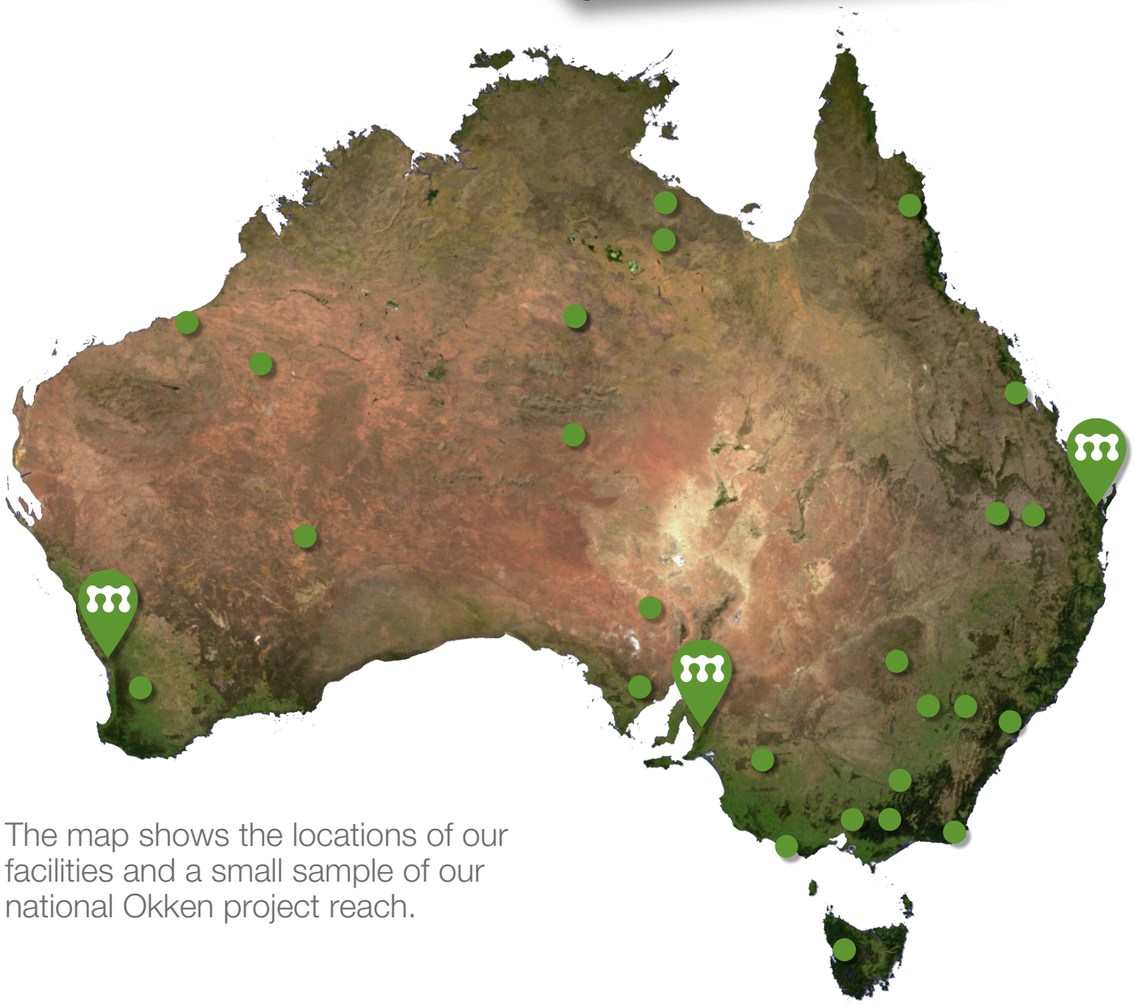
mayfield

Okken
Low Voltage Modular Fully Withdrawable Switchboards
Technical Reference Guide

High quality Australian manufacturing

Mayfield Industries are proudly the sole Australian manufacturer of the Okken low voltage switchboard system built under license from Schneider. We have been a certified Schneider Electric partner since 2012, manufacturing sheetmetal and copper parts with complete electrical assembly that takes place in our Adelaide facility.



