

DECONTACTOR™ Series



**Switch-Rated
Plugs &
Receptacles**

DECONTACTOR™ Series

Switch-Rated Plugs & Receptacles

Exclusive Switch-Rated Safety

Meltric's DECONTACTOR™ Series switch-rated plugs and receptacles combine the safety and functionality of a disconnect switch with the convenience of a plug and receptacle. Their exclusive design allows users to safely make and break connections under full load and provide significant protection in overload and short circuit conditions.

Their dead-front construction and enclosed arc chambers ensure that the load is safely disconnected, and that all live parts are isolated and inaccessible, before the plug can be removed. The Decontactor design guarantees that users are protected from exposure to live parts and potential arc flash at all times while making and breaking connections.



Decontactor devices let you change-out motors and other equipment with plug & play simplicity while easily complying with NEC/CEC and NFPA 70E/CSA Z462 requirements.

Motor & Branch Circuit Switching

Decontactors are UL and CSA rated for "motor circuit" and "branch circuit" disconnect switching and are an approved NEC/CSA "line of sight" disconnect switch. Models are available with ratings up to:

- 200A for Branch Circuit Disconnect Switching
- 60 hp for Motor Circuit Disconnect Switching

Short Circuit Overload Protection

Decontactor Series plugs and receptacles are designed to provide short circuit protection far in excess of what is required by the standards. They are rated to successfully close into and withstand short circuit currents of up to **100kA** when used in circuits protected with RK1 fuses. *(See page 21 for more information on ratings.)*

Decontactors provide safe and convenient plug & play connections and can be used as the "line of sight" disconnect switch for most inductive and resistive equipment. With UL and CSA listings for use as: a) a motor circuit disconnect switch, b) a branch circuit disconnect switch, and c) a plug and receptacle, they eliminate the need for mechanical interlocks and auxiliary non-fused disconnect switches.

Their dead-front design also simplifies compliance with NFPA 70E and CSA Z462. The plug can only be removed after the load has been disconnected and the safety shutter has closed, isolating the receptacle contacts, so there is never any exposure to arcing or live parts. Removal of the plug provides a simple, risk category "0," visual verification that the power is OFF, eliminating the need for cumbersome PPE and complex procedures, and allowing mechanics or technicians to safely make/break connections.



Decontactors eliminate expensive and space-consuming non-fused disconnect switches and interlocks.

Switch-Rated Safety Everywhere a Connection is Desired



In-line Configurations



Panel-Mounted Configurations



Wall-Mounted Configurations



Motor-Mounted Configurations

Their modular design and numerous mounting accessories allow Decontactor devices to be easily configured for use in a wide variety of applications. They can be used as in-line connectors/switches or mounted on wall boxes, distribution panels, or even directly on equipment.

Their design makes it simple to install "line of sight" disconnects exactly where they are needed. Plus, they eliminate the hassle of finding convenient mounting locations for space-consuming interlocks and auxiliary disconnect switches required with other connectors.

Decontactor devices make it easy to provide plug & play connections for all your downtime-critical equipment. With their switch-ratings and dead-front construction, Decontactor plugs and receptacles allow mechanics to safely break electrical connections and remove failed motors or other equipment, then quickly install pre-wired replacements.

Made For Thousands of Operations in the Harshest Environments



The DSN and DS Series achieve their respective Type 4X and 3R protection ratings simply by mating the plug and receptacle

Decontactor devices' silver-nickel, butt-style contacts and patented, spring-assisted terminals have been performance tested for over 6000 trouble-free operations with highly consistent electrical connections. *[See "Performance," page 9.]* Decontactor contacts are backed by a best-in-industry, 5-year warranty.

Critical hardware is made of stainless steel to protect against the effects of corrosion. Reinforced polyester and zinc-aluminum alloy casings are used to provide excellent impact resistance as well as protection against UV radiation and most harsh chemicals found in typical industrial applications.

Table of Contents

<i>Exclusive Features</i>	<i>pg 4</i>	<i>Selection Guide & Ratings</i>	<i>pg 20</i>
<i>Increased Functionality</i>	<i>pg 8</i>	<i>DS & DSN Series</i>	<i>pg 22</i>
<i>Performance Testing</i>	<i>pg 9</i>	<i>DB Series</i>	<i>pg 24</i>
<i>DECONTACTOR™ Advantages</i>	<i>pg 10</i>	<i>Accessories</i>	<i>pg 26</i>
<i>Application Highlights</i>	<i>pg 12</i>	<i>More Meltric Solutions</i>	<i>pg 27</i>
<i>Motor Applications</i>	<i>pg 18</i>		

DECONTACTOR™ Series

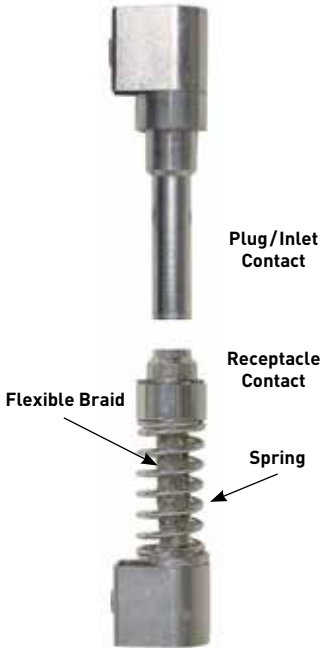
1/16th The Electrical Resistance

For Thousands of Consistent Connections, Spring-Loaded Butt Contacts



Compression of coil spring ensures a consistent contact force.

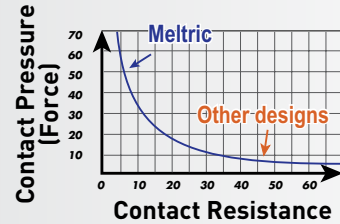
Decontactor™ plugs and receptacles use spring-loaded, butt-style contacts similar to those used on contactors and switchgear. Their end-to-end mating provides a solid connection. The spring-loading delivers optimal contact pressure, and the integrity of the electrical connection is maintained over thousands of operations.



Butt-style contacts have a designated and controlled contact area, permitting the use of higher quality materials; we use 85% silver and 15% nickel. End-to-end mating allows for quick-break (15-millisecond) technology. And you avoid the problems common with other types of contacts:

- The spring-loaded butt contacts automatically compensate for manufacturing variations, eliminating contact mating and connection quality problems caused by the dimensional variations of other contact designs.
- End-to-end mating **eliminates the affects of wear** inherent with sliding contacts.
- Consistent spring pressure **eliminates overheating** caused by poor contact force.

Their numerous design advantages make spring-loaded butt contacts a superior choice for providing consistently safe and reliable connections.



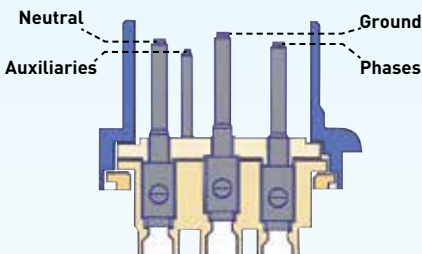
Higher contact force minimizes resistance and temperature rise.

Limitations of Pin & Sleeve Style Contacts



- Manufacturing variations can cause too tight or too loose of a fit between the pin and the sleeve.
- Wear from normal use reduces contact force, increasing resistance and heat build-up, possibly leading to overheating and catastrophic equipment failure.
- The design requires the use of cheap and easy to machine materials such as brass, which has inferior electrical properties.

