

Make the right choice

Don't judge industrial switchgear by its colour

- Technical Guide







Technical Guide

Chemical Resistance Guide			Resistant Orange		
Chemical type	All Mounting Enclosures	Grey (GY) Transparent Covers	(RO) Resistant White (RW) Covers	Chemical Grey (CG) Covers	Plugs
Acids	_	_			Ţ.
Hydrochloric 10%	R	R	R	R	R
Nitric 10%	R	(R	R	R	(R
Acetic acid 10%	R	R	R	(R	LR.
Sulphuric 100%	R	(R	R	(R	(R
Alkalis					
Sodium hydroxide 10% (Caustic soda)	R	NR	(R	R	LR
Potassium hydroxide 100%	<u>LR</u>	NR	NR	R	LR.
Sanitising solutions					
Chlorinated alkaline foaming cleaner 10%	R	NR	NR	R	LR.
Ammonium sanitiser	R	NR	NR	R	LR.
Vegetable oils					
Olive oil	R	NR	NR	R	LR.
Canola oil	R	NR	NR	R	(R
Solvents					
Methane	LR	R	R	-	R
Propane	R	R	R	-	R
Ethylene glycol	R	R	R	-	R
Glycerol (Glycerine)	R	(R)	(R	R	R
Methyl alcohol (Methanol)	R	R	R	LR.	R
Ethyl alcohol (Ethanol)	R	R	R		R
Aniline	NR	NR	NR	NR	LR.
Methyl benzene	NR	NR	(R	NR	IR.
Xylene	NR	NR	(R	NR	IR I
Dimethyl ethyl	R	R	R	-	R
Acetone	R	IR.	(R	IR.	LR .
Acetophenone	NR	NR	(R	NR	LR .
Ethyl methyl ketone	NR	NR	(R	NR	R
Isopropyl Alcohol		R	R	NR	R

Chemical Resistance Guide					
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Automotive					
Unleaded Petroleum	R	NR	NR	R	(R
Diesel	-	R	R	NR	LR
Brake Fluid	-	NR	NR	NR	LR.
Grease at 60 °C (Rocol 12475)	-	LR .	(R	-	-
Grease at 60°C (Rocol Sapphire Hi Temp	-	LR .	(R	-	-
Lubricating oil (10w/40)	-	-	-	-	R
Hydraulic oil (Hf-105L)	-	-	-	-	R
Oxidising agents					
Sodium hypochlorite 5%	R	R	R	R	I R
Hydrogen peroxide 30%	R	R	R	R	(R)
Water					
Ambient	R	R	R	R	R
Hot > 60 °C	R	R	R	R	LR.
Miscellaneous					
Detergent @ 50 °C	R	(R	NR	R	LR .
Magnesium sulphate	R	R	R	-	R
Salts					
Calcium Chloride 10%	R	R	R	R	LR .
Sodium Chloride 5%	R	R	R	R	R
Ammonium Hydroxide 100%	R	R	R	R	R

This table should be used as a guide only. The end user should evaluate the suitability of any chemical with any plastic.

Resistant R Limited Resistance

R Not Resistant NR

When products are required to use in environments with high concentrations of acids, bases, or oils, it is recommended to contact your local Schneider Electric office for support.

