Sentaur Products is an Australian company supplying handrail and balustrade solutions for architectural, commercial and industrial applications.

Our modular systems eliminate the disadvantages of traditional installations through well-tested innovation, providing Architects, Designers and Engineers a superior and cost effective solution when specifying Handrails or Balustrade into Projects.

modular / no-weld hand railing systems

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Pre-Engineered

Cost Efficient

Tamper Proof

Tough & Durable

No On-Site Welding
conecta-bal™ is our commercial balustrade system which combines strength, durability and versatility, enabling it to be used in a wide variety of applications.

Constructed from steel and fully galvanised after fabrication, the unique modular design provides maximum strength, cost efficiency, and longevity.

Stainless steel, anti-vibration locking screws which embed into the pipe give the ultimate confidence in a modular system that is Safe, Fast and Easy!

Why use conecta-bal™?

- Eliminate design and fabrication time
- Unlimited configurations
- No site welding
- Ease of installation
- Designed to comply with Australian Standards
- Pre-engineered designs ensure structural integrity
- Can be supplied in a range of paint finishes to suit your application
conecta-bal™

UNLIMITED USES

- Retaining walls
- Footbridges
- Public Housing projects
- Viewing Platforms
- Back of house applications
- Access ramps 1 metre or higher above ground level
conecta-bal™
revolve™ (left)

conecta-bal™ can be supplied as curved or radius panels to suit any custom application.

From circular platforms to gently curving retaining walls, all we require is the radius to produce panels which match perfectly to your project.

conecta-bal™
bikesafe™ (right)

bikesafe™ meets the Austroads Safety requirements for cycleways and paths.

AUSTROADS GTEP Part 14 Bicycles

7.6.2 As a key objective of fences constructed in close proximity to bicycle lane or path facilities, cyclists (and their bicycles) should be able to brush against fences at speed and not be injured or ‘caught’ as a result.
Conecta-bal™ assist™ AS 1428.1-2009 compliant

As pictured the conecta-bal™ system can be configured in a number of ways to ensure compliance with the standard for access and mobility AS 1428.1-2009 and also the BCA requirements for Primary Schools.

See next page for configuration options that satisfy the requirements of the relevant standards.

**AS 1428.1-2009**

6.1(b) Handrails shall be constructed and fixed so that there is no obstruction to the passage of a hand along the rail.

**BCA - Building Code of Australia**

D2.17 Handrails

1(b)(i) In a Class 9b building used as a primary school
(a) have one handrail fixed at a height of not less than 850mm; and
(b) have a second handrail fixed at a height between 665mm and 750mm.
**conecta-bal™ configurations**

Sentaur has made selection of your balustrade as easy as possible.

**Type C1** - Standard Balustrade  
(Designed to comply with AS 1170)

**Type C2** - Standard Balustrade with kick plate  
(Designed to comply with AS 1657 at 2m + drop height)

**Type C3** - Balustrade with a smooth inline handrail  
(Designed to comply with AS 1428)

**Type C4** - Balustrade with a smooth offset handrail  
(Designed to comply with AS 1428)

**Type C5** - Balustrade with 2 smooth offset handrails  
(Designed to comply with AS 1428 and BCA requirements for Primary Schools)

**Type C6** - Balustrade with 2 smooth handrails - 1 inline & 1 offset  
(Designed to comply with AS 1428 and BCA requirements for Primary Schools)

**Type C7** - Balustrade with a smooth turned-in handrail  
(Designed to comply with Austroads Bike Path Safety requirements)

If you can’t find the configuration you require please call us on 1300 664 804 to discuss the options.
The assistaur™ AS 1428.1-2009 compliant range has been developed to provide a solution to the ever-increasing emphasis placed on ease of access for persons with disability.

Whether your application is a new project or an upgrade to an existing building to meet Australian Standards, the assistaur™ range makes compliance with the Standards easy and cost effective.