Contact Mating Sequence



To achieve the desired mating sequence, contacts are set into the plug at different levels.

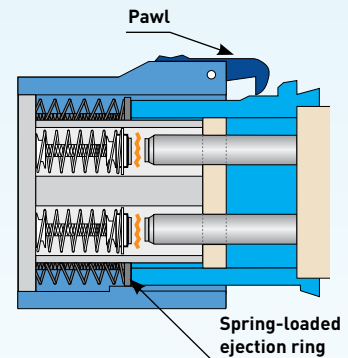
To ensure proper and safe connections, Decontactor contacts mate in a specific sequence:

1. The ground closes first
2. Then the neutral,
3. Then the phases,
4. Then any auxiliary contacts.

The auxiliary contacts “make last and break first,” so they are suitable for use as “pilot” contacts.

On opening, the sequence is reversed.

Quick Break



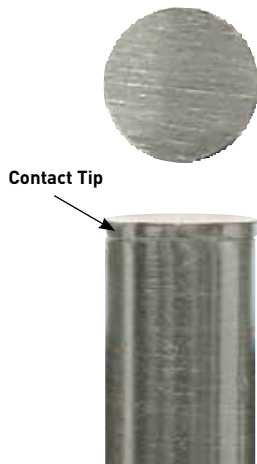
A spring-loaded ejection system ensures a quick break (15 ms) of the contacts.

CONTACT TECHNOLOGY

Silver-Nickel Contact Material For Superior Conductivity



Silver-Nickel Contact Tip
(85% Ag and 15% Ni)



Close-up of Silver-Nickel Contact Tip

We use solid silver-nickel contact surfaces on all of our Decontactor Series. The contacts' 85% silver and 15% nickel composition combines the durability of nickel with the excellent conducting properties of silver.

Silver-nickel contacts provide significant advantages over the brass materials used on most other types of plugs and receptacles:

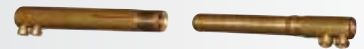
- Silver-nickel **maintains its low contact resistance** and superior electrical properties even after oxidation and tarnishing.
- Silver-nickel **withstands arcing** very well and only welds at extremely high pressure and temperature.
- Thanks to the influence of the nickel, silver-nickel **provides excellent wear resistance**.
- Silver-nickel performs well in and **withstands wet and corrosive environments**.

The combination of the silver-nickel material with spring-loaded butt-style design makes the contacts ideal for repetitive making and breaking of connections under load.

MATERIAL	CONTACT RESISTANCE	
	New	Oxidized
SILVER	6 $\mu\Omega$	25 $\mu\Omega$
SILVER-NICKEL	23 $\mu\Omega$	60 $\mu\Omega$
COPPER	29 $\mu\Omega$	400 $\mu\Omega$
BRASS	370 $\mu\Omega$	1400 $\mu\Omega$

In an oxidized state, silver-nickel is over 20 times more conductive than brass.

Limitations of Brass as a Contact Material



- Brass is not arc resistant, so it is not suitable for repeated making and breaking under load.
- Brass is a soft material and wears rapidly, degrading the operational characteristics of the contact.
- Brass oxidizes easily and thus does not perform well in wet or corrosive environments.
- Brass's contact resistance increases rapidly due to tarnishing that occurs in normal use.

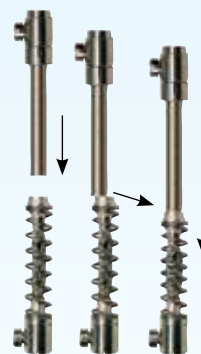
Operating Mechanism

With Decontactors, the circuit is broken simply by depressing the pawl.* Doing so releases the energy in the spring-loaded operating mechanism, which instantaneously breaks the circuit and ejects the plug to the OFF position. **Contact breaking time is about 15 milliseconds.** The quick break mechanism is automatically reloaded when the plug is re-inserted.

In contrast, the disconnection speed of pin and sleeve and twist type devices is dependent on the user's motion and strength when removing the plug.

* DB Series plugs and receptacles require the turning of an operation ring.

Self-Cleaning Closing Motion



Decontactor contacts are self-cleaning.

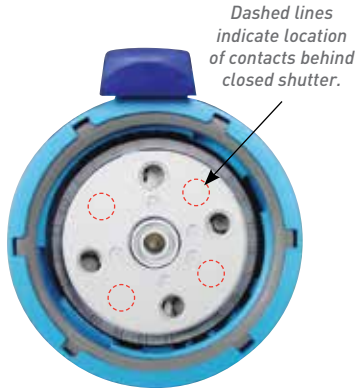
Decontactor contacts close with a self-cleaning, wiping action. When the contacts initially mate, they are slightly offset. In completing the connection, the plug contacts are rotated partially across the receptacle contacts, helping to remove deposits from the contact surface.

DECONTACTOR™ Series

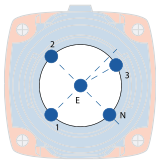
Eliminate Arc Exposure

Enclosed arc chambers, skirted plug casings, and safety shutters on receptacles together create the dead-front design of Decontactor™ devices. With the dead-front design, it is virtually impossible for users be exposed to either live parts or arcing.

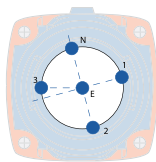
Safety Shutter Eliminates Exposure Hazards



Decontactor receptacle safety shutters block access to live contacts.



*Position 04
480V 60Hz*



*Position 14
600V 60Hz*

Different keying prevents mating of electrically incompatible plugs & receptacles.

DS and DSN Series Decontactor devices have safety shutters that close over the receptacle contacts before the plug can be removed. Users have no exposure to arcing, or access to live parts, at any time during or after the removal of the plug.

To remove a plug from a receptacle, the plug must be rotated 30° counter-clockwise in the OFF position. This rotation of the plug automatically closes and locks the safety shutter, creating an insulating barrier between the plug and receptacle contacts before the plug can be removed.

The safety shutter can only be opened by the insertion and rotation of an electrically compatible plug. Twenty-four different keying arrangements ensure that only electrically compatible plugs can be inserted into a receptacle.

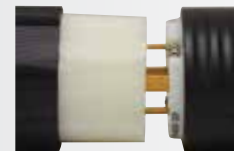
Other plugs & receptacles allow access to live parts



Pin & Sleeve Receptacle



Twist-Type Receptacle



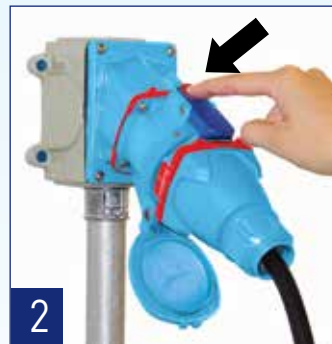
Twist-type with exposed contacts while still conducting

Connect & Disconnect Under Load...



1

When the plug and receptacle are latched together, the circuit is connected.

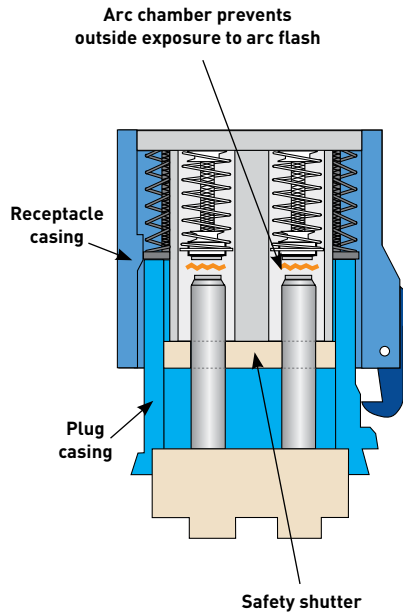


2

Pressing the pawl causes the Decontactor receptacle to eject the plug which breaks the circuit. The plug is ejected to its rest position; its contacts are now dead.

