A LOOK INSIDE THE FUTURE OF METALS

THE ALLOY SPECIALISTS
With more than a century of experience in the invention, production and supply of high-performance nickel alloys and an aggressive plan for the future, there’s no wonder Special Metals is setting design standards for engineers around the globe. As the inventor of more than 80% of the alloys on the market today, Special Metals touts the industry’s widest range of nickel alloys, cobalt alloys and product forms. These alloys are highly engineered to perform in the world’s most technically demanding applications, offering properties such as creep, heat and corrosion resistance, strength, fabricability, electrical properties and controlled thermal expansion.

The Special Metals Corporation group of companies was created in 1998 when Special Metals Corporation of New Hartford, New York, acquired Inco Alloys International, including its Huntington Alloys, Wiggins Alloys and Welding Products divisions. In 2006, Special Metals Corporation became a part of Precision Castparts Corp., a worldwide manufacturer of complex metal components and products. With a rich history of alloy technology spanning more than 100 years, Special Metals continues to carry out our vision of customer respect, product quality and innovative technology now and for the future by means of time-tested products such as world-recognized INCONEL®, INCOLOY®, NIMONIC®, UDIMET®, MONEL® and Nilo® alloys.

With corporate facilities collaborating to bring customers the best technical support, production capabilities and experience in alloy technology, the professional scientists, engineers and technologists at Special Metals are better equipped than ever to develop leading-edge materials and processes to meet industry needs worldwide.
Special Metals offers the largest range of nickel alloys in all standard mill forms: ingot, billet, plate, sheet, strip, seamless tube and pipe, bar and wire, and welding filler metals, electrodes, and fluxes for joining and overlay. The time-tested nickel alloys and cobalt alloys of Special Metals Corporation are highly engineered to offer a superior combination of heat resistance, corrosion resistance, toughness and strength for the most demanding applications.

**Product Forms**

- **Billet & Bar Products**
- **Flat Products**
- **Tubular Products**
- **Welding Products**

**Alloy & Process Development**

Special Metals is considered a world leader in melting technology, offering the most comprehensive range of alloy compositions while guaranteeing the highest quality in all of our products.

- **Primary Melting**
- **Secondary Melting (Remelting)**
- **Hot Aiding**
- **Cold Working**
- **Heat Treatment**
- **Descaling**

**Research & Technology**

- **Alloy & Process Development**
- **SMC’s Research and Technology (R&T) team is comprised of knowledgeable engineers, metallurgists and scientists tasked with the development of high technology products and processes. A recent research program resulted in the development of INCOLOY® alloys 945 and 945X, high-strength, corrosion-resistant nickel-based superalloys for sour oil and gas service. Another alloy developed by the R&T group is INCONEL® alloy 793H™, a superalloy specifically designed to meet the rigors of high temperature service in advanced ultra-supercritical (A-USC) power boilers for the high efficiency fossil-fuel fired power generation systems of the future.**

**Application Engineering**

- **SMC metallurgists and engineers work with designers and fabricators of metallic equipment and systems to ensure that materials for the application meet the requirements of service but always with consideration of availability, economy and cost control.**

**Technology Processing Center**

The SMC Technology Processing Center (TPC) is a mini-mill used for the production of small quantities of experimental alloys. Operated by a skilled staff of technicians, this department can also commercially produce small quantities of special alloy products for SMC customers.

**Manufacturing Processes & Capabilities**

- **Over a Century of Alloy Innovation**
  - **1906** The birth of an industry. MONEL® alloy 400: Industry’s first corrosion-resistant nickel alloy
  - **1940** NINMOC alloy 75: Industry’s first superalloy
  - **1952** INCOLOY alloy 825: Industry’s first superalloy with excellent stress corrosion cracking resistance
  - **1964** INCONEL® alloy 615: Industry’s first age-hardenable nickel superalloy
  - **1972** INCONEL® alloy 690: The nuclear industry’s solution to stress corrosion cracking
  - **1982** INCONEL® alloy 600: The first 600 series nickel superalloy
  - **1991** INCONEL® alloy 686: The ultimate in aqueous corrosion resistance
  - **1998** INCONEL® alloy 644: The ultimate in aqueous corrosion resistance
  - **2000** INCONEL® alloy 718: The solution to metal dusting attack
  - **2007** INCOLOY® alloy 925: Industry’s first corrosion-resistant age-hardenable alloy
  - **2008** INCONEL® alloy 720: Advanced nickel base superalloy for the automotive industry
  - **2009** INCONEL® alloy 693: The solution to metals that can be strengthened in one grade
  - **2011** INCONEL® alloy 699: The ultimate in aqueous corrosion resistance
  - **2013** INCONEL® alloy 730: The most widely used alloy in the oil & gas industry

**Brands You Trust**

Our expansive product portfolio includes more than 100 alloy compositions, wrought products and Welding consumables, including INCOLOY™, INCOLOY™, MONEL™ and more.
industries

Oil and Gas Extraction
- Cold worked and precipitation hardened well casing for sour oil and gas extraction
- Bar and mechanical tube for well control components and services
- Products for fabrication of components for service in HPHT deep sour wells
- Co-extruded seamless piping for oil and gas transfer
- Welding products for welding of liners
- Alloy plate for production of clad steel plate for risers

Defining and Petrochemical Processing
- Seamless pipe and tube
- Pipe and tube for manufacture of vessels and structural components
- Bar and tube for manufacture of pumps, valves, fittings and flanges
- Welding products for both plating and overlay cladding

Power Generation
- Hot-rolled plate and cold-rolled sheet for use in flue gas desulfurization (FGD) systems
- Hot-worked and cold-reduced seamless pipe and tubes for boiler superheaters
- Welding consumables for overlay of substrates for nuclear steam generators
- Large bar for manufacture of nuclear vessels
- Precipitation hardenable bar and forgings for LBGT shafts, fasteners and rotors

Aerospace
- Sheet for exhaust ducting
- Bar for turbine blades and discs
- Bar for turbine cooling, seals and shrouds
- Bar and wire for fasteners
- Bar for cladding

Chemical Processing and Other Process Industries
- Bio-pharmaceutical vessels for production of today’s “wonder drugs”
- Processing and pressure vessels for producing the chemicals that we use daily
- Cracking and gas-to-liquid equipment for processing the world’s wealth of natural and shale gas
- Desalination systems for production of steam drinking water from seawater
- Marine heat exchangers that allow seawater to be used for industrial use instead of precious fresh water
A CENTURY OF ALLOY INNOVATION

For over 100 years, Special Metals has been a world leader in the invention and production of highly engineered nickel alloys for demanding applications. In fact, Special Metals has invented over 80 percent of the alloys in the market today—offering the industry’s widest range of nickel alloys, cobalt alloys and product forms. As part of Precision Castparts Corporation (PCC), Special Metals can leverage the capabilities of other leaders in metal to offer an unmatched range of alloy components and products.