	POLES, WIRES	TRIP RATING AMPS	MATING PLUG CAT. NO.*
FLAP CAP	SCREW CAP					
1BM432-30F22	1BM432-30S22	30	250V, 60 Hz	3P4W	30	334MPXT
1BM433-30F22	1BM433-30S22	32	380/440V 50/60 Hz ¹	3P4W	30	333MPXT
1BM452-30F22	1BM452-30S22	50	250V, 60 Hz	3P4W	50	534MP2XT
1BM462-30F22	1BM462-30F22	60	250V, 60 Hz	3P4W	60	634MP4XT
1BM464-30F22	1BM464-30S22	60	480V, 60 Hz	3P4W	60	634MPXT

* Mating plugs are sold separately.

¹ 480VAC/60 Hz US Common Rating.



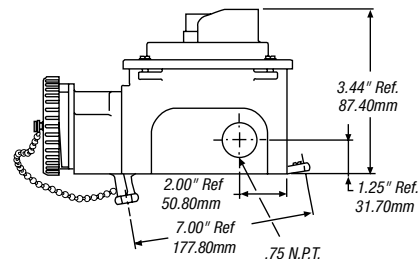
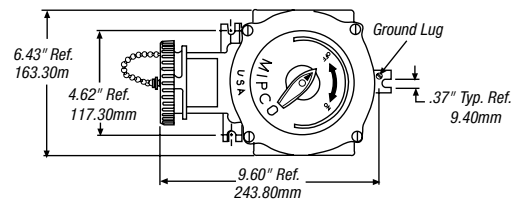
Special Rotary Switch Interlock

Cast aluminum (or brass) switched interlocked used for trailer, rail and common-feed shipboard applications. Circuit protection normally is upstream of load.



SR33341B

CAT. NO.	RATING
SR33341B	32 Amp, 380–440VAC 50/60 Hz, 3P4W IEC309-2, 3h 480 VAC USA



Accessories

Single-Gang Enclosures — Copper free cast aluminum for maximum corrosion resistance and durability, these can be ordered separately or complete with interlocked outlet by using a "1B" prefix with any interlocked outlet catalog number.

Wedge Gaskets — Molded Neoprene wedge gaskets provide drainage 4° down angle for interlocked outlets; easily installed behind front plate.

Large-Frame Adapter Plate Kit — Stainless steel adapter plate kit allows small-frame 6-bolt interlocked outlets to replace large-frame 8-bolt outlets. Kit bolts to existing 8-bolt enclosure opening.

OUTLET FRAME SIZE	CAT. NO.		
	SINGLE ENCLOSURE	WEDGE GASKET KIT	8-BOLT ADAPTER KIT
Small Frame, 6-Bolt	1255-01R	980-50R	523R

Mipco™ Connections for Refrigerated Containers

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	480VAC
Circuit Protection	UL 489 Listed, CSA Certified circuit breaker
FLA Interrupting Capacity	Specified breaker rating
Short Circuit Withstand Rating	22,000 AIC or 18,000 AIC (shock resistant)
Operations	>10,000 cycles at rated current

Performance — Mechanical

Mounting	(6) 5/16" diameter through holes
Breaker Terminals	Pressure screw lugs (slotted) accept #14–1/0 AWG wire
Terminal Identification	In accordance with UL489 and UL1682 A,B,C,G (earth ground) on line side
Product Identification	External label on face plate
Operations	>25,000 cycles of operation

Performance — Environmental

Moisture	Watertight screw cover or spring-loaded self-aligning flap cap. O-rings on all sleeves, interior, interlock actuating pin and circuit breaker actuator rod bushings. Gasket on receptacle and module flange
Operating Temperatures	Min. continuous -20° F (non-enclosed) Max. continuous +140° F
Chemicals	Resists common industrial hydrocarbons, acids, bases and solvents
UV Resistance	Polyurethane enamel (32A) and natural metallic finishes provide maximum UV protection

Materials

Receptacle Housing Metallic	30A/50A — Brass (natural) 32A — Copper-free aluminum 356-T6 (red epoxy powder coated) 60A — Copper-free aluminum 356-T6 (natural)
Non-Metallic	30A/50A & 60A — AMTUF™ 32A — DuraV®
Interior	Molded arc-resistant thermoset phenolic (UL 94-V0 flame rating)
Contact Sleeves	Brass with beryllium copper compression springs
Terminal Screws	Brass, slotted
O-Rings	Buna-N (Nitrile)
Gaskets	Neoprene
Mounting Platform	Heavy-gauge stainless steel welded construction
Actuator Rod	1/2"-inch diameter solid stainless steel. Heavy-duty non-conductive impact-resistant plastic knob
Ground Lug	Aluminum terminal screw (slotted) accepts up to #2 AWG wire
Interlock Mechanism	Sealed self-lubricating thermoplastic
Flap Cap	12-gauge stainless steel, gasketed cover
Screw Cap	High-impact plastic, gasketed
Washers	Nylon
Springs, Fasteners	Stainless steel

Approvals

Underwriters Laboratory (UL) — Sections 489, 1682 and 1686

CSA Section — C22.2–182.1

Federal Department of Transportation — Federal Register volume 47, number 68, subpart 11.79 **United States Coast Guard (USCG)**

International Electro-Technical Commission (IEC) — 32-amp devices conform to IEC 309-1 and 309-2