DEAD-FRONT CONSTRUCTION

It's Impossible to Draw an Arc



Drawing an arc during plug removal is an inherent hazard with traditional pin & sleeve and twist-type devices. By contrast, Decontactor devices isolate the making and breaking of the contacts in an enclosed arc chamber. The plug contacts are deenergized and isolated from live parts within the enclosed arc chamber before the plug can be physically removed.

When the receptacle's OFF button is pushed, its spring-loaded operating mechanism instantly opens the contacts to break the circuit and ejects the plug to its OFF position. The quick (*15 milliseconds*) breaking of the contacts minimizes arcing; any that does occur is safely contained within the arc chamber.

In the OFF position, the plug contacts are dead and are separated from live parts by a safe distance. Isolated and inaccessible to users, all contacts are fully contained within an enclosure formed by the plug's skirted casing and the receptacle's casing.

The rotation of the plug and closing of the safety shutter during plug removal ensures that potential arc paths are blocked before the plug can be removed. **There is no possibility of drawing an arc.**

Drawing an arc is possible with pin & sleeve devices



Don't let this happen to you!

...Without Exposure to Live Parts or Arcing



Rotating the 'dead' plug 30° counter-clockwise closes the safety shutter and frees the plug to be withdrawn from the receptacle.



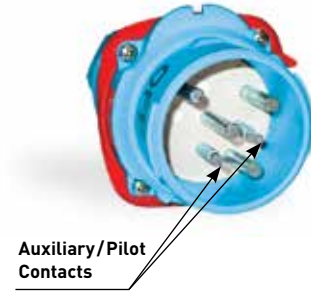
The plug and the receptacle are separated. The safety shutter on the receptacle prevents access to live parts.

DECONTACTOR™ Series

Special Features Increase Functionality

Control, Monitor, Communicate

Most Decontactor™ plugs and receptacles are available with optional auxiliary/pilot contacts that allow users the convenience and flexibility of controlling auxiliary equipment, monitoring process parameters, and/or communicating alarms without the need for secondary connectors. The larger Decontactor models are available with up to 6 auxiliary contacts.



Lock Together or Lockout

All switch-rated Decontactor devices include provisions on the plug that allow users to perform lockout/tagout by simply inserting a lock through an existing hole in the device. The user only needs to provide the lock – no additional mechanisms are required.

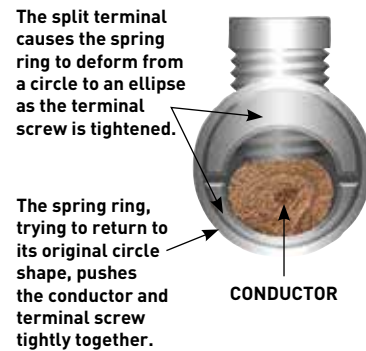
Simple lockout provisions for the receptacle are also provided as a standard feature on the DB Series and an option on the DS and DSN Series. The lockout provision on DS and DSN Series receptacles can also be used to lock the plug and receptacle together, if desired, to prevent unauthorized disconnection.



Spring-Assisted Terminals Provide Superior Conductor Connections

On traditional plugs and receptacles, the loosening of terminal screws is a common cause for failure. Decontactors have patented, spring-assisted terminals that provide more permanent and secure conductor connections.

Pressure generated as the terminal screw is tightened against the conductor expands the split-terminal body and elliptically deforms the spring ring around the terminal. The spring ring, wanting to return to its original circle shape, exerts a constant pressure, pushing the terminal screw and conductor together. This constant spring pressure on screw and conductor helps compensate for strand settlement and conductor yield, while providing superior resistance to the effects of vibration, shock, and thermal cycling.



Field Replacement of Modular Parts

With their robust construction and reliable operation, the need to replace worn Decontactor parts is unusual. If a repair is needed, parts are readily available and reasonably priced. The modular construction of Decontactor plugs and receptacles makes field replacement of many components easy.



UNPRECEDENTED PERFORMANCE

To attain their UL/CSA switch-ratings, Decontactor Series plugs and receptacles must pass electrical and mechanical endurance tests, horsepower/locked-rotor overload tests, and short-circuit make and withstand tests that far exceed the testing required of ordinary plugs and receptacles. In fact, the tests performed to achieve the Decontactor devices' switch-ratings are the *same electrical performance tests required of manual motor controllers and enclosed disconnect switches* (UL 508 and UL 98 or CSA 22.2 No. 14 and 4 type devices).

The chart below compares the tests passed by Decontactor devices to achieve their "Switch-Rated Plug & Receptacle" listings with the tests required for a standard pin & sleeve plug and receptacle listing.

Performance Testing Comparison

Test	Decontactor Switch-Rated Plugs & Receptacles	Pin & Sleeve Plugs & Receptacles	
	UL Subject 2682 (used for both UL & CSA listings)	UL 1682 & CSA 22.2 No. 182.1	
	Motor Circuit/ Branch Circuit Switching	Non-Current Interrupting	Current Interrupting
Temperature Rise	< 30°C	< 30°C	< 30°C
Voltage Withstand	1000V + 200% of Device Rating	1000V + 200% of Device Rating	1000V + 200% of Device Rating
Overload General Use Devices	50 Operations @ 150% of Rated Current (p.f. = .75 - .80)	3 Operations @ 150% of Rated Current (p.f. = .75 - .80)	50 Operations @ 150% of Rated Current (p.f. = .75 - .80)
Mechanical Endurance (Plus Required Electrical Operations)	covered by Electrical Endurance test	15 - 20A = 5000 Opns 21 - 63A = 2000 Opns 64 - 250A = 250 Opns	15 - 20A = 0 Opns 21 - 63A = 1000 Opns 64 - 250A = 500 Opns
Electrical Endurance (With Load)	6000 Operations @ Rated Current & Voltage (p.f. = .75 - .80)	-	15 - 20A = 5000 Opns 21 - 63A = 1000 Opns ¹ 64 - 250A = 250 Opns ¹ @ Rated Current & Voltage (p.f. = .75 - .80)
Overload - Locked Rotor (Horsepower Rated Devices)	50 Operations @ 600% of Full Load Motor Current (p.f. = .40 - .50)	-	-
Short Circuit Withstand	≥ 65 kA* (600V and ≤ .15 power factor)	-	-
Short Circuit Make	≥ 65 kA* (600V and ≤ .15 power factor)	-	-

¹ Testing alternates between mechanical & electrical operations. This reduces the severity of the electrical test by allowing additional cooling time during electrical testing.

* See page 21 for specific ratings and associated fusing for each model.

DECONTACTOR™ Series

2x Faster Change-outs - Immeasurably Safer

Ensure User Safety



Decontactor DS and DSN Series at work at a major shipyard.



Using Decontactors to connect equipment helps to protect users from electrical hazards that are common with other types of connections.

Decontactor Series plugs and receptacles:

- Provide the safety of a disconnect switch wherever users must make or break connections.
- Eliminate potential exposure to live parts and arcing that exists with other plugs & receptacles.
- Provide protection against overloads and short circuit currents of up to 100kA with RK1 fusing.
- Provide a consistently reliable connection that does not degrade with use.

