

# VECTAR™ SHIFT

**Evolving Excellence**



**AS/NZS61439 Fully Compliant Switchboard System**

## **AUSTRALIAN DESIGNED, OWNED AND PRODUCED**

This system has been designed through many years of switchboard manufacturing experience and has resulted in a high quality, efficient design and construction technique. This allows excellent response times to pricing, drafting and manufacturing.

We continue to evolve and improve the Vector™ *SHIFT* system through advanced engineering and testing.

We are very proud to provide full compliance with AS/NZS61439 and actively promote this through our industry.

AS3000:2018 now states compliance with the Australian Standard for Switchboards. AS/NZS61439 is this current standard. This is now a legislative requirement.

## **TECHNICAL SPECIFICATIONS**

Form of protection:	IP43 / IP54
Fault Level:	as nominated (up to 100kA)
Connection:	Top or Bottom, Front or Rear Connect.
Colour:	External: Ripple Charcoal Doors: X15 Orange Ripple or RAL 7035 light grey.
	Internal parts: Pearl White, Shelves Charcoal. Plinth: Charcoal.
Frame Construction:	2mm machine folded steel. End Walls, roof sections fully welded and ground smooth 3mm base sections fully welded and ground smooth Assembled with M6 socket head trilob screws.
Busbar:	HDHC Cu Plain Copper Bar (tinned available on request)
Gland Plate Options:	2mm mild steel 6mm-8mm Switchpanel 3-5mm Aluminium
Door Construction:	2mm machine folded steel, double return for rigidity.
Door Latches:	Chrome plated 1/4 turn locks, heavy duty 6mm latch.
Door Sealing:	Close fitting neoprene.
Hinges:	Die Cast Black Hinge, Nylon Removable Pin
Internal escutcheons:	2mm steel.
Mounting:	Floor mounted with access holes in plinth for fixing.
Standard Height:	2125mm + gland plates and screw heads, 2200 for vented roof.
Depth:	445mm + Door projections for single depth, 905 for double deep 885mm + Door projections for double depth or rear connection. 1325mm + Door projections for special extra deep projects.

## **ADDITIONAL OPTIONS AND CUSTOMISATION**

Vector™ *SHIFT* can be provided with a new filtered, forced ventilation arrangement to improve temperature performance and reduce manufacturing costs.

ISOLECT™ 2.0 Safety distribution systems can also be mated to the switchboard system providing space for control equipment, ATS and UPS bypass control equipment.

See [www.isolect.com](http://www.isolect.com) for more ISOLECT™ details.

## **FORMS OF CONSTRUCTION**

Vector can be assembled in several different forms to comply with AS/NZS61439 and to suit the application

Internal separation to IPXXB

Form 1

Form 2a, Form 2b and the variant of 2bi

Form 3a, Form 3b and the variants of 3ah and 3bih

Form 4a, Form 4b and the variants 4aih and 4bih

## **BENEFITS**

This system allows efficient use of switchboard footprint. Space is an ever present issue with real estate available for switch rooms reducing.

Easy extension and modification to arrangements with a minimum of downtime provides for future flexibility for users.

## **VARIED ARRANGEMENTS**

The versatility of the system is evident when considering the options available.

A general fixed arrangement can be used where all circuit breakers have bolted connections.

Alternate to this bus plugs can be used giving the system a high level of adjustability by reducing potential down time during alterations.

The highest level is withdrawable where each cell can be isolated then withdrawn from the switchboard, taken away for service or modification and then brought back to the board for re-installation. This system is ideal for motor control assemblies and critical installations.

## **PAINT**

Due to the demanding nature of the construction industry, Vector uses a scratch resistant paint to ensure the high quality finish lasts into the future. The standard arrangement of a textured charcoal body allows high efficiency in stock and commencing construction. Special orders of the frame the same as doors can be provided.

Ripple finish paint is available in X15 orange or RAL7035 Grey as the most suitable colour for switchboard doors. This finish provides a cleaner look than the traditional gloss finish that shows every mark and scratch.

## **SPECIAL ORDERS**

Variable colours to special order



## **BUSBAR SYSTEM**

Our unique main busbar system utilises an array of smaller bars. This arrangement permits us to do all of our main runs without punching. This speeds up assembly and reduces errors in manufacturing.

In addition to this, the interconnection at joining sections for longer switchboards is very simple and the fish plates are slid back and provided within the assembly when shipping, reducing the need for a box of joining hardware that often gets misplaced.

Our distribution busbar system is also designed with as few punched joints as possible. Connection for MCCBs up to 630A is via a tested plug arrangement.

Both bar systems have been tested up to 100kA 1 sec

## **ANNEX ZD**

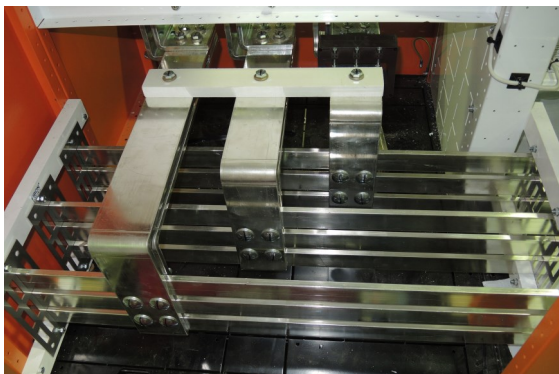
These days we are constantly reminded of the dangers of high power equipment. With our Vector™ SHIFT annex ZD compliance, you can rest assured you are getting the best protection.

