



SIGMA

LEADING THERMAL MANAGEMENT SOLUTIONS



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Joshua Pitcher
SIGMA MID Group Manager
Knorr-Bremse Australia Pty Ltd

Foreword

Dear Readers,

Across the globe, the Knorr-Bremse Group and brand are recognized as a benchmark of excellence; renowned for reliability, innovation, and leadership in delivering best-in-class solutions.

Through the synergy and capabilities of SIGMA, Knorr-Bremse, and our valued local channel partners, we are proud to align under a unified 'One Brand' strategy. As part of this alignment, we are pleased to announce the renewal of the SIGMA brand reinforcing our position in **Leading Thermal Management Solutions**.

Over the past 70 years, SIGMA has grown from its humble beginnings from engineering the most durable mobile HVAC systems for demanding mining, industrial, and defense applications, to a leader in thermal management solutions for mission-critical equipment and beyond.

Our mission remains clear: **To engineer thermal management solutions in collaboration with our partners and deliver sustainable, class-leading heating and cooling systems.**

We look forward to engaging in meaningful discussions and creating value for our stakeholders, with sustainability and cutting-edge technology at the core of our commitment to **Leading Thermal Management Solutions**.



Our Mission, Vision & Values

LEADING THERMAL MANAGEMENT SOLUTIONS

We aim to make a positive contribution to sustainability and efficiency on mines, industry and defence – both for our customers and our environment. Every day. All over the world.

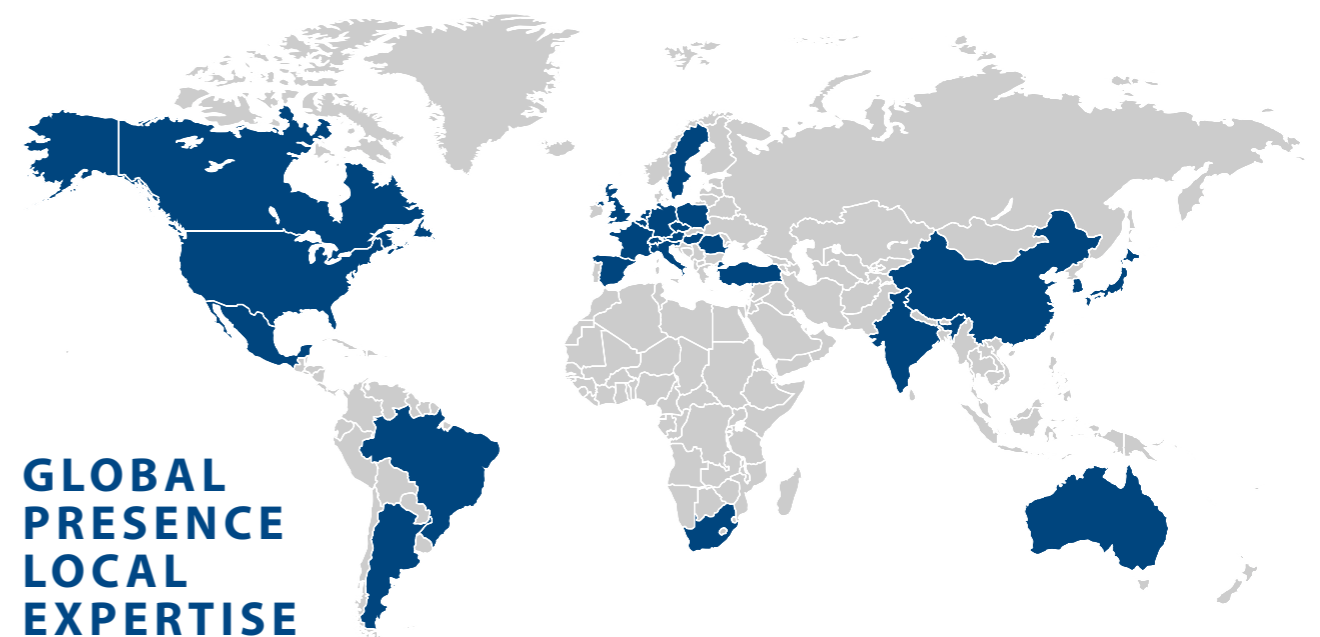
Our Mission

To engineer thermal management solutions in collaboration with our partners and deliver sustainable class-leading heating & cooling solutions

Sigma Air Conditioning a division of the Knorr-Bremse Group, based in Munich Germany, the world's leading provider of system solutions for rail and commercial vehicles.