Simplify Compliance to NFPA 70E®/CSA Z462

Using Decontactor plugs and receptacles wherever electrical connections must be made or broken can greatly simplify compliance with NFPA 70E Article 130 requirements:

- Switch ratings ensure the safe disconnection of the load; interlocks and auxiliary disconnects are *not* needed.
- Making and breaking connections with Decontactor devices is a Risk Category '0' operation, eliminating the need to wear cumbersome PPE while working near live parts.
- Removal of the plug from the receptacle provides visual verification of deenergization; the need for voltage testing is eliminated.
- Dead-front construction ensures a safe work condition; the extra precautions necessary for work on or near energized parts are *not* required.
- Integral provisions make lockout/tagout quick and easy.
- Decontactor devices allow mechanics to safely make/break electrical connections; specially trained electrical personnel may not be required on-site.



PROVIDING BENEFITS THROUGHOUT YOUR FACILITY

Reduce Equipment Change-out Downtime by 50%

Replacement motors and equipment that are pre-wired with Deconnector devices can be installed with plug & play simplicity, reducing change-out downtime by 50% and allowing critical processes to get back online faster.

- The need for hard-wiring during downtime is eliminated and mechanics can safely make & break the electrical connections.
- There is no need to bring electricians to the site; their work to pre-wire replacements can be performed during non-downtime periods.
- Advance verification of phasing on pre-wired replacement motors avoids problems and delays due to improper rotation.
- Integral auxiliary contacts can eliminate the need to make & break secondary connections on control circuits.



Deconnectors enable equipment to be connected and disconnected with plug & play simplicity.

Reduce Equipment & Operating Costs

Using Deconnector devices to connect motors and other equipment helps improve your bottom line by reducing equipment, installation, and operating costs:

- Improved safety reduces accidents, injuries and related costs.
- Faster change-outs reduce lost production during downtime.
- Plug & play simplicity improves maintenance personnel utilization by allowing electrical work to be performed more quickly and conveniently back at the electrical shop.
- Switch-ratings and short circuit ratings eliminate the need for expensive and space-consuming interlocks and auxiliary disconnects.
- Numerous configurations and mounting options help simplify the location and installation of 'line of sight' disconnects.
- Reliable butt-contacts, robust construction, and long operating lives reduce replacement costs.



Decontactor Application Highlights



Washdown-Rated Equipment

Decontactors rated watertightness up to Type 4X is achieved as soon as the plug mates with the receptacle.



Process Pumps

Decontactor plugs and receptacles are UL/CSA switch-rated and can be used as a NEC required "line of sight" disconnect for motors.



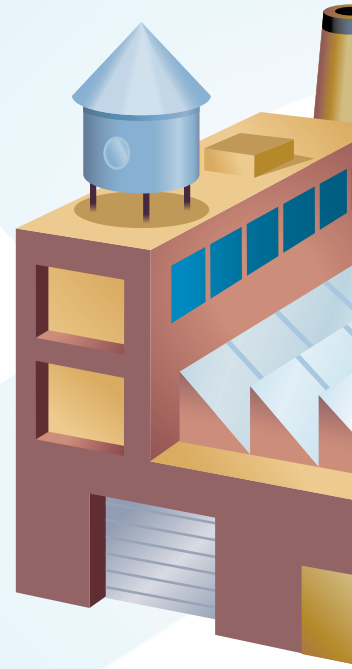
Welding Machines

Bring facilities up to code by retrofitting existing receptacles with Decontactor™ devices. Adapter plates allow installation on existing wall boxes.



Trailers/Unloading Systems

Self-ejecting option automatically releases the plug if the truck pulls away, minimizing damage to the electrical system.



Exhaust Fan

Safely disconnect power at the fan without needing an electrician on the roof.



MANUFACTURING & PROCESSING PLANTS



Hoists & Cranes

Simplify servicing of difficult-to-access equipment.



Conveyor Systems

Deconnector devices are available with pilot contacts for power and control requirements.



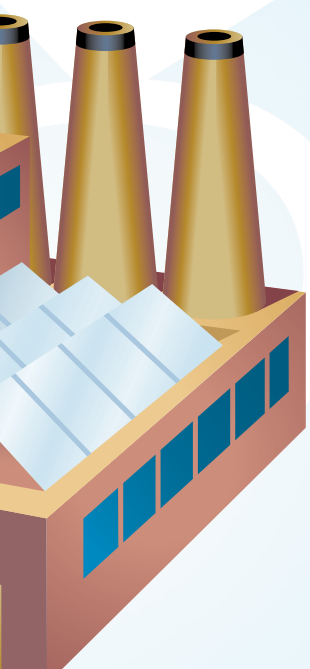
Portable Process Equipment

Safely reconfigure factory equipment with plug and play simplicity. Easily add a convenient disconnect switch for busway drops and cord drops.



Downtime Critical Motors

Enable quick change-outs of motors without the need for an electrician at the job site.



Decontactor Application Highlights



Mobile Facilities

Ideal for quickly and easily connecting MRI trailers, mobile classrooms, offices, etc.



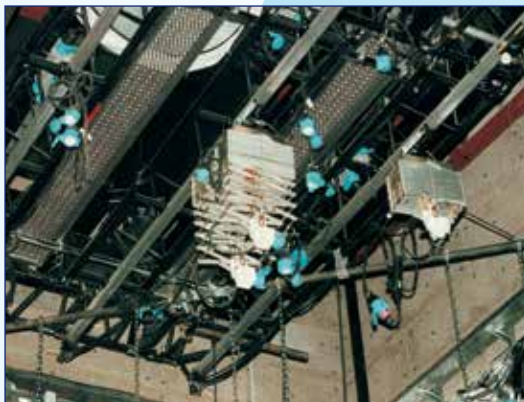
Emergency/Rescue Equipment

Safe, reliable, Type 4X connections for fire trucks, ambulances, and other emergency vehicle equipment.



Compressors & Pumps

Simplify service and comply to NFPA 70E/CSA Z462 requirements for safe work practices.



Power Distribution

Overhead or floor-mounted Decontactor™ plugs and receptacles ensure the safety of convention center exhibitors and setup/teardown personnel, even when equipment is disconnected under load.



HVAC Equipment

Cooling towers and AC units can be easily connected and disconnected for quick installation or servicing.



COMMERCIAL & INSTITUTIONAL FACILITIES



Maintenance Equipment

Safely disconnect welding machines and other inductive loads.



Lab & Test Equipment

Protect students and technicians from live contacts and arc flash.



Kitchen Equipment

The Deconnector DSN Series is Type 4X rated, making them ideal for washdown environments.



Lighting Disconnects

Provide a convenient and visible disconnect for the safe servicing of high mast, fluorescent and temporary lighting.



Decontactor Application Highlights



Wastewater Pumps/Mixers

Easily disconnect pumps and mixers for replacement or servicing. There is no need for an electrician on site.



Oil Rigs & Batch Plants

Provide plug & play connections for quick setup and teardown. Create safe and convenient disconnects for process and maintenance equipment.