Vector™ SHIFT has varied arc fault tests up to 100kA.

**Where looking after personnel and property is a priority**

## **CONSTRUCTION EXAMPLE**

High Current Busbar



### **STANDARD FRAME AND EXTERNAL SHELL**

By assembling the external frame and structure in black, we can provide the most efficient stock of parts to allow immediate response to assembly start up.

Doors are provided in either of the two selected colours as standard and additional options available on request. The delay is reduced for custom colour doors as the base assembly can still be produced.



### **AIR FLOW AND HEAT DISSIPATION**

In order to comply with the relevant standards, temperature rise verification is required.

This ensures the nominated ratings of equipment are substantiated.

Without tests, additional derating factors are required in calculation and can result in ratings below your requirements.

Vector has successfully tested a full tier of ten 250A circuit breakers, all fully rated at 250A.

This is done by advanced design in air movement and heat dissipation.

This system still complies with IP ratings and our Annex ZD arc fault containment tests.

Many switchboards don't have the required ventilation and only have louvres in doors. These louvres may have an adverse impact on arc fault by releasing the arc forwards towards the operator.



Verification and reports to AS/NZS61439 compliance

We are continuing to develop, evolve and test the system. Check with us for more testing.

**Lifting Test**

2500kg *Test to AS/NZS61439*

**Corrosion Test**

*Test to AS/NZS61439*

**Short Circuit Testing**

*Test to AS/NZS61439*

Main Bus	50kA 3 sec	3 x 40mm x 6.3mm Cu Busbar
Main Bus	80kA 1 sec	3 x 40mm x 6.3mm Cu Busbar
Main Bus	63kA 1 sec	3 x 40mm x 10mm Cu Busbar
Main Bus (stacked vertically)	63kA 1 sec	3 x 40mm x 10mm Cu Busbar
Main Bus	100kA 1 sec	6 x 40mm x 10mm Cu Busbar
Vertical Bus	50kA 3 sec	100mm x 6.3mm Cu Busbar
Vertical Bus	63kA 1 sec	100mm x 6.3mm Cu Busbar
Vertical Bus	80kA 0.1 sec	100mm x 6.3mm Cu Busbar
Vertical Bus	63kA 1 sec	125mm x 6.3mm 2 x 60mm x 10mm Cu Busbar
Vertical Bus	100kA 1 sec	125mm x 6.3mm 2 x 60mm x 10mm Cu Busbar
Vertical/Horizontal Bus	63kA 1 sec	40mm x 6.3mm Cu Busbar
Vertical/Horizontal Bus	63kA 1 sec	100mm x 6.3mm Cu Busbar
Vertical/Horizontal Bus	100kA 1 sec	125mm x 6.3mm 2 x 60mm x 10mm Cu Busbar
Outgoing/Incoming Bus	63kA 1 sec	100mm x 6.3mm Cu Busbar
ACB Outgoing/Incoming Bus	100kA interruption	3 x 100mm x 10mm Cu Busbar
NSX100	63kA	Short Circuit Interruption.
NSX160	63kA	Short Circuit Interruption.
NSX250	63kA	Short Circuit Interruption.
NSX400	63kA	Short Circuit Interruption.
NSX630	63kA	Short Circuit Interruption.
NSX250	100kA	Short Circuit Interruption.
NSX630	100kA	Short Circuit Interruption.
NW20 2000A ACB	100kA	Through fault

**Temperature rise**

*Test to AS/NZS61439*

5600A Main Bus Arrangement (restricted ventilation)  
 4000A Main Bus Arrangement (restricted ventilation)  
 1700A Main Bus Arrangement (restricted ventilation)

NS1600H in dedicated tier  
 NSX400H, NSX400H, NSX630H, NSX630H horizontally mounted in a vertical tier.  
 NSX250H, NSX160H, NSX100H horizontally mounted in a vertical tier.  
 NW25 at 2500A fully rated  
 NW32 at 3200A fully rated

**Appendix ZD Arc Fault Containment**

*Test to AS/NZS61439*

100A MCCB 63kA Arc Fault Standard Test.  
 160A MCCB 63kA Arc Fault Standard Test.  
 250A MCCB 63kA Arc Fault Standard Test.  
 400A MCCB 63kA Arc Fault Standard Test.  
 630A MCCB 63kA Arc Fault Standard Test.  
 250A MCCB 100kA Arc Fault Standard Test.  
 630A MCCB 100kA Arc Fault Standard Test.

**IP Test**

*Test to AS60529*

IP43 Standard Construction  
 IP54 Additional sealing (including vents)

**Additional Service Tests**

*Test to AS/NZS61439*

1000VAC service rating  
 2.5kV dielectric test

**Protective Earth Test**

*Test to AS/NZS61439*

**Secondary Insulation Option**

*Test to AS/NZS61439*

Self adhesive high temperature wrapping.  
 1000VAC dielectric strength  
 Tested to IEC61439 Ref 10.9.2