Technical Guide

Industrial Application Matrix Retail and wholesale trade buildings Supermarket (Coles, Woolies etc) Plant Rooms Staff Or Public Car Park Rooftop Plant Platforms Pedestrian Traffic Areas Toilets / Wet Areas Outdoor Lighting Staff Lunchroom Office Public Eating Area Cool Room For Perishable Storage Food Preparation Area / Kitchen Warehouse Plant Rooms Office Pedestrian Traffic Areas Staff Or Public Car Park **Outdoor Lighting** Rooftop Plant Platforms Staff Lunchroom Toilets / Wet Areas Public Eating Area Plant Rooms Staff or Public Car Park Food Preparation Area / Kitchen Pedestrian Traffic Areas Toilets / Wet Areas Rooftop Plant Platforms Staff Lunchroom Office **Outdoor Lighting** Public Eating Area Plant Rooms Public Eating Area Office Pedestrian Traffic Areas Staff Or Public Car Park **Outdoor Lighting** Staff Lunchroom Toilets / Wet Areas Rooftop Plant Platforms Fast Food Outlet (McD's, KFC, Chicken / Fish & Chip, etc) Public Eating Area Exposure to Cooking Oil Food Preparation Area / Kitchen Cool Room for Perishable Storage Staff or Public Car Park Rooftop Plant Platforms Exposure to Detergents Toilets / Wet Areas Outdoor Lighting Exposure to Acids / Office Plant Rooms Citrus Based Cleaners Public Eating Area Exposure to Cooking Oil Food Preparation Area / Kitchen Bakery / Commercial Kitchen / Mobile Food Vans Cool Room for Perishable Storage Staff or Public Car Park Rooftop Plant Platforms Exposure to Detergents Toilets / Wet Areas **Outdoor Lighting** Exposure to Acids / Office Plant Rooms Citrus Based Cleaners Pedestrian Traffic Areas Toilets / Wet Areas Staff Lunchroom Cool Room for Perishable Storage Food Preparation Area / Kitchen Staff or Public Car Park Exposure to Alkali's Outdoor Lighting Office Car Wash Plant Rooms, Pedestrian Traffic Areas Food Preparation Area / Kitchen Staff or Public Car Park Exposure to Detergents Outdoor Lighting Office Toilets / Wet Areas Staff Lunchroom Rooftop Plant Platforms Plant Rooms, Pedestrian Traffic Areas • Maintenance Workshop Exposure to Cooking Oil Staff or Public Car Park Staff Lunchroom Office Toilets / Wet Areas Food Preparation Area / Kitchen Public Eating Area **Outdoor Lighting Exposure to Detergents** Rooftop Plant Platforms Generator or Hire Equipment (mobile fridges, scissor lifts, etc) Maintenance Workshop Staff or Public Car Park Plant Rooms Pedestrian Traffic Areas Toilets / Wet Areas Exposure to Detergents Staff Lunchroom Office Rooftop Plant Platforms Despatch / Vehicle Loading / Outdoor Lighting Transport Area

Transport k	puildings		
Transport Depot freight (road / rail / water) air	Staff Lunchroom Despatch / Vehicle Loading / Transport Area Staff or Public Car Park	Toilets / Wet AreasOfficeOutdoor Lighting	Maintenance WorkshopPlant RoomsRooftop Plant Platforms
Transport Depot passenger (road / rail / water) air	Pedestrian Traffic Areas Staff Lunchroom Despatch / Vehicle Loading / Transport Area Staff Or Public Car Park	Toilets / Wet AreasOfficeOutdoor LightingPlant Rooms	 Public Eating Area Food Preparation Area / Kitchen Rooftop Plant Platforms

Industrial App	lication Matrix		
Marina / Jetties	 Pedestrian Traffic Areas Staff or Public Car Park Toilets / Wet Areas Office 	Boat WashdownOutdoor LightingFood Preparation Area / Kitchen	Rooftop Plant PlatformsConveyor BeltOutdoor Bbq's
Car Parks	Plant Rooms Pedestrian Traffic Areas Staff or Public Car Park	Office Outdoor Lighting	Toilets / Wet Areas Rooftop Plant Platforms

Offices			
Office Buildings	Staff lunchroom Staff or public car park Toilets / wet areas Office	Rooftop plant platformsPlant roomsPedestrian traffic areas	

Commerc	cial buildings n.e.c.		
Fire Station	Staff lunchroomExposure to detergentsStaff or public car parkToilets / wet areas	OfficeOutdoor lightingPlant roomsRooftop plant platforms	
Court House	Staff lunchroom Staff or public car park Toilets / wet areas Office	Outdoor lightingPlant roomsRooftop plant platforms	
Police station / Gaols / Detention centres	Staff lunchroom Staff or public car park Toilets / wet areas	OfficeOutdoor lightingPlant rooms	Exposure to detergentsFood preparation area / kitchenRooftop plant platforms

