



Department of State and
Regional Development

Metal Manufacturing

Growth industry profile



Image courtesy of Tomago Aluminium



Image courtesy of Broens Industries



Image courtesy of OneSteel



New South Wales Government

New South Wales Metal Manufacturing

NSW is home to a large and world class metal manufacturing industry, generating \$6.3 billion in industry value added for the national economy. Metal manufacturing is an important enabler of many other manufacturing, service and export industries.

Metal manufacturing comprises businesses engaged in the manufacture of iron, steel, aluminium and other nonferrous metal products.

NSW has particular strengths in smelting, casting, and forging of metals; manufacturing of structural, container, sheet and pipe products, prefabricated metal and architectural aluminium products; and fabricated metal products and metal coating and finishing.

The industry directly generates a wide range of products. These include industrial materials such as rolled steel coil and aluminium ingots, metal beams, plate and foils, as well as other components used in a variety of other industries – roofing, windows, doors, guttering, cans, bottle caps, gas cylinders, aerosols, hardware tools, wires, plumbing fittings and metal coatings. At the higher end of the value chain the industry supports the manufacture of machinery, equipment and technical instruments.

NSW based companies such as BlueScope Steel, Hydro Aluminium Kurri Kurri, OneSteel and Tomago Aluminium are among the largest manufacturing facilities in Australia and the southern hemisphere. Their competitiveness is built on large coking and thermal coal fields, world class port infrastructure, and the skilled workforce centres of Newcastle, Wollongong and Sydney.

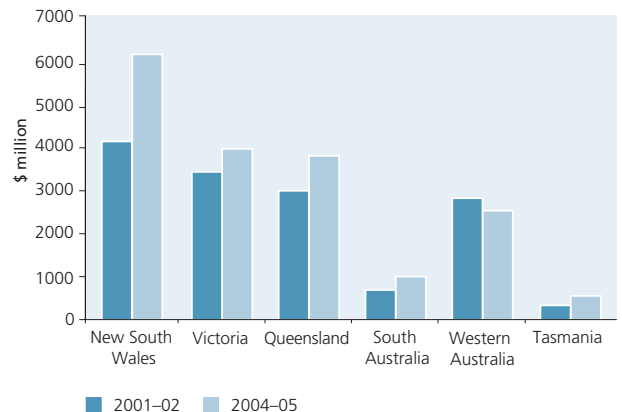
These major companies are critical in fostering clusters of value adding small to medium manufacturers and service providers, export hubs and in creating demand for research and development facilities.

Key facts

The NSW metal manufacturing industry is the largest in Australia, accounting for 35 per cent of Australia's metal manufacturing businesses and almost one third of Australia's metal manufacturing employment.

The NSW metal manufacturing industry grew by nearly 50 per cent between 2001–02 and 2004–05, making it one of the fastest growing manufacturing sectors in Australia. In terms of industry value added, the NSW metals manufacturing industry is now the third largest manufacturing industry sector in Australia.

Metals manufacturing industry value added



Source: Australian Bureau of Statistics

Products and technologies developed by metal manufacturers are key inputs for other Australian manufacturing industries. Together these manufacturing industries contribute \$40.5 billion in industry value added to the national economy (as below). The metals industry is interconnected with many service providers, helping to develop new industries and technologies

Key users of metals

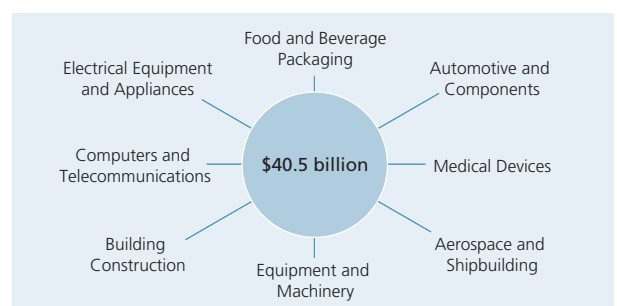




Image courtesy of Hydro Aluminium Kurri Kurri

NSW dominates Australia's steel production and aluminium smelting industries

- The BlueScope Steel works at Port Kembla accounts for more than two thirds of Australia's domestic steel production capacity and is the only flat products steel operation in Australia. Together with OneSteel's Sydney Steel Mill electric arc furnace at Rooty Hill and Smorgon Steel's Waratah Mill in Newcastle, NSW accounts for almost three quarters of domestic production capacity.
- The Hydro Aluminium Kurri Kurri and Tomago Aluminium smelters near Newcastle supply over one third of Australia's domestic aluminium production capacity.

Metal product manufacturing is Australia's most heavily export-oriented manufacturing industry, with 34 per cent of industry sales exported overseas.

NSW companies are leading exporters of metal products. In 2005–06, NSW companies exported \$3.5 billion worth of metal products. NSW exports of aluminium were valued at \$1.8 billion, or 37 per cent of Australia's total aluminium exports.

In the high value added sectors of structural, sheet and fabricated metal products manufacturing, NSW accounts for almost 30 per cent of Australian exports.

Metal manufacturing is a significant regional employer. BlueScope Steel is the largest employer in the Illawarra region and the Tomago Aluminium smelter is one of the largest single site employers in the Hunter region.

NSW has the largest metal manufacturing workforce in Australia and produces large numbers of graduates in key disciplines needed by metals manufacturers and service providers.

NSW leads Australia in business research and development in metal manufacturing. NSW businesses account for 38 cents in every dollar spent by business on research and development into metal manufacturing in Australia.

NSW universities are key centres for metal research and nodes for nationwide research facilities.

NSW competitive strengths

Businesses in NSW are ideally positioned to compete in a highly contested global marketplace. The NSW metal manufacturing industry is supported by a skilled and flexible workforce, a low cost operational environment, and access to efficient and leading edge infrastructure.

Skilled workforce

NSW offers a highly educated workforce and access to major metal manufacturing education and training facilities.

- 55 per cent of the NSW working age population is educated at a tertiary level, the highest proportion of all Australian States.
- NSW universities account for almost 30 per cent of all students enrolled in engineering and related technology fields.

Business innovation

NSW businesses are focused on innovation in management, technology and business practices to create high quality metal products and related services that are cost competitive in growing Asian markets.

- NSW is the lead State for business expenditure on research and development, accounting for \$3.1 billion or 37 per cent of the Australian total.
- NSW businesses are continually upgrading plant and equipment to maintain international competitiveness. Recent upgrades to major NSW aluminium smelters and steel mills have expanded capabilities and flexibility of supply, while leading the world in environmental and safety standards.

Infrastructure

- Sydney's ports handle \$50 billion worth of domestic and international trade per annum and account for nearly one third of Australia's total containerised trade.
- Port Kembla is a specialist industrial port, close to the major manufacturing centres of Sydney and Wollongong. The port is undergoing a major expansion to increase capacity for bulk cargoes, containers and vehicle handling.
- The Port of Newcastle is a major Australian aluminium port and the largest export coal port in the world. In 2005–06, more than 80 million tonnes of coal and 136,000 tonnes of value added aluminium were exported.
- NSW has some of Australia's largest deposits of accessible thermal and coking coal for low cost electricity supply and steel production. These are conveniently located near Sydney, Newcastle and Wollongong, major centres of metal manufacturing.

Major company snapshots



Image courtesy of BlueScope Steel

BlueScope Steel, one of Australia's largest companies, employs more than 4,500 people and several thousand contractors at its integrated steelworks and metal coating businesses at Port Kembla. The Port Kembla Steelworks is one of the world's lowest cost producers and produces more than five million tonnes of raw steel per annum. The adjacent Springhill Works of BlueScope's Illawarra Coated Products business further processes hot rolled coil from the steelworks and is a world leader in metal coating technologies.

BlueScope Steel's Port Kembla businesses specialise in the production of flat steel products and value added metallic coated and painted steel. These products are used by the Australian building, manufacturing and automotive industries, and are exported to Asia, Europe, the Middle East and the Americas.

BlueScope Steel benefits from a long relationship with the University of Wollongong, enabling the company to maintain its position as one of the world's most efficient producers of quality steel products.

Hydro Aluminium Kurri Kurri has established new performance, environment and safety records as the smelter continues to upgrade. In 2006, production topped 163,856 tonnes, a five per cent increase on the previous record. The plant's foundry products are also making inroads into Asia following accreditation to ISO/TS 16949 for the foundry product line.

All major industry players battle for the slightest advantage in this highly competitive marketplace. With over 40 clients in the region, Hydro Kurri Kurri is confident its high production standards and responsiveness to customer needs will ensure it becomes a preferred supplier – and strategic partner – with businesses across Asia. Much of the planned 60,000 tonnes of 2007 PFA production is destined for this region.

OneSteel is the largest manufacturer of steel long products and the leading metals distribution company in Australia, with revenues of \$3 billion. OneSteel has over 200 operational sites in Australia and New Zealand, more than 30,000 customers and employs approximately 7,400 people, including more than 2,300 in metal manufacturing in NSW.

OneSteel's manufacturing operations in NSW include the Sydney Steel Mill in Western Sydney, rolling mills in Newcastle, and specialised oil and gas pipeline manufacturing facilities in Port Kembla.

OneSteel maintains key research links with major NSW universities and is a leader in the development of special steel coatings technology.

Tomago Aluminium, with around 1,200 employees and a production capacity of 525,000 tonnes per annum, is the second largest aluminium smelter in Australia and eleventh of around 190 smelters worldwide. Tomago Aluminium produces aluminium ingots, extrusion billet and rolling slab, which are mostly exported to markets in Asia. The majority of the 525,000 tonnes produced is in the form of mould ingots that are sold and remelted by the customer as value added items. In 2006, Tomago Aluminium Pty Ltd had revenues above \$1.5 billion and spent more than \$750 million in Australia.

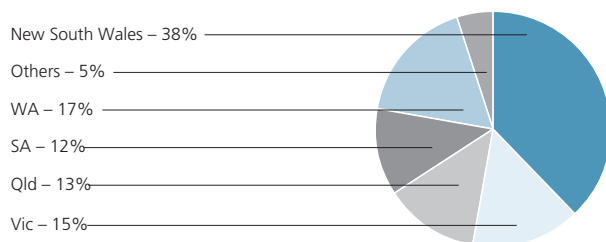
Tomago Aluminium is heavily involved in the local community and a major employer in the Hunter region. In recent years Tomago Aluminium has invested around \$200 million to upgrade the plant's technology to ensure it remains one of the leading aluminium smelters in the world, and the project's potential is now being realised.

Innovating with metals in NSW

NSW businesses spent \$630 million on metals research and development in the five years to 2004–05. There is a strong link between industry innovation and industry growth.

Leading edge research and development into metals is being diffused into the wider manufacturing sector and the general economy. Technological advances in metal manufacturing are being made through characterising materials, creating and processing new light metals, creating hybrid materials, developing innovative casting technologies, developing innovative welding technologies, developing separation technologies, and developing new coating technologies and advanced metal/composites.

Business expenditure on R&D 2004–05



Source: Australian Bureau of Statistics

In NSW, innovation in metals and metal manufacturing is being driven by businesses with strong links to researchers. Metals research centres include:

- University of New South Wales
- University of Wollongong
- University of Sydney
- University of Technology, Sydney
- University of Newcastle
- University of Western Sydney
- Australian Nuclear Science and Technology Organisation (ANSTO)
- CSIRO – Manufacturing and Metals Technology and Light Metals Flagship
- CAST Cooperative Research Centre
- Cooperative Research Centre for Construction Innovation
- Cooperative Research Centre for Composite Structures.

Companies innovating with metals

Broens Industries is a leading high tech engineering company, delivering precision engineering, tooling, and special purpose machinery and automation solutions across the automotive, aerospace, defence, marine and mining sectors.

Broens Industries' success is due to regular investment in its manufacturing capabilities and human resources, allowing for expansion into high technology industries requiring the latest in modern engineering processes. Broens spends approximately 30 per cent of its annual turnover on research and development across all aspects of the business, continually growing the company's strengths and capabilities. Broens is committed to new metals technologies and works closely with the University of Western Sydney on the development and application of nanotechnology in the industry.

CathRx (formerly called Advanced Metal Coatings) is an ASX listed medical device company based at the Australian Technology Park, Sydney. CathRx Ltd has developed specialist cardiac catheters based on unique cable and platinum coating technologies. This type of metal coating technology has also been applied to prototypes for aerospace conductors and fuel cells.

CathRx catheters are used to diagnose and treat electrical disorders of the heart, known as arrhythmias. Significant progress has been achieved in the commercialisation process for CathRx through use of the materials science and engineering expertise available in NSW and the metal polymers unit at the CRC for Cardiac Technology at Sydney's University of Technology.

G.A. & L. Harrington Pty Ltd is a multiple award-winning toolmaker and metal pressing specialist for the automotive, building, mining and general engineering sectors. Located at Padstow in Sydney, the company employs more than 130 employees and has an extensive range of presses from 10 to 1,000 tonnes capacity, together with resistance welders, MIG robot welders, pulley forming machines and electrostatic wet paint and powder coating lines.

G.A. & L. Harrington's strengths are built on a commitment to research and innovation, prototype development, communications technology and advanced manufacturing processes. Technologies developed by the company including the design and production of the Sydney Olympic torches have opened up markets internationally for its specialised knowledge in tool-making and metal forming.

Apollo Metals based at Wetherill Park in Sydney is an ISO 9001:2000 quality endorsed supplier of aluminum, titanium and special steels to aerospace, defence and high technology industries throughout Australia. With a turnover of \$25 million and 30 employees, the company expanded strongly in 2006. The company is a major supplier that offers the best solutions and processes for material yield that will save costs.

Government support

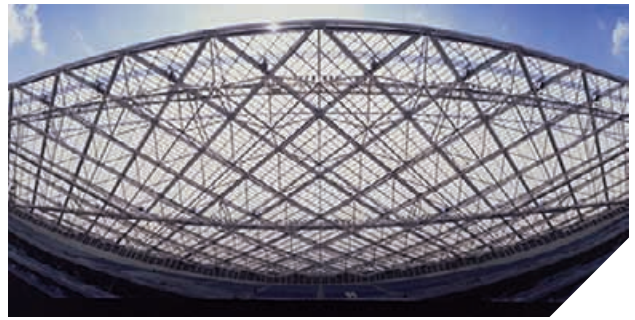


Image courtesy of Stadium Australia

Metal manufacturers and service providers – small and medium-sized enterprises especially – face particular challenges in the global marketplace. Not only is cost competition fierce, but SMEs need to invest in networks and strategic alliances to win business and adopt emerging technologies to develop competitive advantages. The NSW Government is committed to collaborative alliances between government, business and research communities to ensure the further development of the metal manufacturing industry.

The NSW Government is working to reduce the regulatory burden faced by metal manufacturing SMEs through red tape reviews which, in partnership with industry, aim to make it easier to conduct business in NSW. These involve extensive consultation with individual businesses and industry associations to obtain a small business perspective on regulations affecting them and recommend actions that will make it easier for businesses to comply with regulations. This includes:

- reducing unnecessary or overly complex regulation
- removing any overlap or duplication of regulation across government agencies
- removing inconsistencies in regulation, interpretation or advice
- simplifying business compliance requirements through streamlining reporting processes and limiting of paperwork for SMEs.

The NSW Government plays a role in import replacement through its support of the Industry Capability Network which assists local end users of manufactured products to identify local suppliers for major projects.

Other initiatives that help sustain the State's competitive manufacturing sector include:

- export development programs to assist manufacturers to enter international markets
- promoting locally developed R&D and technologies through the Australian Technology Showcase
- business investment programs which provide assistance to regional manufacturers to create new employment and investments
- facilitation and advocacy support for major projects
- business skills development targeted to start-ups, inventors and young entrepreneurs
- customised business improvement programs for manufacturing enterprises
- tax relief through the Payroll Tax Incentive Scheme in areas with unemployment pressures
- encouraging technology diffusion and best practice through support for innovation clusters
- showcasing world class businesses through industry and export awards
- partnerships to extend service to companies through professional bodies such as the Welding Technology Institute of Australia, the Australasian Production and Inventory Control Society, and the Association for Manufacturing Excellence
- the formation of the NSW Manufacturing Advisory Council to support the role of manufacturing in the State's economy.

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