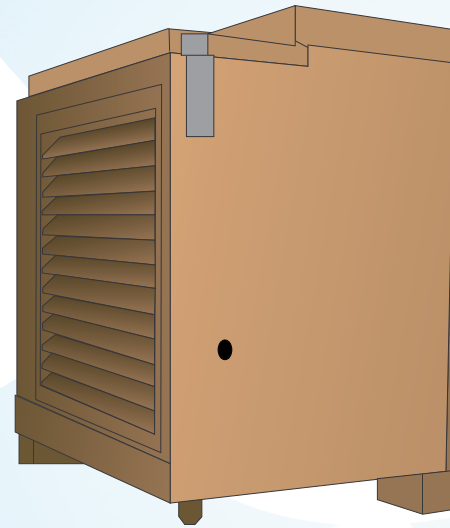
Shore Power

Silver-nickel contacts offer superior corrosion resistance relative to brass pin and sleeve contacts.



Motor Control Centers

Enclosed arc chambers prevent user exposure to arc flash, even if disconnected in locked rotor conditions.

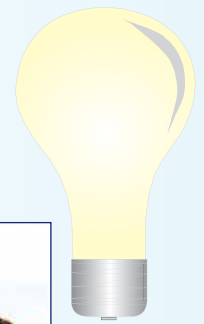


Portable Equipment

Safely and quickly connect and disconnect float pumps and other equipment.

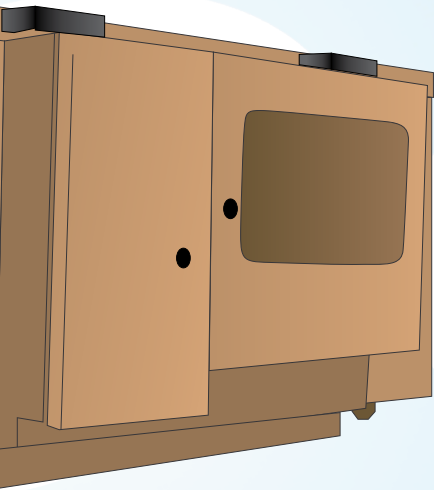


OUTDOOR FACILITIES



Conveyors & Stackers

Deconnector™ contacts close (mate) with a self-cleaning, wiping action – so they maintain high conductivity even in dusty and dirty environments.



Cordsets

Cordsets equipped with Deconnector plugs and receptacles provide the safety of a switch wherever users make or break connections.



Portable Generators

Switch-ratings and dead-front construction ensure user and public safety. Optional provisions allow the plug and receptacle to be locked together to prevent unintended or unauthorized disconnection.



Power Distribution Panels

Provide safe power connections for carnival, concert, construction site, railway maintenance, and other temporary events or work sites.



DECONTACTOR™ Devices

Switch-Rated Plugs & Receptacles

Safely Make/Break Connections, Even During Overloads

Decontactor plugs and receptacles are designed and rated to make and break motor loads in complete safety while providing users with significant protection in the event of overloads or short circuits. Special protective equipment and training are not required to make and break connections.

- *Overload testing includes 50 opening and closing operations performed at 600% of full load motor ampacity with a power factor of 0.5 or less.*
- *All hp-rated Decontactor devices are rated to close into and withstand short circuit currents up to 100kA in circuits protected with RK1 fusing.*

Note: Although Decontactor plugs and receptacles are rated to safely make and break motor loads, they are not rated or intended for continuous use as a motor starter.



Decontactor™ plugs and receptacles are UL and CSA switch-rated up to 60 hp and 200A.

Easily Locate “Line of Sight” Disconnects Using Mounting Options

Sections 430.102 – 430.109 of the National Electric Code require approved disconnecting means to be located in a readily accessible location within sight of the motor and driven equipment. With their UL & CSA ratings for “Motor Circuit Disconnect Switching” and “Branch Circuit Disconnect Switching”, Decontactor devices are an approved ‘line of sight’ disconnect switch for meeting this requirement.

Decontactor plugs and receptacles are available with numerous handles, mounting angles, wall boxes, and other accessories. They may be used as in-line connectors or may be mounted on walls, panels, equipment, or even directly on the motor. This flexibility makes it simple to locate disconnects where they are easily visible and convenient to use.



Reduce Improper Motor Rotation with Pre-wired Replacements

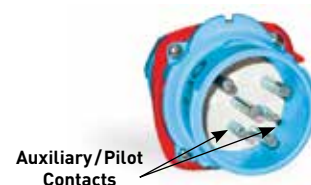
Replacement motors that are pre-wired and tested with appropriately phased receptacles in the service center will automatically provide the desired direction of rotation when connected (plugged in) on site.

Pre-wiring and testing eliminates the need to jog the motor and avoids additional downtime and production problems resulting from improper rotation.



Monitor Motor Temperature Using Built-In Auxiliary Contacts

Optional integral auxiliary contacts can be used to communicate motor temperatures back to a control center so preventative maintenance can be performed *before* motor failure occurs.



APPLICATION SPOTLIGHTS

THE IDEAL MOTOR PLUG

Plug & Play Simplicity Allows Quick Change-outs

Using Decontactor plugs and receptacles to connect motors instead of hard-wiring can help to reduce equipment change-out downtime by as much as 50%. When replacement motors are pre-wired with Decontactor inlets or plugs, a mechanic can safely perform the electrical connections simply by unplugging the old motor and plugging in the new one.

- No waiting for an electrician to perform field wiring.
- No "suiting-up" or extraordinary electrical precautions.
- No need to field test (jog the motor) to ensure proper rotation.

Motor Change-out Process Comparison

Typical Disconnect Switch

CUMBERSOME



After throwing the disconnect switch, a worker still needs to verify deenergization. Exposure to live parts is inevitable, so PPE is required.

1. Switch disconnect to OFF position
2. Apply lockout/tagout
3. Perform Shock/Arc Flash Hazard Analysis
4. Obtain permit for energized electrical work
5. Suit up with appropriate PPE
6. Remove the disconnect switch cover
7. Voltage test to verify deenergization
8. Disconnect motor from hard-wiring
9. Remove old/install new motor
10. Connect new motor to hard-wiring
11. Jog the motor to ensure proper rotation



Decontactor receptacles can be added to existing disconnects. Users can then verify blade separation and deenergization without needing PPE.

Decontactor Switch-Rated Plugs & Receptacles

QUICK & EASY



Mechanics can quickly and safely make and break electrical connections, without special PPE.

1. Switch Decontactor receptacle to OFF position
2. Remove plug from receptacle
3. Apply lockout/tagout
4. Remove old/install new motor
5. Insert plug into receptacle



- ✓ Motor change-outs can be made much faster.
- ✓ Equipment and installation costs are reduced by eliminating the need for interlocks and safety switches.
- ✓ Maintenance efficiency is increased by allowing mechanics to perform change-outs. Pre-wiring can be done at a convenient time back at the electrical shop.