Why use assistaur™?
- Smooth Handrails
- Suits ramps, stairs or other applications
- No site welding
- Unlimited configurations
- Can be supplied in a range of paint finishes to suit your application

AS 1428.1-2009
10.3 (i) Ramps and intermediate landings shall have kerb rails on both sides that comply with the following:

(i) The minimum height above the finished floor shall be 65mm.
(ii) The height of the top of the kerb or kerb rail shall not be within the range 75mm to 150mm above the finished floor.
(iii) There shall be no longitudinal gap or slot greater than 20mm in the kerb or kerb rail within the range 75mm to 150mm above the finished floor.

12 (i) Handrails shall have no obstruction to the passage of a hand along the rail.
assistaur™

UNLIMITED USES

• Access ramps and stairs
• Schools and Universities
• Aged Care Facilities
• Shopping Centres
• Hospitals and Medical facilities
• Public places of interest
Sentaur has made your selection of disability rails as easy as possible.

Pictured are most of the commonly required configurations that can be achieved.

See next page for more options.
For single inline rail you would use Type A1.

For a handrail with two offset rails mounted to a kerb for a Primary School project you could use Type A11.

If you can’t find the configuration you require please call us on 1300 664 804 to discuss the options.
The safestop™ commercial hand railing systems are extremely versatile, heavy duty and suitable for use in a wide variety of commercial, industrial and civil applications.

safestop™ - the culmination of extensive innovation, engineering and testing, is a durable and user friendly system offering many safety and cost saving benefits at the point of installation.

Why use safestop™?
• Independently load tested to AS 1657
• No on site welding / hot works
• Significant cost savings over conventional systems
• Reduced safety risk for installer / public
• Reduced risk of corrosion, as the galvanised surface is not burnt off by welding
• Unlimited uses and configurations
• Can be supplied in a range of paint finishes to suit your application
safestop™ duo

UNLIMITED USES

• Pedestrian footpaths
• Warehouses, mezzanine floors, loading docks
  • Car parks
• Bridge Abutments
• Retaining walls
• Service platforms and stairs
• Roof service areas
  • Airports
• Shopping centres
safestop™ mono

UNLIMITED USES

• Parapet walls
• Guard rail extensions. For example “Armco” type barriers
• Sports field perimeter rails
• Bump rails

safestop™ trio

UNLIMITED USES

• To meet BCA clause 2.16h (i)(b) requirements for service platforms and accessways
• Barrier Rails
• Retaining walls where added protection is required
while **safestop™** is an aesthetic and versatile system for use in public areas, huge benefits can also be achieved in the areas of a building not readily seen.

- Roof service areas
- Catwalks
- Service platforms and stairs
- Warehouses
- Mezzanine Floors
- Loading docks

**AS 1657-1992**

3.2.1.1 Continuous guardrail complying with clause 3.4 shall be provided on the sides and ends of all platforms and walkways, except at points of access from a stairway or ladder, or where there is a permanent structure not more than 100mm distance from the edge of the platform or walkway which will give protection equal to or greater than that prescribed in clause 3.4.
safestop™ configurations

Sentaur has made selection of your safety railing easy.

FOR EXAMPLE
To extend the height of an existing wall or protect the perimeter of a sports field, you would use Type S1 (available in any height).

For standard AS 1657 compliant handrails you would use Type S2.

For handrailing where extra protection is desirable you could use Type S5.

If you can’t find the configuration you require please call us on 1300 664 804 to discuss the options.

AS 1657-1992

3.2.1.2 A toe-board complying with Clause 3.4.3 shall be provided at the edge of a platform, walkway, or landing, which is greater than 10mm distant from a permanent structure and where an object could fall more than 2000mm.

3.4.3 The toe-board shall be firmly attached to the floor or posts, and any gap between the toe-board and the floor shall not exceed 10mm. The top of the toe-board shall be at least 100mm above the top of the floor.
Structural integrity is paramount in safety railing. With this in mind, Sentaur Products has commissioned a stringent series of tests of the system by approved testing agencies in Australia and the United Kingdom, which highlight how the system exceeds the high standards demanded by engineers.

LOAD TEST *1

Integrity within a structure

Under an extreme load test of 2.2 tonnes, the Sentaur fittings remained strong and sound, while a section of standard 48mm diameter pipe rail within the assembly collapsed.

The test assembly consisted of two vertical sections of 48mm diameter pipe separated by a 600mm length of 48mm diameter pipe rail. The test was conducted utilising 101-D48 clamps. All locking screws were tightened to the recommended torque of 48Nm.

LOAD TEST *2

Push-through integrity

Under vertical load testing, the Interclamp fitting was tested to 1.1 tonnes before any slippage was detected.

The test assembly consisted of a 600mm vertical section of 48mm diameter pipe connected to a 119-D48 clamp. The locking screw was tightened to the recommended torque of 48Nm.

The assembly was positioned on the loading platen of a 50 tonne Universal Testing Machine to enable a central load to be applied to the end of the 48mm diameter pipe. Loading was applied at 5mm per minute to monitor any slippage. A load of 1.1 tonnes was recorded without evidence of any slippage.

VIBRATION TEST

Vibration of assemblies

Stringent vibration endurance tests were performed utilising sample clamps by an independent testing authority, to evaluate the vibration resistance of the stainless steel locking setscrews.

The tests were conducted on V860 and V875 Shaker Systems coupled with compatible amplifiers and vibration controllers.

A ‘Tee’ section test assembly was produced using three 300mm lengths of galvanised 48mm diameter pipe held together by a short test fitting (code 184-D48). The vertical leg of the test assembly was supported on a standard rating base flange (code 132-D48). All fittings were tightened to the recommended torque of 40Nm, with each fitting then marked to establish if any loosening of the setscrews occurred during the test procedures.

The completed ‘Tee’ section was then rigidly attached to the vibration table of the V860 unit to carry out tests on the X and Y axes of the assembly, and on the V875 unit to carry out test on its Z (vertical) axis.

A monitoring accelerometer was fitted to the extreme end of one the horizontal pipe rails in all tests to measure any resonances throughout the testing procedures.

In all tests, the assembly was subjected to a Resonance Search followed by 6 hour Resonance Dwell as shown below:

<table>
<thead>
<tr>
<th>Axis</th>
<th>Frequency (Hz)</th>
<th>Level (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>73.33</td>
<td>12.42</td>
</tr>
<tr>
<td>X</td>
<td>194.09</td>
<td>8.62</td>
</tr>
<tr>
<td>Y</td>
<td>96.10</td>
<td>25.00</td>
</tr>
<tr>
<td>Y</td>
<td>114.05</td>
<td>13.30</td>
</tr>
<tr>
<td>Y</td>
<td>222.42</td>
<td>1.48</td>
</tr>
<tr>
<td>Z</td>
<td>292.00</td>
<td>32.50</td>
</tr>
<tr>
<td>Z</td>
<td>202.60</td>
<td>5.28</td>
</tr>
</tbody>
</table>

*These frequencies were dwelled at for duration of 6 hours at an acceleration of 4g.

In addition to the two vibration endurance tests in the Z axis, the assembly was also subjected to a 6 hour swept endurance test at 1 Oct/min between the frequencies of 74Hz and 87Hz.

After the completion of each Resonance Dwell, the fittings were checked to observe if there had been any movement, by checking markings placed on the fittings prior to the test procedures. No signs of loosening of any of the stainless steel setscrews occurred.

Materials Compatibility

Malleable iron, hot dip galvanised fitting and stainless steel locking screw

Sentaur fittings consist of hot-dip galvanised ‘ductile’ cast iron connector fittings and 410 S21 stainless steel locking screws, which are utilised to securely clamp hot-dip galvanised pipe. A qualified metallurgist report confirms that stainless steel locking screws are suitable for use with zinc-coated steel and iron components.

When stainless steel is in contact with zinc-coated steel, the zinc acts as a sacrificial anode towards both types of steel. The protective galvanic effect of zinc is considerably stronger than the corrosive galvanic effect of stainless steel and as a consequence, the galvanic effect of the small stainless locking screws on large zinc-coated areas is negligible.

SALT WATER CORROSION TEST

Independent testing has been carried out to confirm the suitability of the Sentaur system in maritime conditions.

Two standard clamp fittings were mounted on the ends of a length of D48 pipe, and all ‘as factory supplied’ locking screws were tightened to the recommended torque of 48Nm.

The assembly was then immersed at a start in water containing 3.5wt% sodium chloride, a test solution that has the same chloride content as seawater. The immersion resulted in one locking screw being completely immersed, one locking screw being partly below the water line, and the third locking screw being completely above the water line. The assembly was left in the tank of solution in the same location for 12 days. The assembly was then removed and disassembled and cut in sections to allow inspection of the various surfaces.

The parts above the water line displayed deposits of salt. However, none of the locking screws holes showed any orange-brown staining characteristic of corrosion.

The fully immersed and partially immersed locking screws were removed and also revealed no indication of corrosion.

The non-immersed locking screw was sectioned in situ to reveal how the screw ends bear against the galvanised pipe. Once again, the non-immersed threaded hole did not exhibit corrosion.

HEALTH BENEFITS OF THE SENTAUR SYSTEM

As welding is not necessary in assembly, the Sentaur system avoids the dangers of Metal Fume Fever.

Inhalation of zinc oxide fumes can occur when welding or cutting on galvanised metals. Exposure to these fumes is known to cause Metal Fume Fever, the symptoms of which are very similar to those of common influenza including fever, chills, nausea, dryness of the throat, cough, fatigue, and general weakness and achiness of the head and body.
Typical draft specification for Sentaur CONECTA-BAL™

Balustrades will be Sentaur Products Type …., comprising fully galvanised panels and/or rails and clamps with stainless steel locking screws.

FINISH
Balustrade finish will be ….. (eg. Galvanised, powdercoat, paint system)
Colour ….. (eg. Yellow, blue, green etc.)

MOUNT TYPE
Base of uprights will be Mount Type ….. (eg. T, F, etc)

Typical draft specification for Sentaur ASSISTAUR™

Handrails will be Sentaur Products Type ….., comprising fully galvanised rails and clamps with stainless steel locking screws, to comply with AS1428 - 2001

FINISH
Handrail finish will be ….. (eg. Galvanised, powdercoat, paint system)
Colour ….. (eg. Yellow, blue, green etc.)

MOUNT TYPE
Base of uprights will be Mount Type ….. (eg. T, F, etc)

Typical draft specification for Sentaur SAFESTOP™

Handrails will be Sentaur Products Type……, comprising fully galvanised rails and clamps with stainless steel locking screws.

FINISH
Handrail finish will be ….. (eg. Galvanised, powdercoat, paint system)
Colour ….. (eg. Yellow, blue, green etc.)

MOUNT TYPE
Base of uprights will be Mount Type ….. (eg. T, F, etc)

MOUNT OPTIONS

ANTI TAMPER SYSTEMS

Whilst evidence of tampering with previous installations is virtually non-existent, Sentaur offers 2 different options for extra peace of mind.

vandalsmart™
patented anti-tamper system.

The clamps can be fitted with a simple, anti-vandal plug that when inserted into the set screws after assembly prohibits tampering.

The anti-vandal package includes brass anti-tamper plugs and the necessary tools to apply and remove them.

tampersafe™
unique locking mechanism.

tampersafe™ incorporates a unique drive shape into the set screw preventing it from being easily loosened without the correct tool.

disclaimer

All specifications and standards are intended as a guide only and are subject to change without notice.

It is the responsibility of the persons installing any Sentaur system to ensure that both the product and the finished installation meets the specifications and requirements of the relevant Australian Standards or Building Codes.

Sentaur products cannot be held responsible for any errors or omissions, nor any resultant loss or damage from use of any Sentaur system.