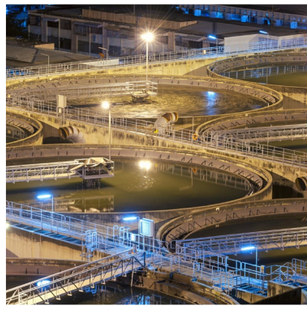
The map shows the locations of our facilities and a small sample of our national Okken project reach.

Maximising Uptime: The Okken low voltage, fully withdrawable switchboard system has been designed for some of the following industry sectors in Australia

DATA CENTRES

MINERAL AND METALS PROCESSING

OIL & GAS



WATER & WASTE WATER

MINING

INFRASTRUCTURE

OFFSHORE PLATFORMS

MARINE

Mayfield Industries are the sole manufacturer of Okken in Australia. Some of our clients include:

Santos

beach

RioTinto

ROY HILL

VEOLIA

VITERRA
A GLENCORE AGRICULTURE Company

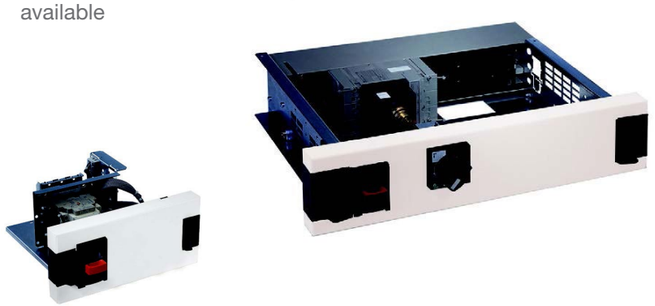
BHP

nyrstar

Okken ratings and features

SUMMARY OF FEATURES AND OPTIONS

- Forms of internal separation up to Form 4b
- Up to 690Vac
- Degree of Protection up to IP54
- Maximum busbar rating up to 7300A
- Maximum Incomer & Feeder Rating up to 6300A
- Motor Control up to 250kW
- 150kA rated short circuit withstand current
- Fully verified with Schneider componentry
- Real time thermal monitoring is available
- Arc ignition protected zones in accordance with IEC TR 61641 which includes epoxy coated busbars and insulating joint covers
- Withdrawable compartments with connected, test and disconnect positions. All positions have a lockout facility
- Closed door racking drawers for extra operator protection in all drawer positions, particularly in case of internal short-circuit or arc event, and even during connecting and disconnecting
- Solutions available to meet Marine or 2.7G/5G seismic requirements
- Single or double front design



70-2 half size (left) and full size (right) drawers

Schneider Electric

Built under License from Schneider Electric

Okken is a flexible modular switchboard design that provides minimal downtime during maintenance and upgrades

Installation is made very easy with delivery of all switchboards, 100% factory tested on purpose-built plinths.

Okken

Okken offers a complete range of switchboard configurations to satisfy the requirements of each site. The below is a summary of arrangements that can be configured to suit project requirements

230
- Very high power MTZ incomers and feeders
- 4000 to 6300 A

115
- High power MTZ incomers and feeders
- up to 4000 A

70-2 Single & Double Front
- Electrical distribution
- up to 1600A
- Withdrawable polyfast distribution drawers

115/70-2
- Mixed Incomer/Feeder
- up to 3200A
- Withdrawable polyfast distribution drawers

VSD/SS
- Variable speed drives and soft starters
- up to 400kW fixed
- up to 55kW with drawable

Single MTZ1/MTZ2/ NW/NT/NS
- Incomer or feeder
- up to 3200A for MTZ/NW
- up to 1600A for NT/NS

Okken switchboards are designed by selecting the appropriate tier type, configured with add-on compartments. Okken can be designed and manufactured in many different arrangements. Cable connection is possible at the top or bottom in the front or through the rear. Vertical cable compartments are also installed for side cable entry.

The following is a summary of different compartment dimensions.