DECONTACTOR™ Series

Selection Guide

THREE SERIES TO CHOOSE FROM:

DSN



Choose the DSN Series for:

- Compact, lightweight design
- Automatic Type 4X watertightness

Common Applications

- Wet or washdown environments
- Plug & play electrical connections

DS



Choose the DS Series for:

- High amperage range (up to 200A)
- Metal casing materials (60A and above)
- Larger conductor capacities

Common Applications

- Heavy industry
- High-amperage equipment

DB



Choose the DB Series for:

- High HP ratings (up to 60 hp)
- Robust, heavy-duty construction
- Quick Make/Quick Break Mechanism

Common Applications

- Motors with frequent make and break requirements
- Harsh environments

PRODUCT SELECTION GUIDE

Decontactor™ Models & Ratings

	DSN Series			DS Series						DB Series		
Key Features	Compact, Type 4X			High Amperage, Metal or Poly Casings						Robust, High HP		
Model	20	30	60	20	30	60	100C	100	200	30	60	100

Branch Circuit Disconnect Switch Ratings (A.C. only)

Amperage	20A	30A	60A	20A	30A	60A	100A	100A	200A	30A	60A	100A
Max VAC	480V	600V	600V	600V	600V	600V	600V	600V	480V	600V	600V	600V

Motor Circuit Disconnect Switch Ratings - Horsepower (A.C. Only)

120V 1Ø	.5 hp	1 hp	2 hp	.5 hp	.75 hp	2 hp	2 hp	-	-	1.5 hp	3 hp	7.5 hp
240V 1Ø	1 hp	3 hp	3 hp	1.5 hp	2 hp	3 hp	3 hp	-	-	3 hp	7.5 hp	10 hp
208V 3Ø	2 hp	5 hp	7.5 hp	3 hp	3 hp	7.5 hp	7.5 hp	-	-	7.5 hp	15 hp	30 hp
240V 3Ø	2 hp	5 hp	7.5 hp	1.5 hp	3 hp	7.5 hp	7.5 hp	-	-	7.5 hp	15 hp	30 hp
480V 3Ø	5 hp	10 hp	20 hp	5 hp	10 hp	20 hp	20 hp	-	-	10 hp	30 hp	60 hp
600V 3Ø	-	15 hp	20 hp	7.5 hp	-	25 hp	25 hp	-	-	10 hp	30 hp	60 hp

Short Circuit Closing & Withstand Ratings (A.C. only)

S.C. Rating	100kA	100kA	100kA	100kA	100kA	100kA	100kA	65kA	65kA	100kA	100kA	100kA
Fuse Type	RK1	RK1	RK1	RK1	RK1	RK1	RK1	RK5	RK5	RK1	RK1	RK1
Fuse Size	35A	125A	110A	80A	125A	250A	250A	100A	200A	125A	250A	250A

Non-Load Break Plug & Receptacle Ratings for Direct Current

Amperage	20A	30A	60A	20A	30A	60A	100A	100A	200A	30A	60A	100A
Max VDC	250V	250V	250V	250V	250V	250V	250V	250V	250V	250V	250V	250V

Casing Materials

Standard	Poly	Poly	Poly	Poly	Poly	Poly/Metal	Poly/Metal	Poly/Metal	Metal	Metal	Metal	Metal
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Environmental Ratings

Type	4X	4X	4X	3R+	3R+	3R+	3R+	3R+	3R+	-	-	-
IP	66+67	66+67	66+67	54/55	54/55	54/55	54/55	54/55	54/55	67	67	67
Temp Max	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°	140°
Temp Min	-40°	-40°	-40°	-40°	-40°	-40°	-40°	-40°	-40°	-40°	-40°	-40°

Optional Auxiliary Contacts

Max Number	-	2	4	2	4	3	3	6	5	2	2	4
A @ 120VAC	-	6A	6A	6A	6A	6A	6A	3A	3A	6A	6A	6A
A @ 240VAC	-	3A	3A	3A	3A	3A	3A	1.5A	1.5A	3A	3A	3A
A @ 480VAC	-	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	.75A	.75A	1.5A	1.5A	1.5A
A @ 600VAC	-	1.2A	1.2A	1.2A	1.2A	1.2A	1.2A	.6A	.6A	1.2A	1.2A	1.2A

Wiring Terminal Capacities - AWG THHN

Phase - Max	12	8	4	8	6	2	2	2/0	4/0*	8	3	2/0
Phase - Min	14	14	12	14	14	10	10	4	4	14	8	1/0
Aux - Max	-	14	14	14	14	14	14	14	14	14	14	14

* Available upon request; 3/0 is standard

+ Type 4X is available as an option

DECONTACTOR™ DS & DSN Series

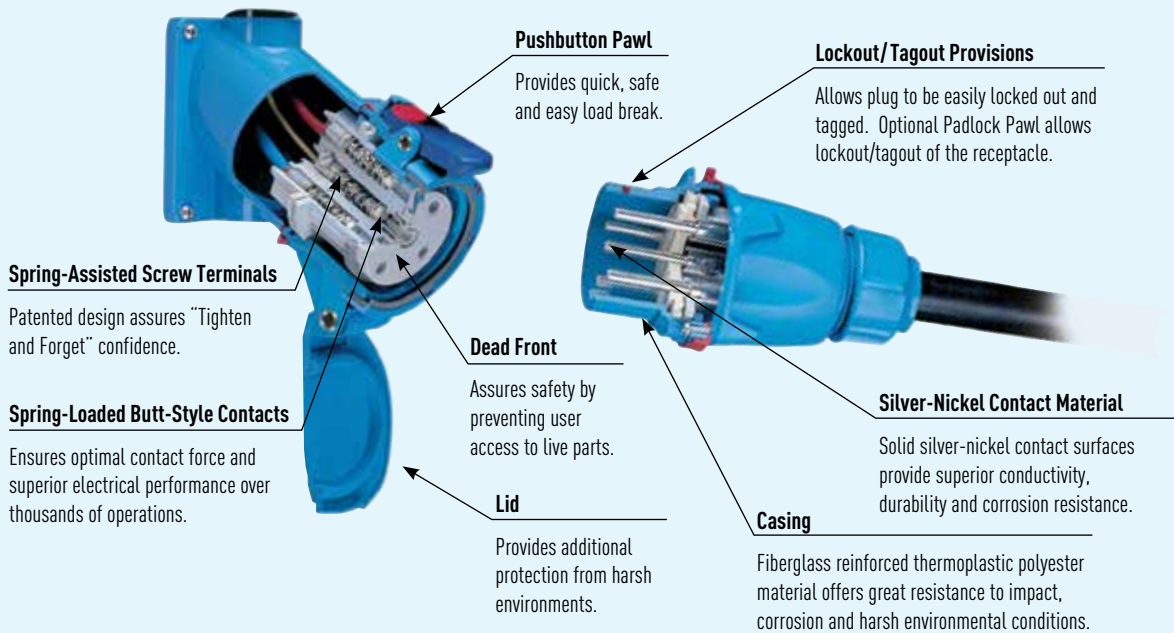
Features, Ratings & Listings



The DS and DSN Series Decontacto™ devices are based on a similar design concept. Together, the two series provide a range of switch-rated plugs and receptacles that allow users to safely and easily make and break connections under full load in applications up to 200A and 25 hp. In conjunction with their automatic watertightness, their wide range of available ratings make them ideal choices for most industrial applications.

The larger DS Series provides Type 3R protection suitable for most outdoor applications.

The DSN Series provides a more compact device and the Type 4X protection required for washdown applications.



General Ratings

Product	Amperage	Voltage	Frequency	Horsepower	Short-Circuit (Make & Withstand)	Environmental	Temperature
DS	20 – 200A	600 VAC*, 250 VDC Max	50-400 Hz	1/2 to 25 hp	65kA to 100kA***	Type 3R*, IP54/55**	min -40°F/max 140°F
DSN	20 – 60A	600 VAC*, 250 VDC Max	50-400 Hz	1/2 to 20 hp	100kA***	Type 4X, IP66+67	min -40°F/max 140°F

* DS200 and DSN20 devices are 480 VAC

** IP54 rated when receptacle and plug are mated. When not mated the receptacle alone is IP55 rated provided that the lid is latched closed.