International Standards Organization (ISO) — ISO 1496/2, Annex 1



• E47955



• LR96445

Mipco™ Connections for Refrigerated Containers

Engineering Specifications

1.0 SCOPE

- 1.1 This document covers pin and sleeve marine/industrial-grade reefer power outlet assemblies. Useable in dry, damp, wet, outdoor marine locations for providing electrical power to refrigerated containers. Assemblies shall be UL Listed with enclosures incorporating interlocked reefer power outlets in a modular multi-gang arrangement. Devices are factory wired to a UL recognized power distribution block and rated 30, 32, 50 and/or 60 amps at 250 or 480VAC, 50–60 Hz. Devices are also rated for continuous use in temperatures from -20 degrees to +140 degrees F. These devices must provide internal environmental seals for marine and extreme wet applications and are to be mechanically interlocked.
- 1.2 All assemblies specified shall be manufactured by Mipco™ as complete assemblies and shall be marked as stated.

2.0 PRODUCT CLASSIFICATION

ENCLOSURES:

- 2.1 **Construction** – All enclosures shall be specified either 12 or 14-gauge stainless steel and shall conform to NEMA 4X requirements for watertight, dust-tight and corrosion resistance.
- 2.2 **Access Panel** – Each enclosure shall provide an access panel designed to allow complete wiring compartment accessibility. Bolted plate or hinged panel to be specified.
- 2.3 **Power Distribution Block** – All interlocked reefer power outlet assemblies shall be factory wired to a UL recognized power distribution block. Line lugs shall accommodate a range of wire sizes compatible with the total amperage rating of all enclosed receptacles

RECEPTACLES

- 2.4 **Interlocked Receptacles** – The receptacles shall be of a modular design, mechanically interlocked to allow the circuit to be energized only after a mating plug is fully inserted into the receptacle and the actuating rod is pushed forward. All interlocked receptacles shall allow the de-energizing of the circuit before mated contacts are disengaged upon plug removal. Plug ground pin will activate interlock mechanism. The mounting dimensions shall be the same for interlocked receptacles with a high (65K) or nominal (greater than or equal to 20K) inrush current circuit breaker to allow for future upgrades.
- 2.5 **Grounding** – The grounding of the device shall be accomplished through a separate ground (earth) that will “make first”, “break last”. Plug ground pin will activate interlock mechanism. The ground pole shall be bonded to a UL recognized ground block labeled for connection to the ground conductor. All non-current carrying metallic components must be grounded to ensure complete system grounding.
- 2.6 **Housings** – Receptacle housings shall be metallic, copper-free aluminum or thermoplastic with performance equal to or greater than DuraV® or AMTUF™, and have a flame rating no less than UL94 V0.
- 2.7 **Interiors** – Receptacle interiors must be molded thermoset UL94 V0 and be replaceable for ease of maintenance.
- 2.8 **Contact Sleeves** – Quad-slit brass contact sleeves shall have contact pressure springs of electromotively similar material to maintain consistent contact pressure between sleeves and mating male pins and prevent galvanic corrosion.

- 2.9 **Environmental Seals** – Each device must have an environmental seal or O-ring around all interiors and around each sleeve to prevent water and contaminants from entering the wiring compartment. The seals shall provide waterproof capability if plug or screw cap are removed.
- 2.10 **Circuit Protection** – Each interlocked receptacle must be protected by a molded cased, thermal-magnetic type UL 489 listed circuit breaker. The circuit breaker must also comply with NEC® Articles 240 and 430 for branch circuit protection.
- 2.10a **High Inrush Current Protection Requirements** – Circuit breaker shall have a minimum 65,000-amp interrupting capacity.
- 2.10b **Nominal Inrush Current Protection Requirements** – Circuit breaker shall have a minimum (18,000-amp high shock) 22,000-amp interrupting capacity.
- 2.11 **Flap Cover or Screw Cover Option** – Flap cover option must provide weather-tight capability to the exposed contacts by utilizing a spring-actuated self-closing flap. Watertight capability shall be obtained by using a gasketed screw cap.

3.0 DESIGN AND WIRING REQUIREMENTS

- 3.1 **Wiring** – All enclosure assemblies must be factory wired to conform to guidelines stated in the NEC® for wire sizing, Table 310-16 and wire bending space, Article 373-6. Wiring of individual interlocked reefer outlets must allow for the removal/replacement without opening the access door.
- 3.2 **Conduit Entry** – Assemblies shall include a conduit entrance with an aluminum conduit hub; size and location to be specified.

4.0 APPLICABLE COMPLIANCES

- 4.1 **Underwriters Laboratories (UL)** – The enclosure assemblies specified herein shall be listed in applicable sections of UL Standards 489, 1682 and 1686.
- 4.2 **Canadian Standard Association (CSA)** – The devices shall be listed in the applicable sections of CSA C22.2-182.1.
- 4.3 **American Bureau of Shipping (ABS)**
- 4.4 **Federal Department of Transportation** – Devices shall comply with Federal Register volume 47, number 68, subpart 11.79 and the United States Coast Guard (USCG).
- 4.5 **International Electro-Technical Commission (IEC)** – The 32-ampere devices specified shall conform to IEC 309-1 and IEC 309-2, EN60309.
- 4.6 **International Standards Organization (ISO)** – The 32-ampere devices specified shall conform to 150 1496/2, Annex L.

NEC is a registered trademark of the National Fire Protection Association, Inc.