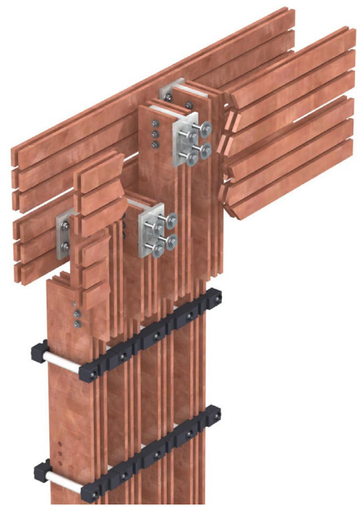
Please consult Mayfield for specific project sizing.

Okken Technical Specifications

Device Cubicle Application	Width (mm)	Depth (mm)
Single NT/NS	450	600
Single NW	650	600
115	650	600
115/70-2	650	600
70-2	650	600
230	1150	1000
70-2 Double Front	1100 & 1300	1200

Add on compartment	Width (mm)	Depth (mm)	Application
Side cable	350, 450 & 650	600 & 400	Used for cable entry/exit of connecting distribution drawers such as the 70-2 or 115
Rear cable	450, 650 & 1150	600 & 400	Used for rear cable connected 230, 115, 70-2, Single NW, Single NT/NS columns
Auxiliary	250	600 & 400	Installed to the right of coupling columns for mechanical interlocking

The below add on compartments can be included for some of the above device cubicle applications



Horizontal busbar to vertical busbar connection

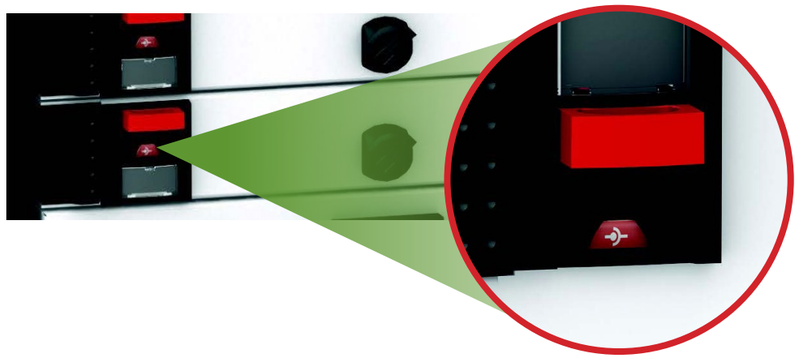
The Okken horizontal busbar system is in the top of the switchboard, all bars are 40x10 copper and clamp to the vertical distribution bars. Please consult Mayfield for current rating (Amps) at specific ambient temperatures and ingress protection rating (IP)

Okken

Okken Withdrawable compartments allow for disconnection of Modules without isolation of the switchboard, allowing for maximum uptime. Lockout is possible in each position where the protective device is in the OFF position

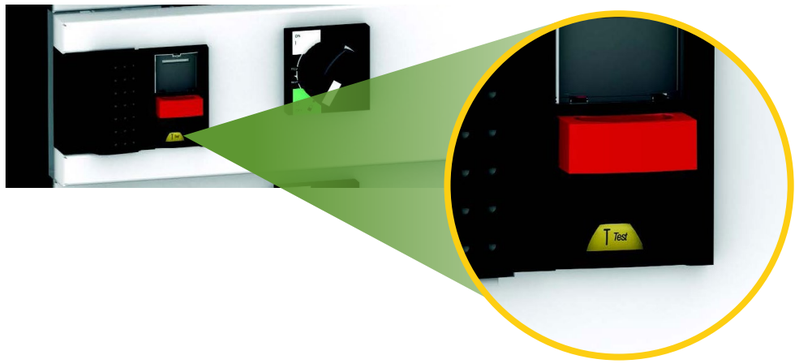
Connected Position

- Normal operational in this position
- The Functional Unit is operational
- Power and auxiliaries are connected



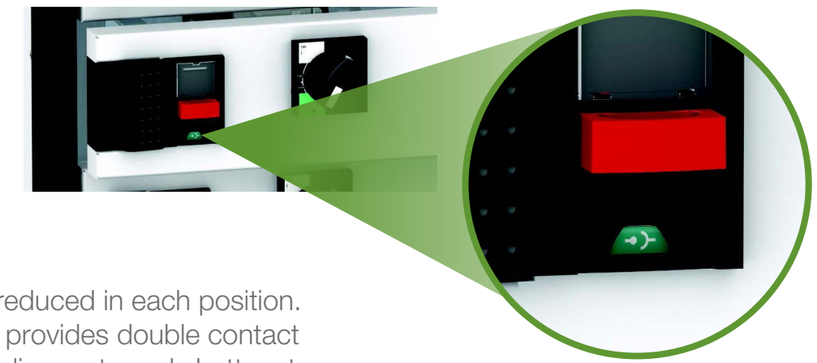
Test

- Maintenance and functional unit verification in this position
- The functional unit is not operational
- Only auxiliaries are connected
- Padlocking in this position



Disconnected

- Not operational in this position
- Power and auxiliaries are disconnected
- Allows for maintenance



Internal arc risks are greatly reduced in each position. The Okken polyfast systems provides double contact clamps, partitioning between live parts and shutters to prevent incorrect installation or unwanted access

Okken Technical Specifications

Standard Environment	
Reference standards	IEC 60439.1 / IEC 61439-1 / IEC 61439-2 AS/NZS 61439.1 Appendix ZC & ZD, IEC 60529
Climatic resistance	
Damp heat withstand	IEC 60068-2-30
Dry heat withstand	IEC 60068-2-2
Low temperature withstand	IEC 60068-21
Salt spray withstand	IEC 60068-2-11
Installation	Indoor
Earthquake withstand	IEC68-3-3 and IRC60721-3-6 according to IBC 2000
	CRT91
Environment (CEM)	type 2
Mechanical Data	
Cable Entry	Top / Bottom
Access	Front / Rear
Degree of Protection (IP)	31 / 41 / 54
Impact withstand index (IK)	10
Form of separation	2b / 3b / 4a / 4b
Withdrawability	FFD / WFD / WFW / WWW
Dimensions	
Height (mm)	2200 / 2350
Width (mm)	600 / 650 / 800 / 900 / 1000 / 1100 / 1150 / 1300
Depth (mm)	600 / 1000 / 1200 / 1400
Installation modularity in full height 2350mm cubicle	72 modules of 25mm
Average weight	
cubicle 115 (2500A)	850kg
cubicle 70-2 PCC	700kg
cubicle 70-2 MCC	600kg
cubicle 230 (6300A)	1300kg
Panel coating	Epoxy / polyester powder (SP03) polymerised, > 50 µ
Framework	Galvanised
Panelling colour	RAL 9003 as standard (client specified available)
Electrical Data	
Rated insulation voltage (Ui)	1000V
Rated operational voltage	415 / 690V AC
Rated frequency	50/60 Hz
Rated impulse voltage (Uimp)	12kV
Rated auxiliary circuit voltage	230V AC max.
Overvoltage category	IV
Degree of pollution	3
Rated current (In)	6300A
Horizontal busbar	
Rated short-time current (Icw)	50 / 80 / 100 / 150kA rms for 1s
Rated peak current	110 / 176 / 220 / 330 kA peak
Current rating	7300A
Vertical busbar	
Rated short-time current (Icw)	50 / 80 / 100kA rms for 1s
Rated peak current	110 / 176 / 220kA peak
Current rating	4000 / 2000A
Rated conditional short circuit current (Isc)	Up to 150kA
Internal arcing protection according to AS/NZS 61439 Appendix ZD	100kA for 0.3 seconds
Earthing	TT-IT-TNS-TNC
Current limit of power incoming and outgoing feeders	Up to 6300A
Power limit of motor control feeders	Up to 250kW at 690V

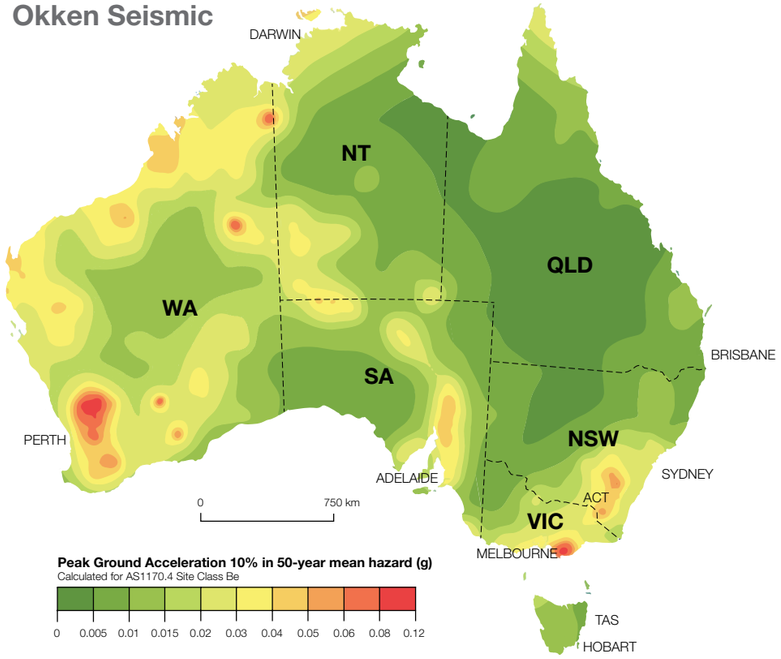
Okken has been designed and certified for specialized applications

Okken Marine

Okken Marine Switchboard

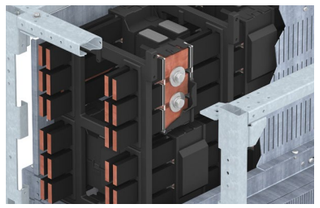
Okken Marine can be installed on ships and Offshore platforms. Features include bulkhead lighting, doors stays, grab rails and anti-corrosion conductive parts

Okken Seismic



The Okken seismic design has a robustness to vibrations and has been certified to 2.7G & 5G which is suitable to Australian and New Zealand seismic conditions.

The Arc Ignition Protected Zone



Arc Free Horizontal/ Vertical Connection

Arc ignition protected zones are available which includes epoxy coated busbars and joint covers. Enhanced protection can be included by installing the Schneider Vamp arc flash protection system.

Wireless Okken LV thermal monitoring solution

Easergy TH110
Wireless Thermal
Sensor
• Temperature

Easergy CL110
Wireless
Environmental
sensor
• Temperature
• Hudmidity

Okken thermal monitoring minimizes downtime and increases safety while reducing insurance premiums related to fire risks

To keep critical equipment up and running is a priority in buildings and facilities worldwide. The objectives are three-fold:
• Maintain operational uptime and business continuity
• Reduce operational expenses and total cost of ownership
• Protect building occupants and electrical distribution equipment

The Okken Thermal Monitoring design combines a robust and proven architecture, standardized modules, and Schneider Electric devices. Permanently installed sensors on busbar connections, cable compartments, and breaker contacts provide continuous monitoring to perform predictive maintenance. While IR inspections may miss critical conditions that happen between scheduled scans.

Okken Thermal Monitoring not only detects potential hazards but immediately sends alerts to operations and maintenance teams, allowing them to respond before any unsafe or damaging conditions occur.

Okken

MAYFIELD GROUP HOLDINGS

Passionate About Electrical And Telecommunications Infrastructure

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Mayfield Industries
Low Voltage Switchboards
- Moducell - Demountable
- Okken-Withdrawable

MV Switchgear
- Leistung Energie

Large Scale Switchrooms
Protection Panels
Control & Isolation Panels
PLC and Server Panels

mayfield services

Mayfield Services
On-site support
Commissioning
Maintenance
Switching of HV and MV equipment

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Design, install, maintenance and monitoring of telecommunications systems
Power quality solutions
Critical power equipment

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Western Australia
Design, Manufacturing, Assembly and Commissioning
12 Possner Way,
Henderson WA, 6166
T: +61 8 8169 1080

South Australia
Design, Manufacturing, Assembly and Commissioning
3 Gidgie Court,
Edinburgh SA, 5111
T: +61 8 8169 1000

Queensland
Design and Engineering
Suite 11A, Portal East.
2994 Logan Rd
Underwood QLD, 4119
T: +61 7 3036 2740

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