+ Type 4X is available as an option.

*** DS20, 30, 60 & 100C and all DSN's are rated 100kA. Testing was performed with RK1 current limiting fuses sized at 400% of the highest full load motor ampacity associated with the device's hp rating. DS100 & 200 are rated 65kA. Testing was performed with RK5 time delay fuses sized at 100% of the devices rated ampacity.

Listings

Category	UL	CSA	IEC
Plugs and Receptacles	UL 1682	C22.2 No. 182.1	60309-1
Branch Circuit Disconnect Switching (AC only)	UL Subject 2682 (Performance tested to UL 98)	UL Subject 2682 (Performance tested to C22.2 No. 4)	60947-3 (AC22 or AC23)
Motor Circuit Disconnect Switching (AC only)	UL Subject 2682 (Performance tested to UL 508)	UL Subject 2682 (Performance tested to C22.2 No.14)	

CE ratings available upon request

Operating Instructions

Watertight Every Time You Connect



On many pin & sleeve devices, an additional sealing ring must be tightened in order to ensure the achievement of rated watertightness. Users frequently fail to take this extra step, resulting in leakage.

DS and DSN Series devices have a “foolproof” design that eliminates the sealing ring. DSN models achieve their Type 4X ratings and DS models their 3R ratings simply by mating the plug with the receptacle. After the removal of the plug, rated watertightness is maintained for the receptacle by simply closing the lid.

Similar, but Different

The DS & DSN Series use the same basic technology and design but have differentiating physical characteristics and features.

DSN

- 20 – 60A
- Smaller compact size
- Type 4X; IP66+67
- Reinforced polyester casings

DS

- 20 – 200A
- Larger contacts & terminals
- Type 3R+; IP54/55
- Poly & metal casings (some sizes)

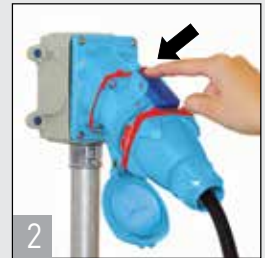
+ Type 4X is available as an option.



60A
Relative Size
Comparison



1 When the plug and receptacle are latched together, the circuit is connected.



2 Pressing the pawl causes the Decontactor receptacle to break the circuit. The plug is ejected to its rest position; its contacts are now dead.



3 Rotating the ‘dead’ plug 30° counterclockwise closes the safety shutter and frees the plug to be withdrawn from the receptacle.



4 The plug and the receptacle are separated. The safety shutter prevents access to live parts.

5 To reconnect, insert plug into receptacle, rotate 30° clockwise, and apply insertion force.

DECONTACTOR™ DB Series

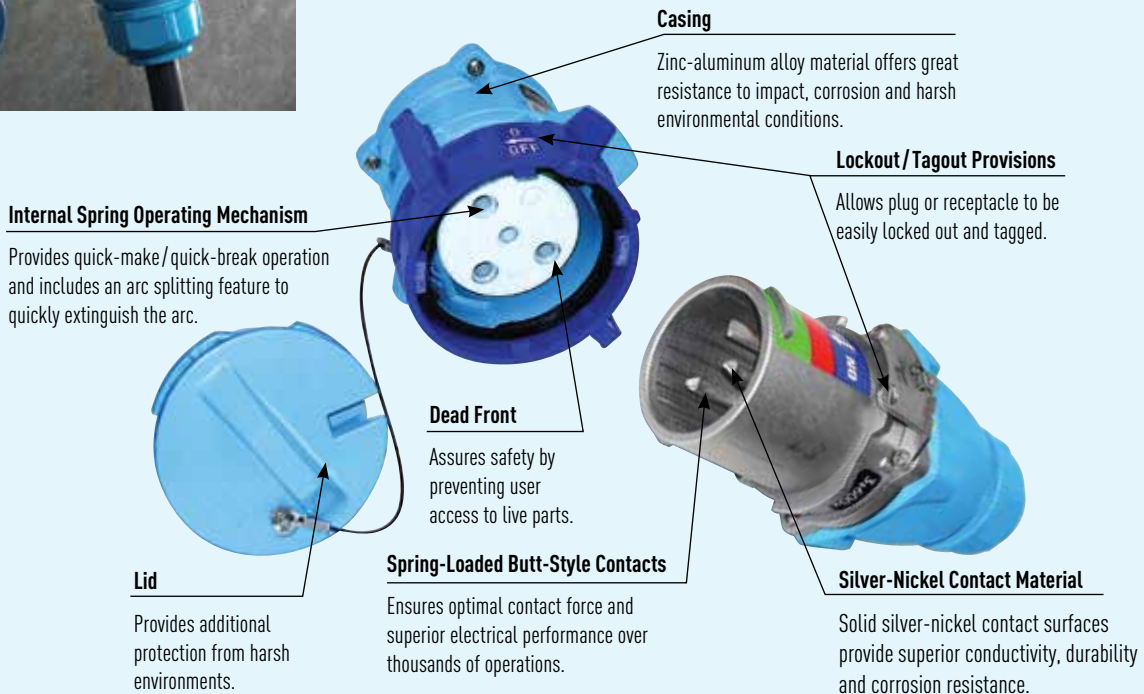
Rugged, High-Horsepower Plugs & Receptacles



The DB Series are the most rugged and highest horsepower rated plugs and receptacles in the Decontactor™ line. The DB Series was designed specifically for use on motors and other highly inductive loads.

With their unique quick-make/quick-break operating mechanism, two-stage contact system, arc chutes, and spring-loaded silver-nickel butt contacts, they can easily handle loads up to 60 hp.

Their zamak (zinc-aluminum) casings and IP67 environmental rating provide ample protection in harsh and demanding environments.



General Ratings

Product	Amperage	Voltage	Frequency	Horsepower	Short-Circuit (Make & Withstand)	Environmental	Temperature
DB	30 – 100A	600 VAC, 250 VDC Max	50-400 Hz	1 1/2 to 60 hp	100kA*	IP67	min -40°F/max 140°F

* Testing was performed with RK1 current limiting fuses sized at 400% of the highest full load motor ampacity associated with the device's horsepower ratings, except for the DB100, which was tested with 250A fuses.

Listings

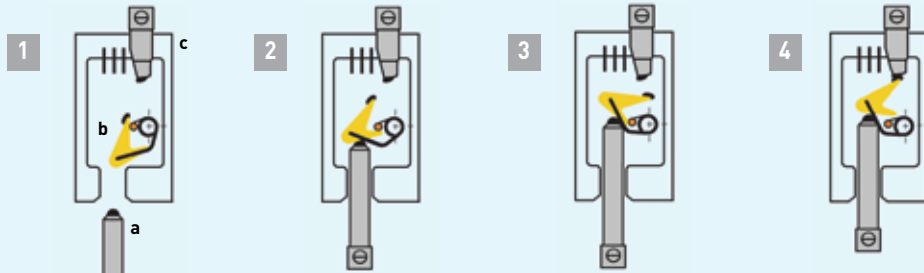
Category	UL	CSA	IEC
Plugs and Receptacles	UL 1682	C22.2 No. 182.1	60309-1
Branch Circuit Disconnect Switching (AC only)	UL Subject 2682 (Performance tested to UL 98)	UL Subject 2682 (Performance tested to C22.2 No. 4)	60947-3 (AC22 or AC23)
Motor Circuit Disconnect Switching (AC only)	UL Subject 2682 (Performance tested to UL 508)	UL Subject 2682 (Performance tested to C22.2 No. 14)	

