



THE BUSINESS

Markets

Gränges Eurasia

Gränges Americas

Markets

Gränges is a leading global supplier of rolled aluminium products for thermal management systems, speciality packaging, battery components, and selected niche applications. In materials for brazed heat exchangers, Gränges is the global leader with a market share of approximately 25 per cent.

Market characteristics

The market for rolled aluminium materials is in general characterized by advanced technology, complex production processes, and customer-driven development with long-term relationships. There is also a market for more standardized products with lower degree of customization and a lower general product complexity.

Advanced technology and production processes

The market is relatively difficult to enter. Partly, this is due to the capital-intensive nature of the industry and the high level of competence and experience required to develop and produce new and customized materials. These skills are also critical to operate flexible and efficient production processes, and to be able to guarantee a high degree of delivery performance in terms of volume, time and quality. All this requires well-tuned manufacturing capabilities and processes refined over a long time, as well as effective customer service and for some end-customer markets a global supply capacity.

Customer-driven development

Manufacturers are constantly facing new and increased customer demand for materials with for instance lower weight, greater strength, higher corrosion resistance or lower environmental impact. The development of new materials, products and solutions is conducted in close cooperation with customers, based on long-term relationships. A core challenge is to meet the requirements of new applications and demands of end-customers, as well as trends that impact the business. Gränges strives to be at the forefront of developing adaptable and customized aluminium materials.

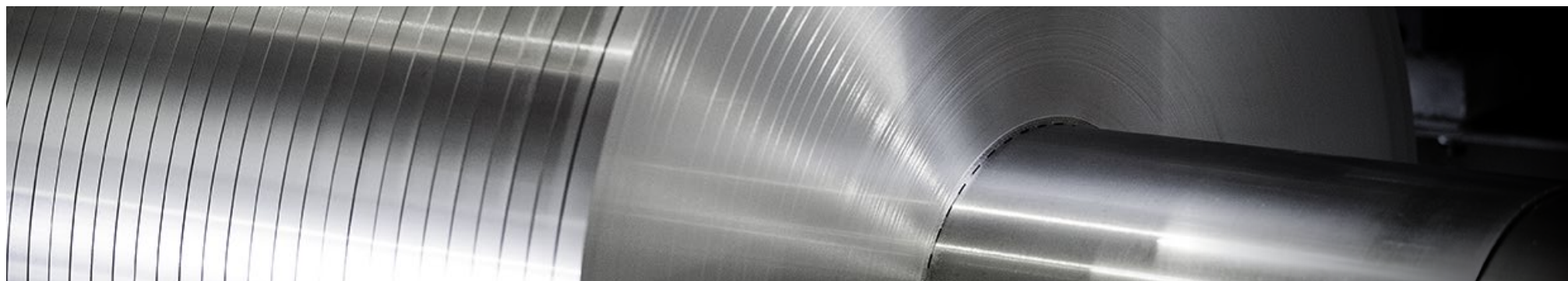
Competitors

The competition varies in size and strategic focus and differs between regions and end-customer markets. Global contestants such as Arconic, Novelis and UACJ are present on several geographical markets while also local competitors are present in the different regions. Examples of local competition in the EU are Constellium, AMAG and Speira. JW is one example of a local competitor in the US while Huaфон is the biggest competitor in Asia.

25%

Gränges' share in brazed heat exchangers

Gränges rolled aluminium is used in a variety of products. The material has a positive contribution on the climate impact all the way through to the end-user product.



End-customer markets

Gränges' end-customers are found in the automotive, HVAC, speciality packaging, and battery industries as well as in other niche markets such as transformers and wind turbines.

Automotive

The automotive industry includes all types of vehicles, from light to heavy vehicles and both combustion engine, electric and hybrid electric. Light vehicle production is an important driver of Gränges' sales of heat exchanger materials. An increasing share of electric vehicles is expected to further increase the demand for Gränges' heat exchanger materials.

As aluminium has multiple properties that are in demand in the electric vehicle market, for example low weight and recyclability, the demand for new types of aluminium products, such as battery cathode foil, battery casing and battery cooling plates, is expected to increase. This provides good opportunities for Gränges to deliver new products to a growing end-customer market in addition to the company's traditional products for heat exchanger applications.

Gränges holds a leading position in rolled aluminium materials for brazed heat exchangers with an estimated global market share in the automotive industry of approximately 25 per cent. According to the international research firm S&P Global, global light vehicle production showed a 6 per cent growth during 2022.

HVAC

The HVAC industry includes systems for heating, ventilation and air conditioning in homes, commercial buildings and industrial properties. Market growth is driven by consumer confidence, the general activity within building and construction and energy efficiency requirements. Demand for reduced energy consumption, recyclability and restrictions on coolants is driving improved design of HVAC products resulting in increased demand for Gränges' materials, in particular as a replacement for copper-based solutions.

Gränges delivers materials for both brazed and mechanically assembled aluminium heat exchangers. North America is

Gränges' most important HVAC market and the company holds a leading position in this market. US shipments of HVAC units is a key driver of Gränges' sales. According to the North American trade association AHRI, US shipments of HVAC units increased by 2 per cent in 2022.

Speciality packaging

Aluminium foil provides a complete barrier to light, oxygen, moisture, and bacteria, making it ideal for packaging. Aluminium packaging is extremely versatile and can be used in a wide range of different applications for the food, beverage and pharmaceutical industries. Aluminium is very suitable for packaging as it can withstand great differences in temperature, from freezing to heating, and the material can be recycled and reused an infinite number of times.

Gränges is a major supplier of aluminium foil for food packaging in North America. One example is semi-rigid containers which are among the most flexible of all types of packaging and are widely used for pre-packaged food. Gränges has also a range of products within packaging for the European market. One example is bottle closures, which are made of aluminium sheets and used in the food and beverage industries.

For decades, the use of foil has grown steadily and the demand for Gränges' materials is expected to increase, not least driven by decarbonization and the role of aluminium in reaching climate neutrality.

Battery

The lithium-ion battery industry is experiencing exponential growth, mainly driven by the electrification of the automotive industry. The industry is well developed in Asia, and battery cell producers have during the past years announced new gigafactories in both Europe and North America.

Regional supply chains are under transition, but there is a shortage of battery materials and components in both these regions. Aluminium is an important material in batteries and can be found both inside the cells as battery cathode foil, as casings surrounding the cells, and in the battery modules and boxes. Today, Gränges is a supplier of battery cathode foil and prismatic casing material.

According to S&P Global the battery material market, where Gränges is present, is expected to have a yearly growth of 30 per cent 2021–2025. Investment projects for battery cathode foil are ongoing in Shanghai, China, Finspång, Sweden and Newport, US. Gränges' global operations, long experience from the automotive industry, and strong focus on sustainability creates a strong foundation to establish a leading position in the industry.

Other niches

Examples of other niche markets are transformers, heat exchangers for industrial applications, wind turbines and coil and sheet for general engineering applications. Gränges is a major supplier of winding material for transformers in North America. Thanks to the significant cost and weight advantages of aluminium compared with copper, aluminium plays an important role in the design of electricity networks and large power transformers in that region.

The business unit Gränges Powder Metallurgy creates opportunities for growth in new materials technology in the fast-growing market for powder materials and additive manufacturing.

Gränges Eurasia

2022 was a year with a turbulent macro environment for Gränges Eurasia that contained a war in Ukraine, COVID-19 related lockdowns in China and high global inflationary pressure on external costs. However, due to a strong team performance, Gränges Eurasia limited the sales volume reduction to just below 3 per cent while operating profit increased.

The trend of regionalization of supply chains supported sales during the year and is expected to continue going forward. Important development projects such as battery materials progressed well during 2022 and there is a strong interest for the new products among customers. Although external factors may impact the daily business, Gränges Eurasia will continue executing on its strategy leading to long-term value creation.

Market and sales

Gränges Eurasia experienced volatile market conditions in 2022 with big swings in both geographical regions and end-customer markets. In the first part of the year demand from Automotive was hampered as shortage of semiconductors impacted vehicle production negatively. In addition, the COVID-19 lockdown in Shanghai impacted demand in Asia and production capacity from the Gränges production facility in Shanghai in the second quarter. In this period Gränges Europe demonstrated good flexibility and succeeded to shift volumes to other niches where the demand was high.

In the second half of the year however, the situation shifted. Automotive demand was stable on healthy levels, partly due to the pent-up demand in Asia following the lockdowns. On the other hand, demand in Europe for products to Other niches reduced drastically due to high inventory levels as distributors and stockists had built up significant stock in anticipation of EU implementation of anti-dumping duties against China. For 2022 in total sales volume decreased by 2.6 per cent to 230.4 ktonnes (236.6) and net sales increased by 31 per cent to SEK 12,633 million (9,648).

Operating profit

The adjusted operating profit in 2022 for Gränges Eurasia increased to SEK 448 million (446), corresponding to an adjusted operating profit per tonne of 1.8 kSEK (1.7). Reduced demand for Other niches in the last quarter of the year impacted volumes and margins negatively for Gränges Europe while Gränges Asia enjoyed the pent-up demand from Automotive following the lock-down in the second quarter.

Heartening Polish support to Ukrainian neighbours

The devastating development in Ukraine, since the Russian invasion on February 24, has sent shockwaves globally. Poland, as a neighbour country to Ukraine, has been heavily impacted by the situation and has stepped up tremendously in offering support to its neighbours and opened its borders to millions of Ukrainians in need for a temporary safe place to live. Gränges is extremely proud over its colleagues in Poland who in countless examples have opened their homes for people in need, but also continued to supply its Ukrainian customers even under very challenging and risky conditions.

Extraordinary team effort by Gränges Asia during COVID-19 lockdown

2022 was in general a year where COVID-19 loosened its grip on societies and markets, with China and Shanghai as one big exception. Near the end of March, in the face of a growing COVID-19 outbreak, officials in Shanghai instituted strict lockdown controls which was the start of what would become two months of tight restrictions. Gränges Asia, with its production facility in the

PERFORMANCE SUMMARY

Financial summary, SEK million	2022	2021	Change
Sales volume external, ktonnes	230.4	236.6	-2.6%
Sales volume internal, ktonnes	24.2	26.9	-10.2%
Total volume	254.5	263.5	-3.4%
Total revenue external	11,356	8,627	31.6%
Total revenue internal	1,277	1,021	25.1%
Total net sales	12,633	9,648	30.9%
Adjusted operating profit	448	446	0.6%
Operating profit	441	280	57.4%
Adjusted operating margin, %	3.5	4.6	-1.1ppt
Adjusted operating profit per tonne, kSEK	1.8	1.7	4.1%
Return on capital employed, %	6.0	6.8	-0.8ppt
Sustainability summary	2022	2021	Change
Total Recordable Rate ¹⁾	5.7	6.2	-6.8%
Carbon emissions intensity (scope 1+2), tonnes CO ₂ e/tonne	0.74	0.86	-14.0%
Carbon emissions intensity (scope 3), tonnes CO ₂ e/tonne	10.5	10.4	0.8%
Sourced recycled aluminium, %	20.2	20.0	0.2ppt

1) Number of recordable accidents per million hours worked.

lock-down area, had to find ways to keep the wheels turning under extreme conditions. More than 200 employees volunteered to live and work at the facility to secure operations. The extraordinary team effort limited sales volume reduction to only 4 ktonnes and no customers run out of supply. This achievement, and sacrifice by many colleagues, is well recognized and appreciated in Gränges. It is the ultimate proof of a strong and committed team (for further information see case story on page 24).

Continued inflationary pressure

During the complete year of 2022, costs for freight, energy, aluminium and alloying metals has been at high historical levels. Increasing energy prices that accelerated after the Russian invasion of Ukraine impacted primarily Gränges Europe due to the high dependency on the European energy market. Gränges Europe managed to offset the majority of inflationary cost increases by raising prices to customers and improving the mix and cost. These efforts will continue into 2023.

Strengthened trend towards regionalization of supply chains

The trend of increasing regionalization of global supply chain has been strengthened primarily in Europe during 2022, which in the long term will drive increased demand for Gränges production in Europe. The trend is driven by sustainability, global freight congestion and trade limitation. During 2022 the European Commission removed the suspension of anti-dumping duty for aluminium produced in China, which together with the war in Ukraine, is expected to further drive the development towards regionalization.

Strong customer interest in battery products

The efforts to increase presence within battery materials for electric vehicles is progressing according to plan. Customer interest in Gränges' capabilities in battery products is very high. The investment programs for increasing production capacity of battery cathode foil in Shanghai and Finspång are progressing well and commercial deliveries of battery cathode foil has started in Asia. Deliveries from Finspång is expected to start in 2023.

Fire in Konin

On 13 May 2022, there was a fire in a cold rolling mill under commissioning in the Konin facility. There were no injuries, however, production equipment was damaged for which there is insurance coverage. A decision on how to rebuild the damaged mill has not yet been made. In the meantime, the Konin facility will continue to operate with the existing cold rolling mills.

Progress towards 2025 sustainability targets

During 2022, the production sites in Finspång, Konin and Shanghai continued to make progress towards the 2025 sustainability targets. The capacity for aluminium recycling was expanded during 2022, mainly in the Shanghai facility where the share of recycled aluminium was increased with 5 percentage points compared to last year. Further, the facility in Konin sourced renewable electricity which had a positive effect on scope 1+2 emissions. Also, Konin has, as the last facility in Gränges Eurasia, prepared for ASI certifications and is expected to achieve certification in 2023.

Ongoing investments

- Capabilities for battery foil, Finspång
- Capacity expansion, Konin



Gränges Americas

Gränges Americas delivered a record profit during 2022 supported by strong market positions. Despite the challenging environment, with inflationary pressure and high employee turnover, Gränges Americas managed to keep focus on long-term value creation with continued investments in sustainable facilities taking advantage of the strong macro trends – regionalized supply chains and sustainability.

Market and sales

Gränges Americas experienced a continued strong market situation in 2022. The underlying demand for HVAC products, speciality packaging and other niche products was strong during the year, whereas demand from automotive continued to be affected by supply chain issues. Volume was limited by Gränges Americas limitation on capacity, partly driven by reduced production from the Salisbury facility, partly compensated by increased production from the Huntingdon and Newport facilities. Gränges Americas operates its facilities on a continuous shift pattern 350 days a year, 7 days a week, 24 hours a day. The remaining 15 days are used for annual preventative maintenance activities. In total, sales volume in 2022 decreased by 1.4 per cent to 248.9 ktonnes (252.4) and net sales increased by 38 per cent to SEK 13,115 million (9,488), constituting a record for a calendar year.

Record operating profit

The adjusted operating profit for 2022 increased by 21.4 per cent to SEK 795 million (655), corresponding to an adjusted operating profit per tonne of 3.2 kSEK (2.6). The improvement was driven by higher prices, whereas operating costs rose due to increased inflationary pressure as well as reduced output from the Salisbury facility. Gränges Americas continued to optimize product mix to achieve higher prices and the syncing of commercial and operational priorities continued to have a positive impact on margins.

Navigating a challenging operational environment and focus on safety

Some of the major challenges during the year included an ongoing challenging labour market which led to high employee turnover, in combination with a high inflationary cost environment.

Nevertheless, Gränges Americas delivered a steady volume and a record year in terms of operating profit, while building an even stronger position for the future. In addition, employee turnover was reduced by 20 per cent. During the year, a tragic fatal accident occurred in the Salisbury facility, which led to a temporary shutdown of the facility and reduced output in the second half of the year. Following the accident, intense work has been undertaken, using inside and external resources to develop Gränges Americas into an industry-leading safety performer in the future.

Well positioned for regionalized supply chains

During the past years, Gränges Americas has invested heavily to modernize its production facilities and to expand capacity and capabilities. These investments will ensure that Gränges Americas maintains its leading position with capable and efficient plants. The demand for Gränges' products during 2022 was however higher than available capacity. The high demand was partly due to customers' regionalizing global supply chains to mitigate risk and avoid import tariffs. This trend is expected to continue into 2023 and beyond. Gränges, with its global production footprint, is well positioned to benefit from increased regionalization.

Following the ramp-up of the new casting line at the Huntingdon facility in the end of 2022, casting capacity will be increased by approximately 25 ktonnes. Additional investments have been announced, including additional casting capacity in Huntingdon as well as investment in finishing and clean room equipment for the production of battery cathode foil at the Newport facility. These investments are expected to start up in 2024.

PERFORMANCE SUMMARY

Financial summary, SEK million	2022	2021	Change
Sales volume external, ktonnes	248.9	252.4	-1.4%
Sales volume internal, ktonnes	–	–	–
Total volume	248.9	252.4	-1.4%
Total revenue external	13,136	9,502	38.2%
Total revenue internal	-21	-14	n/a
Total net sales	13,115	9,488	38.2%
Adjusted operating profit	795	655	21.4%
Operating profit	782	691	13.1%
Adjusted operating margin, %	6.1	6.9	-0.8ppt
Adjusted operating profit per tonne, kSEK	3.2	2.6	23.0%
Return on capital employed, %	15.1	16.9	-1.8ppt
Sustainability summary	2022	2021	Change
Total Recordable Rate ¹⁾	10.7	7.3	47.6%
Carbon emissions intensity (scope 1+2), tonnes CO ₂ e/tonne	0.91	0.90	1.2%
Carbon emissions intensity (scope 3), tonnes CO ₂ e/tonne	5.3	6.1	-13.5%
Sourced recycled aluminium, %	48.3	39.0	9.3ppt

1) Number of recordable accidents per million hours worked.

Ongoing progress in sustainability

In 2022, Gränges Americas continued to expand the sourcing and use of recycled aluminium, both in collaboration with scrap processing companies and through closed-loop customer programmes where Gränges takes back scrap from customers' manufacturing processes. The volume of sourced recycled aluminium reached 111.1 ktonnes or 48.3 percent of total sourced metal inputs. This led to a reduced carbon intensity from sourced metal inputs (scope 3) by 13 per cent versus 2021 and 35 per cent versus baseline 2017. Gränges Americas also continued its sustainability certification programme where the site in Salisbury achieved ISO 50001 certification and Newport was certified in accordance with the ISO 14001 standard. Gränges Americas has also certified all three facilities and the corporate office in Franklin according to the Aluminium Stewardship Initiative (ASI) Performance Standard and Chain of Custody Standard. In addition, Huntingdon and Salisbury implemented a third-party verified life-cycle and carbon footprint assessment tool enabling declaration of environmental impacts on product level.

Ongoing investments

- Capabilities for battery foil, Newport
- Recycling and casting centre, Huntingdon

+21%

increase in adjusted
operating profit