Factories Assembly Plant (CHCH, GX etc)	Staff lunchroom Warehouse Assembly plant / fabrication area	Staff or public car park Toilets / wet areas Office	Tool room or general fabrication workshop Plant rooms
	despatch / vehicle loading / transport area	Rooftop plant platforms	Cool room for perishable storageConveyor belt
Dairy / Abbatoir / Food Inghams, Fonterra, Thomas Foods etc)	 Plant rooms Staff lunchroom Cool room for perishable storage Warehouse Exposure to alkali's 	Exposure to detergents Despatch / vehicle loading / transport area Staff or public car park Toilets / wet areas	Office Rooftop plant platforms Maintenance workshop Conveyor belt
Foundry (Glass producer, cast metal production)	Staff lunchroom Warehouse Minerals processing / furnacesdespatch / vehicle loading / transport area Staff or public car park	Toilets / wet areas Office Tool room or general fabrication workshop	Plant roomsRooftop plant platformsConveyor belt
Chemical Plant	Plant rooms Staff lunchroom Warehouse Despatch / vehicle loading / transport area staff or public car park Toilets / wet areas	Office Maintenance workshop Tool room or general fabrication workshop Exposure to alkali's Exposure to detergents	Exposure to acids / citrus based cleaners Minerals processing / furnaces Outdoor storage tanks / ponds / silos Rooftop plant platforms Bottling plant Conveyor belt

Industrial Applica			
Minerals processing (mining site or secondary production plant)	 Plant rooms Staff lunchroom Warehouse Minerals processing / furnaces Despatch / vehicle loading / transport area Staff or public car park Toilets / wet areas 	 Office Maintenance workshop Tool room or general fabrication workshop Cool room for perishable storage Exposure to alkali's Exposure to detergents 	 Exposure to acids / citrus based cleaners Outdoor storage tanks / ponds / silos Rooftop plant platforms Bottling plant Conveyor belt
General Fabricator	Maintenance workshop Tool room or general fabrication workshop Staff lunchroom Staff or public car park Toilets / wet areas	 Office Plant rooms Warehouse Assembly plant / fabrication area Exposure to detergents 	 Exposure to acids / citrus based cleaners Despatch / vehicle loading / transport area Rooftop plant platforms
Winery, Brewery, Distillery	 Staff lunchroom Cool room for perishable storage Warehouse Outdoor storage tanks / ponds / silos Despatch / vehicle loading / transport area Staff or public car park Toilets / wet areas 	 Office Bottling plant Maintenance workshop Plant rooms Pedestrian traffic areas Public eating area Exposure to detergents 	 Exposure to acids / citrus based cleaners Bottle / vat sterilising Food preparation area / kitchen Rooftop plant platforms Conveyor belt
Cabinet Maker / Spray Painter	 Maintenance workshop Staff lunchroom Staff or public car park Toilets / wet areas Office 	 Assembly plant / fabrication area Despatch / vehicle loading / transport area Rooftop plant platforms 	
Motor / Rail body builder	 Maintenance workshop Staff lunchroom Staff or public car park Toilets / wet areas 	OfficeTool room or general fabrication workshopPlant rooms	 Assembly plant / fabrication area Despatch / vehicle loading / transport area Rooftop plant platforms

Warehou	ses / Distribution Centres		
Refrigerated Storage (Perishables such as food & beverage)	Plant rooms Staff lunchroom Cool room for perishable storage Despatch / vehicle loading / transport area	 Staff or public car park Toilets / wet areas Office Maintenance workshop 	 Tool room or general fabrication workshop Warehouse Rooftop plant platforms
General Storage (non-perishable items)	Staff lunchroom Despatch / vehicle loading / transport area Staff or public car park Toilets / wet areas	Office Maintenance workshop Tool room or general fabrication workshop	 Plant rooms Cool room for perishable storage Warehouse Rooftop plant platforms

Farm Out Buildings (Barns, shearing sheds etc)	Maintenance workshop		
Primary production (milking shed)	Despatch / vehicle loading / transport area Office Maintenance workshop Plant rooms Cool room for perishable storage	 Exposure to alkali's Exposure to detergents Outdoor storage tanks / ponds / silos Staff or public car park Toilets / wet areas 	
Aquaculture / Fish Farms	Staff lunchroom Warehouse Minerals processing / furnaces despatch / vehicle loading / transport area Staff or public car park	Toilets / wet areasOfficeTool room or general fabrication workshop	Plant roomsRooftop plant platformsConveyor belt
Vheat Silo / Storage	Plant rooms Staff lunchroom Warehouse Despatch / vehicle loading / transport area staff or public car park Toilets / wet areas	Office Maintenance workshop Tool room or general fabrication workshop Exposure to alkali's Exposure to detergents	Exposure to acids / citrus based cleaners Minerals processing / furnaces Outdoor storage tanks / ponds / silos Rooftop plant platforms Bottling plant Conveyor belt

Industrial Application Matrix



Other industrial buildings n.e.c

/ U ²			
Electrical generation	Maintenance workshopStaff lunchroomStaff or public car parkToilets / wet areas	OfficeTool room or general fabrication workshopPlant rooms	Rooftop plant platformsOutdoor lighting
Water Teatment (reservoir etc)	Maintenance workshop Staff lunchroom Outdoor storage tanks / ponds / silos Staff or public car park Toilets / wet areas	 Office Tool room or general fabrication workshop Plant rooms Pedestrian traffic areas 	 Exposure to detergents Exposure to acids / citrus based cleaners Rooftop plant platforms Outdoor lighting
Waste Water Treatment	Maintenance workshop Staff lunchroom Outdoor storage tanks / ponds / silos Staff or public car park Toilets / wet areas	 Office Tool room or general fabrication workshop Plant rooms Pedestrian traffic areas 	 Exposure to detergents Exposure to acids / citrus based cleaners Rooftop plant platforms Outdoor lighting

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Education buildings

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School / University	Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Warehouse	Staff or public car park Toilets / wet areas Office Food preparation area / kitchen Rooftop plant platforms	 Maintenance workshop Plant rooms Exposure to cooking oil Swimming pool / growing pond Outdoor lighting
Boarding / Accomodation	Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage	 Staff or public car park Toilets / wet areas Office Food preparation area / kitchen 	Rooftop plant platformsPlant roomsSwimming pool / growing pondOutdoor lighting



Religion buildings

Places of Worship (churches etc)

- Pedestrian traffic areas
- Staff or public car park
- Toilets / wet areas
- Public eating area
- Cool room for perishable storage
- Exposure to cooking oil
- Office
- Food preparation area / kitchen
- · Rooftop plant platforms
- Outdoor lighting



Aged care facilities

Aged Care / Nursing Home

- Pedestrian traffic areas
- Staff lunchroom
- Public eating area
- Cool room for perishable storage
- Staff or public car park
- Toilets / wet areas
- Office
- Food preparation area / kitchen
- Maintenance workshop
- Plant rooms
- Exposure to cooking oil
- Swimming pool / growing pond
- Outdoor lighting



Health buildings

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Hospital	Maintenance workshop Plant rooms Pedestrian traffic areas Staff lunchroom Public eating area	 Cool room for perishable storage Despatch / vehicle loading / transport area Staff or public car park Toilets / wet areas 	 Office Food preparation area / kitchen Rooftop plant platforms Swimming pool / growing pond
GP Clinic / Dentist	Staff lunchroom Exposure to detergents Staff or public car park	OfficeToilets / wet areas	 Cool room for perishable storage Rooftop plant platforms
Radiographer / Pathologist	Staff lunchroom Exposure to detergents Staff or public car park	Office Toilets / wet areas	Cool room for perishable storageRooftop plant platforms
Laboratories	Staff lunchroom Exposure to detergents Staff or public car park	Office Toilets / wet areas	Cool room for perishable storageRooftop plant platforms

Industrial Application Matrix



Entertainment and recreation buildings

Oval / Arena	Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park	 Toilets / wet areas Office Food preparation area / kitchen Maintenance workshop 	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Gym / Tennis Centre	 Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park 	 Toilets / wet areas Office Food preparation area / kitchen Maintenance workshop 	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Entertainment Centre / Theater / Cinema	 Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park 	Toilets / wet areasOfficeFood preparation area / kitchenMaintenance workshop	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Aquatic centre (swimming pools, aquariums etc)	 Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park 	 Toilets / wet areas Office Food preparation area / kitchen Maintenance workshop 	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Libraries / Museums	Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park	Toilets / wet areas Office Food preparation area / kitchen Maintenance workshop	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Casino	Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage Staff or public car park	 Toilets / wet areas Office Food preparation area / kitchen Maintenance workshop 	Plant roomsExposure to cooking oilRooftop plant platformsOutdoor lighting
Public Parks / Beaches	Pedestrian traffic areas Toilets / wet areas Outdoor bbq's	Outdoor lightingPublic eating areaStaff or public car park	

Short ter	m accommodation buildings		
Hotel	 Plant rooms Pedestrian traffic areas Staff lunchroom Public eating area Cool room for perishable storage 	 Staff or public car park Toilets / wet areas Office Food preparation area / kitchen 	 Maintenance workshop Exposure to cooking oil Rooftop plant platforms Swimming pool / growing pond
Serviced Apartments	Plant rooms Pedestrian traffic areas Staff lunchroom Staff or public car park	Toilets / wet areas Office Maintenance workshop Cool room for perishable storage	 Exposure to cooking oil Rooftop plant platforms Swimming pool / growing pond



Other non-residential n.e.c.

- Plant rooms
- Staff lunchroom
- Staff or public car park
- Toilets / wet areas
- Office
- Rooftop plant platforms

International Protection Ratings

Protection against solids

	TEST	PROTECTION
х	No test applied	No specific protection
0	No test applied	Inherent degree of protection
1		Protected against solid objects equal to or greater than 50 mm diameter. (eg. accidental contact with hand)
2		Protected against solid objects equal to or greater than 12.5mm diameter. (eg. contact with finger)
3		Protected against solid objects equal to or greater than 2.5mm diameter. (eg. tools and wires)
4		Protected against solid objects equal to or greater than 1mm diameter. (eg. fine tools and wires)
5		Protected against quantities of dust that could intefere with satisfactory operation.
6		Completely protected against dust.

Defined by IEC 60529 DIN 40050 CEI 70-1

To Australian standards AS 60529-2004 Degrees of protection provided by enclosures. (IP Code)

Protection against liquids

	TEST	PROTECTION
х	No test applied	No specific protection
0	No test applied	Inherent degree of protection
1		Protected against drops of water falling vertically.
2		Protected against drops of water falling at up to 15 degrees from the vertical.
3		Protected against spraying water at up to 60 degrees from the vertical.
4		Protected against splashing water from all directions.
5		Protected against jets of water from all directions.
6		Protected against jets of water of similar force to heavy seas.
7		Protected against the effects of temporary immersion.
8		Protected against the effects of continuous immersion.

Defined by IEC 60529

Technical Terms

The following technical terms are brief descriptions indicating the tests involved to attain ratings. For further information refer to the standards indicated.

M-Rating (refer AS/NZS3133)

Clipsal switches and switched socket outlets are marked with an M-Rating. This indicates that these products have been tested and found suitable for switching locked rotor current.

In part, this test involves 50 operations, make and break of the nominated locked rotor current at 0.5 power factor lagging. The switch will not fail to interrupt the current or fail in any way electrically or mechanically.

AC-21 (refer AS/NZS3947)

Switching of resistive loads, including moderate overloads.

In part, this involves five make and break operations, at 1 1/2 times rated current and 1.1 times rated voltage at 0.95 cos.

Additional mechanical no load and electrical endurance tests at rated current and voltage at 0.95 cos are conducted.

AC-22 (refer AS/NZS3947)

Switched of mixed resistive and inductive loads, including moderate overloads.

In part, this involves five make and break operations at three times rated current and 1.1 times rated voltage at 0.65 cos. Additional mechanical no load and electrical endurance tests at rated current and voltage at 0.65 cos.

AC-23 (refer AS/NZS3947)

Switching of motor loads or highly inductive loads.

In part, this involves five make and break operatons at:

10 times rated current make

1.1 times rated voltage make

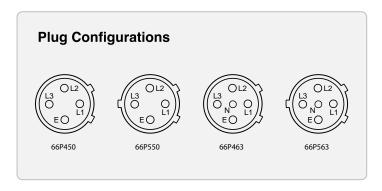
0.35 cos

8 times rated current break

1.1times rated voltage break

0.35 cos

Additional mechanical at no load and electrical endurance tests at rated current and voltage at 0.35 cos are conducted.



Plug and socket configuration

2 & 3 Pi n



10A 250V



16A 500V (unique)



2 & 3 Pi n

10A 250V



16A 500V (unique)



15A 250V



32A 500V



15A 250V



32A 500V



10A 250V



40A 500V



10A 250V



40A 500V



10A 110V



50A 500V



10A 110V



50A 500V



15A 32V Polarised



10A 500V



15A 32V Polarised



10A 500V



20A 250V



20A 500V



20A 250V



20A 500V



10A 250V



32A 500V



10A 250V



32A 500V



20A 250V



40A 500V



20A 250V



40A 500V



32A 250V



50A 500V



32A 250V



50A 500V



10A 110V



10A 500V



10A 110V



10A 500V



10A 500V



10A 500V



10A 500V



10A 500V W



20A 500V



20A 500V



20A 500V



20A 500V

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