CE ratings available upon request

Operating Instructions

Quick-Make/Quick-Break Operating Mechanism

Load-Making



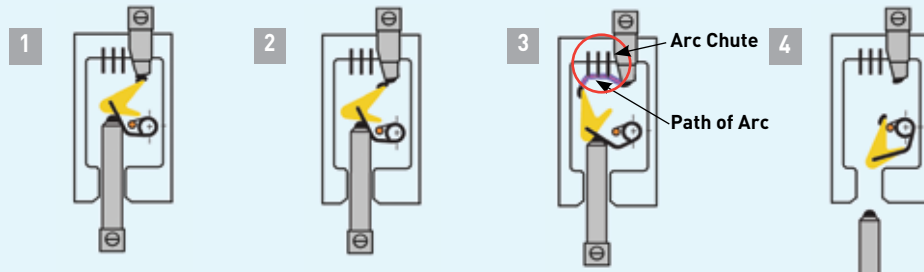
As insertion begins, the plug contact (a) and the moving contact (b) are dead. Only the receptacle contact (c) is live.

The plug contact engages the moving contact, which begins rotating it around the stop and starts winding the operating spring.

Continued insertion completes the winding of the operating spring and rotates the moving contact into position for closing.

The final insertion motion releases the moving contact from the stop and the spring energy instantly mates it with the receptacle contact.

Load-Breaking with Arc Extinguishing Technology



When the contacts are mated, the operating spring remains almost fully charged and maintains proper contact pressure.

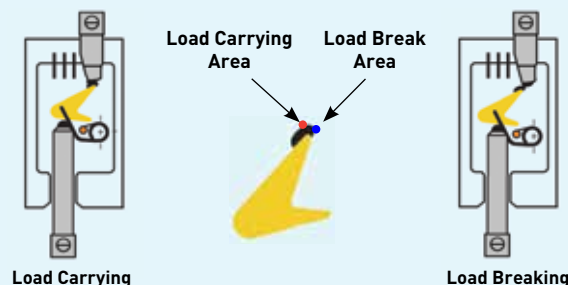
When the device is switched OFF, the plug and the spring energy in the operating mechanism are simultaneously released.

The spring energy instantly drives the contacts apart, moving the rotating contact along an arc chute, which quickly dissipates the arc.

The plug is ejected to the rest position and the moving contact returns to its initial position, resetting the device to be used again.

Two Stage Contact Operation

The opening of the contacts begins with a wiping motion that moves the contact area from the load-carrying areas to the edges of the contacts where load-breaking occurs. This protects the load-carrying areas from the effects of overload breaking operations and ensures that good continuity is maintained during use.



1 When the plug and receptacle are latched together, the circuit is connected.



2 Turning the receptacle ring counterclockwise releases the plug and rapidly opens the circuit. The plug is ejected to its rest position.



3 From the rest position the 'dead' plug can be withdrawn by rotating it counterclockwise. The receptacle can be made watertight up to IP67 by replacing the lid and turning the locking ring fully clockwise.



4 To reconnect, insert plug and twist. Pushing the plug fully home safely makes the circuit. The plug is held in the 'on' position by a locking ring. IP67 protection is enabled by fully rotating the locking ring in the clockwise direction.

DECONTACTOR™ Standard Accessories

For Installation & Operational Flexibility

Handle Options for All Applications

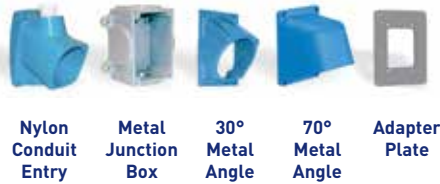
Optional Cord Grip with Wire Mesh



Poly handles feature a layered bushing and compression nut to secure the cable. PH handles are threaded to receive cord grips or conduit fittings. PM handles have cable clamps and interior bushings. PH or PM style handles are recommended for cord-drop applications. Neoprene or Santoprene handles are available for situations where a rubber handle is preferred.



Angles and Boxes for the Perfect Orientation



Meltric offers a variety of poly and metal angles and adapters to help you locate and position your devices in the most effective orientation for your application. We also offer a range of metal and poly junction boxes to support all sizes of Decontactor™ devices and adapter plates to allow devices to be mounted on existing boxes.



Pawl Options: Larger & Lockable

Locking device not included



A mushroom pawl with a larger and easier to actuate stop button is available for applications where emergency disconnections may be required. Padlock pawls include a .32" diameter hole through the pawl to permit the insertion of a padlock, allowing users to lock the receptacle lid closed or lock the plug and receptacle in the connected state.



Finger Drawplates & Drawbars for Easier Closure

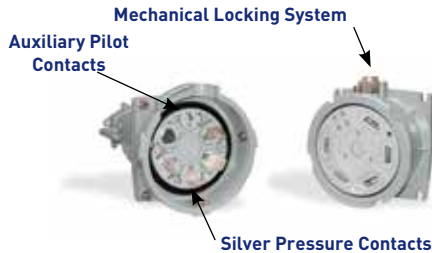


Optional finger drawplates are recommended for easier closure of DS and DSN devices when used as cord-to-cord connectors up to 100A. An easy closing mechanism is a standard feature on models DS100 and DS200.



MELTRIC CONNECTION SOLUTIONS

PF/PFQ Series – For High Amperage Connections



PF/PFQ Series plugs and receptacles are engineered for applications up to 600A where routine plug insertion and high reliability are required. Solid silver contacts maximize conductivity and resistance to corrosion. A mechanical locking feature prevents accidental disconnection. Auxiliary pilot contacts, which close after and open before the phase contacts, are used to control the power circuit and ensure the disconnection of the load before the plug can be removed.



Multipin Series – For Control Wire Connections



Meltric's multipin connectors are available with up to 37 contacts and Type 4X environmental protection. They help eliminate rewiring errors and simplify equipment change-outs by providing a convenient single connection point for applications where the monitoring of critical parameters and/or the control of secondary circuits or equipment is required.



DX & DXN Series – For Hazardous Duty Connections



The DX offers ATEX rated models from 20 - 100A in heavy-duty metal casings. The DXN Series provides a compact and lightweight, yet rugged alternative for Class I Zone 1, Class I Division 2 and Class II Division 2 applications up to 60A. With their ability to be used as in-line connectors, the DXN Series brings plug & play convenience to hazardous duty environments.



Power Distribution Products – For Custom Power Needs



Meltric Power Distribution Products make it easy for plants to provide the safety of Decontactor switch-rated plugs and receptacles wherever power is required. We offer a number of standard panels and boxes that can be equipped to suit your needs, or will custom design a package specifically for your application.



Insist on The DECONTACTOR Advantage

Meltric's Decontactor™ Series switch rated plugs & receptacles:

- ✓ Provide the safety of a disconnect switch
- ✓ Eliminate exposure to live parts & arcing
- ✓ Simplify NEC/CEC & NFPA 70E®/CSA Z462 compliance
- ✓ Eliminate interlocks & auxiliary disconnects
- ✓ Reduce equipment change-out time
- ✓ Integrate process monitoring & control
- ✓ Improve connection reliability



In-Line Cord Connection



Direct Mounted Inlet Connection



Wall Mounted Connection

Presented by Meltric and: