

# AUSTRALIAN STAINLESS

SPECIALISING IN STAINLESS STEEL AND ITS APPLICATIONS

#45  
SUMMER  
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# EARTH-FRIENDLY INSTALLATION

A weld-free installation process has caught the attention of Victoria's caving community.

Parks Victoria and ASSDA member Stainless Tube Mills Fences Pty Ltd recently completed a visitor access upgrade for popular tourist sites, the Royal and Fairy Caves.

STM Fences' patented assembly process for tubular panels allows for easy installation without the need for welding.

Ranger in charge of Buchan, Dale Calnin, said using this system meant installation wasn't damaging to the caves' sensitive environment.

Double top rails were also installed, using STM Fences' innovative swivel cones to help with undulations throughout the caves.

A fine bright finish was applied by Stainless Tube Mills Pty Ltd and fabricated components pickled and passivated by Duraduct for maximum corrosion resistance.

Great caution was taken during installation to protect the caves' delicate interior.

"STM Fences worked closely with Brettell Developments to ensure installation was handled appropriately for the environmentally sensitive area," STM's Peter Martin said.

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"The stainless steel balustrading looked fantastic and is a well presented modular system," he said.

Mr Calnin said this process would be welcomed by the international caving community.

220 metres of grade 316 stainless steel handrails and balustrading were installed to provide strong and durable protective barriers.

The application consisted of 50.8mm diameter top and bottom rails with 12.7mm diameter spigots, square mesh panels and fabricated stainless cable trays by Duraduct Pty Ltd.

## WHALE OF A TIME

Longevity won't be an issue with the latest version of this sculpture. *Cherry Blossom* first appeared as an ice sculpture - complete with spinning cogs - in the 2008 Russian Ice Cup.

After winning the Mayor's prize its creator, Melbourne-based artist Benjamin Gilbert, constructed a stainless steel version for Bondi's "Sculpture by the Sea" exhibition.

ASSDA member Atlas Specialty Metals sponsored the project, providing 316 stainless to suit the coastal environment.

Mr Gilbert specified stainless steel for its neutral colour, polishing the surface with stainless wire brushes to allow salts to build up.

"I don't really like shiny stainless finishes. A patina is more realistic and neutralises visual effects from its surroundings," he said.

The panels were both TIG and MIG welded, pickled and polished to achieve a buffed silver leaf effect.

"The work is a combination of Harold Holt mystery and my work with Greenpeace and the Wilderness Society," Mr Gilbert said.

"It is the first large work I've made purely for my own satisfaction in years."

*Cherry Blossom* is showing at Canberra's Corinbank Arts Festival in late February and will then travel to Europe for Denmark's version of "Sculpture by the Sea" in May.

## CONTACT

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# STUNNING LITTLE CREATURES



ASSDA Accredited member TFG Austline Pty Ltd was recently entrusted to install a new brewhouse and fermentation cellar for Little Creatures Brewery in Fremantle, Western Australia.

Over a five-month period, a team of Austline fabricators and specialised welders installed 25 vessels, five kilometres of stainless steel pipework, heat exchangers and over 3,000 fittings and valves into the new brewhouse.

Austline Manager, Tom Moultrie, said the construction process was quite unique. "The whole project was carried out with the old brewery, bar and restaurant sandwiched between the new brewery and fermentation cellar," he said.

Little Creatures Project Manager, Roger Bailey, said stainless steel was specified for its corrosion resistance and low maintenance requirements.

Stainless also provides micro-biological stability, ensuring a very high level of sanitation and minimal possibility for contamination, he said.

"Using stainless steel is an innovative way to achieve reusable water in the brewery," Mr Bailey said.

Grades 304 and 316 were both specified in different applications, depending on the product being carried.

Not one hour of trading time was lost during installation. "Any cross over where we worked on the areas still being used were done at night," Mr Moultrie said.



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# STAINLESS STEEL & PLUMBING STANDARDS



After three years of development, the first stage of a Standard covering the grade and dimensions of stainless steel pipes and tubes suitable for water supply and drainage systems has been completed. This interim Standard will be converted to a full Australian Standard in 2009. The Standards Committee included ASSDA representative Neil McPherson of OneSteel, supported by the Technical Committee.

To avoid possible confusion and protect against corrosion problems in aggressive water supply areas, grades 316 and 316L are specified for the plumbing installation Code of Practice. All materials that satisfy the requirement for water supply and drainage systems must be included in the installation Standard *AS/NZS 3500 Parts 1 & 2*, which covers the material, grade and approved jointing method for piping systems. If a material is included in *Part 1 Water Supply* (for drinking water), it will need to be certified against a product standard to Level 1, while *Part 2 Drainage & Sanitary Plumbing* requires Level 2 certification. The main difference is that Level 1 products require testing under *AS4020 Material in Contact with Drinking Water* to confirm lack of water contamination. Stainless steel product readily passes this testing.

All fittings, including the mechanical jointed pressfit and roll grooved types used for the plumbing services, are also tested and certified. *AS3688 Metallic End Connectors* defines the criteria against which these fittings are certified, including the additional pressure and fatigue testing to demonstrate strength of joint

## STAINLESS STEEL USING MECHANICAL JOINTING SYSTEMS

Mild steel, copper tube and plastic pipes have dominated building water systems for many years. However, high rise developments over recent decades have changed the building industry requirements for water supply and fire protection systems. These systems now require materials with a much higher pressure rating and corrosion resistance.

Stainless steel is recognised as a material most suited to meet these requirements. However, older on-site methods for jointing and fabrication has limited the use of stainless steel. The approval of mechanical pressfit and roll grooved systems for all water systems has provided a major market for stainless. Stainless steel pipes and fittings have been installed as a solution to specific technical issues including a corrosive environment, high pressure requirements of the hydraulic services system, high operating temperature, or where the project owners are looking for a whole-of-life sustainable product solution. The following projects illustrate some design and installation specifications around Australia.



**Casey Aged Care Facility, Heidelberg, Victoria**

108mm and 76mm tube in 316L was supplied by Blucher for a low pressure system feeding rainwater from storage tanks to pumps. Stainless steel was chosen due to concern of longevity and water contamination from other materials due to water levels in storage tanks being low or empty for long periods during dry spells. The Mapress stainless steel pressfitting system was familiar to the plumbing contractor who felt it was labour saving and easy to install. Plastic pipes were used from the roof to the plastic rainwater storage tanks.



**Western Corridor Recycled Water Project, SE Queensland**

The Mapress 316 pressure system was chosen for rapid, simple installation. There was a lack of pipe fitters available so socket welding was not possible and other trades made the installation. Sizes ranged from 15 to 54mm with butyl rubber sealing rings containing pressures up to 1,000kPa. The stainless steel was used for potable, treated and fire water as well as compressed air. The Mapress system supplied by Blucher has been used in all three waste water treatment plants in the Western Corridor as well as in the Gold Coast Desalination Plant.



## NEW WAYS OF WRITING AUSTRALIAN STANDARDS

Since October 2008 all standards and their modifications require a formal proposal showing that there will be a net benefit from the new Standard and, importantly, that there is not an ISO Standard that could be adopted to cover the requirement.

This change is in line with Productivity Commission recommendations but is also a recognition that Standards Australia (SA) does not have the resources for unlimited writing of standards. A proposal form has been developed to ensure that consultation is documented, there is recognition of the factors controlling development timeframes, the most appropriate development model is used (see below) and there is agreement on how the Standard will be implemented and reviewed. Standards Australia Relationship Managers are available to assist with your proposal.

In order to harvest more resources and produce Standards in a timely fashion, Standards work can now be carried out by:

- A highly autonomous committee with defined and limited SA secretarial assistance
- An organisation other than SA acting on behalf of a group
- A collaborative association with SA allowing case by case negotiations on intellectual property and distribution
- An SA driven project not unlike the previous system but only used for extremely high benefit and national priority standards

There is also a fifth pathway independent of SA where industry groups are registered separately with the Accreditation Board for Standards Development Organisations (ABSDO). Examples include railways, seafood and forestry standards.

Once a project has commenced, the new online tool "Standards Hub" will streamline development. Standards Hub replaces "Consensus Builder" and allows stakeholders to:

- View details of the active project created by their active committee
- Submit, edit, remove and discuss comments on drafts
- View all project comments
- Post related documents and ballot votes

*More information about Standards Hub and the process is available at [www.standards.org.au](http://www.standards.org.au)*



**Centre Court Business Park, North Ryde, NSW**

Heating and chilled/condenser water installations used 316L schedule 5 pipe in both 50 and 100mm diameter in this 30,000m<sup>2</sup> low rise complex. Stainless steel offered reliable protection from corrosion and the Victaulic roll grooved system offered ease of assembly.



**Suncorp building, Sydney CBD**

Refurbishment of the combined fire and drinking water system in a 1972 building used OneSteel Building Services supplied 316L schedule 10 pipe and fittings in 3m, pre grooved lengths for assembly in restricted duct spaces. The 43 floors plus 3 basements ensured high pressure requiring strong stainless steel which also met the drinking water AS4020 requirements.



**Centrepoint Tower, Sydney CBD**

Stainless steel pipe and fittings were supplied by OneSteel Building Services to replace corroded carbon steel in the 305m tall tower. Systems changed were the fire and potable water and the gas lines. 300m of 316L was supplied in 2.7m lengths which were roll grooved and assembled using Victaulic couplings in a very constricted service duct. Sizes used were 100mm and 50mm in schedule 10 except for gas lines in schedule 40.



# SPECIFYING QUALITY



Specifying for industrial-size cooking kettles requires close attention to heating processes, product carried and operating temperature.

A grade 316 horizontal scraped surface agitator ensures even distribution of heat throughout the product and reduces 'burn-on'.

ASSDA Accredited Inox Fabrications Australia design and manufacture steam jacketed cooking kettles from 250L to 2000L capacity.

The horizontal agitator also provides good mixing, particularly with products containing particulates. The scraper blades are made from food grade engineered plastic which is capable of withstanding high temperatures.

The kettles' heat-up time is effective through design of the lower hemispherical shell which is constructed from SAF2205 providing increased longevity for use with steam and is designed in accordance with the Pressure Vessel Code AS1210.

When selecting correct material usage, careful consideration must be given to the environment in which the equipment is to be used: the type of product and if it contains corrosive elements, the operating temperature and the heating process to ensure success of the final product. Stainless steel meets these requirements.

All food contact surfaces are grade 316 and are smooth and crevice free to avoid corrosion. Non-product contact surfaces are grade 304.



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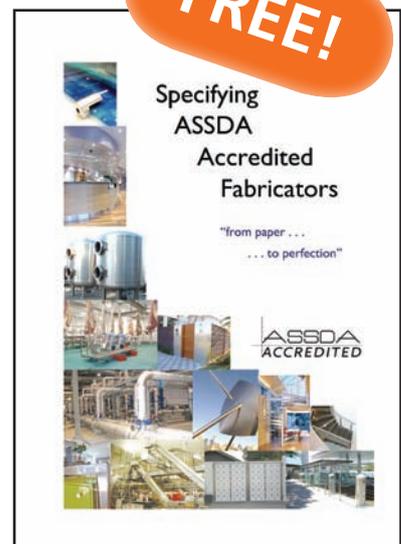
ASSDA's latest publication *Specifying ASSDA Accredited Fabricators* is a detailed directory of ASSDA Accredited Fabricators in Australia.

This colour directory is the most efficient way to source a best practice stainless steel fabricator.

Accredited fabricators are certified upon proof of quality assurance, safety, workshop capabilities, segregation of materials and fabrication to avoid contamination, training systems and a comprehensive stainless steel knowledge audit of their organisation.

Through a combination of continual skills development and specialist technical support from ASSDA, specifiers and end users working with ASSDA Accredited Fabricators can ensure that their stainless steel projects are manufactured by industry specialists.

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## ASSDA Accredited Fabricators

An ASSDA Accredited Fabricator gives asset owners and specifiers greater certainty of high quality service in stainless steel fabrication

To find an Accredited Fabricator go to [www.assda.asn.au](http://www.assda.asn.au)

# STAINLESS REFINERY FIRST OF ITS KIND



Australia's first grain-to-ethanol refinery has begun production in Queensland, with an expected output of more than 80 million litres a year.

Seven pressure vessels and five columns were fabricated by ASSDA Accredited D&R Stainless from 30 tonnes of grade 304 stainless steel supplied by ASSDA member Sandvik.

The column sizes range from an acid reduction column 750mm in diameter and 14.2 metres long to a beer column 1900mm in diameter and 24 metres long.

The columns were fabricated to tight tolerances set by process design engineers Delta T Technology, in the United States.

Chief Executive Officer of Dalby Bio-Refinery Limited, Kevin Endres, has worked with Delta T technology in the US.

Mr Endres said stainless was the obvious choice for its durability. A project of this size requires a low maintenance and reliable material.

All design and manufacturing was carried out by D&R Stainless to ASME VIII complying with AS1210.

D&R also fabricated 6000 metres of grade 304 piping in sizes from 20NB to 500NB requiring over 6100 elbows, flanges and fittings from ASSDA member Stainless Pipe & Fittings Australia.

All piping was x-ray quality and met ASME B31.3.

Mr Endres said the refinery will eventually expand to output over 200 million litres of ethanol per year.

## CONTACT

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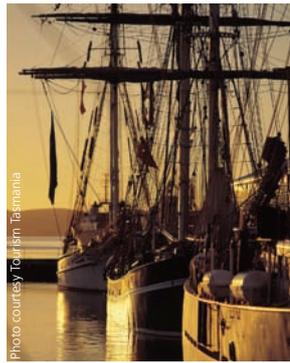
- Fabrication Forum
- Specifier & End-user Forum
- Trade booths
- Sponsorship opportunities
- Networking & social events

This year's theme 'Fabricating a Sustainable Future' reflects the importance we place on our fabricator members and the challenges they - and our other members - face to ensure their viability in these tough economic times. It also flags the environment as a priority issue for our industry.

A collection of excellent speakers will share their experiences and look to future trends on a range of topics, including the state of the economy, the impact of a carbon trading scheme on our industry, recycling, and lean manufacturing to minimise waste and improve efficiency.

ASSDA has received the message loud and clear: delegates at PacRim Stainless 2008 loved the opportunity for discussion and debate offered in the Fabrication Forum and they want more of it. The 2009 Fabrication Forum will be expanded to allow more time for speakers and discussion and there will be a second forum featuring specifiers and end-users presenting case studies of stainless steel applications - this will help us see what we are doing right and where we can improve.

PacRim Stainless 2009 is an ideal opportunity to bring your family to visit one of Australia's most intriguing



cities. Hobart is a stunning blend of history and lifestyle, culture and scenery - a striking harbour setting against the backdrop of Mount Wellington. Located on the shores of the Derwent River, Wrest Point Hobart offers deluxe accommodation, conference facilities, restaurants, bars, a tennis court, mini-golf, a health centre, shops and complimentary car parking...the perfect venue for business and pleasure.

Trade booth and sponsorship opportunities will be announced soon.

**To be added to our PacRim emailing list, please email Siri Grabski at [siri\\_g@assda.asn.au](mailto:siri_g@assda.asn.au)**

## CALL FOR PAPERS SPECIFIERS & END-USERS

PacRim Stainless has a strong tradition of featuring specifiers and end-users presenting case studies of stainless steel applications.

This year we will feature a forum with a panel of three specifiers and/or end-users who will each have 15 minutes to present a case study, explaining the design challenges, why a particular grade of stainless steel was specified for the application, and the ultimate performance of the material: the good, the bad and the ugly. **This is your opportunity to tell our industry what we are doing right and where we can improve.**

ASSDA would like to invite stainless steel specifiers and end-users to submit abstracts of no more than 400 words summarising a case study from one of the following sectors:

- Food and beverage production
- Transport
- Water treatment
- Port construction
- Pharmaceuticals
- Solar energy

All submissions will be considered for presentation at PacRim Stainless 2009 and the authors of those selected will have their conference registration fees waived on the day of the presentation. This is an excellent opportunity for presenters to network with the leaders in the stainless steel industry, including fabricators, stockists, distributors and overseas mill representatives.

Please submit abstracts to Siri Grabski at [siri\\_g@assda.asn.au](mailto:siri_g@assda.asn.au) by March 13, 2009.

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EDITORIAL — Contributions of story ideas specialising in stainless steel and its applications are welcome from members and non-members of ASSDA.

ADVERTISING — Advertise in the only publication that targets more than 8,000 readers in the stainless steel industry. Advertising rates available on request.

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### MORE INFORMATION

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