Designed & engineered in Australia for global deployment. With over 65 years of experience in specialised HVAC solution, we develop and design bespoke Heavy Duty Thermal Management Systems for the Mining, Industrial, Defence and Track maintenance markets and an OEM supplier to global brands.

From custom designs to providing Installation & maintenance services, we are Driven to Create the Best Solutions.



OUR INDUSTRIES

MINING

INDUSTRIAL

DEFENCE

OVERVIEW

SIGMA AIR
CONDITIONING

MINING SOLUTIONS

SIGMA mining equipment is designed to the highest of industry standards to suit the harshest of mining conditions. Designed and engineered for production critical machines to withstand extreme ambient temperatures, punishing shock & vibration loads and dust saturated atmospheres.

INDUSTRIAL SOLUTION

The SIGMA range of industrial air conditioning equipment is specifically designed to operate in dust laden corrosive atmospheres and very high ambient temperatures of up to 65°C (149°F). Environments include aluminium smelters, refinery operated cabins, earthmoving equipment, ports, construction, cranes, switch rooms and other production critical industrial equipment.

DEFENCE SOLUTION

The SIGMA brand comprises a complete range of bespoke air conditioning solution, with a product to suit specific defence projects and application. SIGMA offer unique equipment to suit both static and mobile applications for protected mobility and deployable health shelters with the defence industry

TRACK MAINTENANCE

Drivers' comfort and safety is an important aspect to ensure the safe operation of rolling stock networks globally. SIGMA's track maintenance and locomotive driver's cab air conditioning systems and HEPA filtration have been designed to operate in some of the harshest conditions around the world, where outside temperatures exceed 50°C.

Thermal Management Solutions



SPLIT & PACKAGE SYSTEM

Complete HVAC units and split systems to suit a wide variety of application

- Industry leading standard features
- Easy installation
- Robust ecosystem with optional upgrades



INTEGRATED SYSTEM

Custom designed & built to suit specific OE vehicles

- Seamless integration
- Customisable cooling/heating, voltage & material type



DC HVAC TECHNOLOGY

Latest Thermal Management technology

- Idle free system
- Decoupling HVAC from the engine
- Batteries thermal management systems
- Data monitoring/downloads



FRESH AIR FILTRATION

Filtration system to ensure consistent supply for fresh air for operator safety & comfort

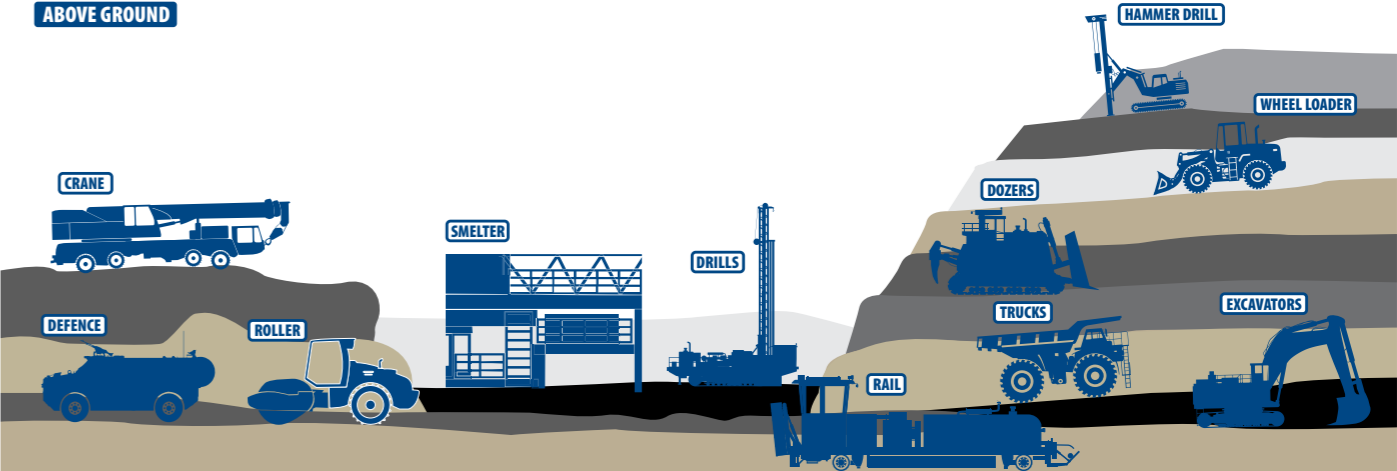
- MERV 15
- HEPA filter



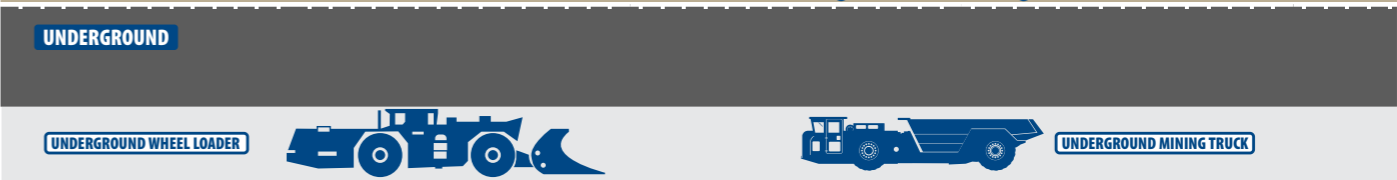
SPARE PARTS

Vehicle Applications

ABOVE GROUND



UNDERGROUND



VEHICLES	DRAGLINE & SHOVEL	DRILL	EXCAVATOR	DOZER	TRUCK	WHEEL LOADER	CONSTRUCTION	UNDERGROUND EQUIPMENT	INDUSTRIAL	SMELTERS	RAIL SPECIAL VEHICLES	DEFENCE
STANDARD/ENDURANCE AIR FILTRATION	●	●	●	●	●	●	●	●	●	●	●	●
HEPA FRESH AIR FILTRATION	●	●	●	●	●	●	●	●	●	●	●	●
SPLIT & PACKAGE SYSTEM	●	●	●	●	●	●	●	●	●	●	●	●
INTEGRATED SYSTEM		●	●		●				●			●
DC HVAC TECHNOLOGY				●	●							

KEEPING OPERATORS SAFE

Our aim is to provide high quality filtered fresh air into the cabin to help reduce exposure to harmful particulates and gasses. Provide positive pressure inside the cabin, allowing filtered air to leak out through minor gaps in the door seal and reduce the risk of dust ingress into the cabin

High capacity HEPA filters and pressurisers designed using heavy-duty steel construction that are suitable for production critical mobile fleets.

Class leading cabin monitoring, to ensure operators are kept safe, with minimum pressure limits and maximum CO2 limits observed.

BREATHE EASIER WITH THE SIGMA HEPA FILTER

The Workplace Health & Safety (WHS) and Mine Safety & Health Administration (MSHA) solution for dust saturated atmospheres and harmful toxic working environments.

Ensuring cabin air is safe to breathe and free from airborne contaminants including pesticide, asbestos, silica dust, fine coal dust and diesel particulate matter. We provide the tools to help end-users comply with ISO 23875 in a complying cabin.

HEPA filter, pressuriser, monitoring solutions for underground and surface mining applications





DRIVEN TO CREATE THE BEST SOLUTIONS

“We want to be the global driving force behind innovative and sustainable system solutions that make mobility and freight transportation safer, more reliable and more efficient. We ourselves are driven by the desire to add value for our customers while also making a positive contribution to society.”

Knorr-Bremse has pursued a single mission for over 110 years: to make mobility on roads and railways safe, sustainable and environmentally friendly. Today the Knorr-Bremse Group, based in Munich, is the world's leading manufacturer of braking systems and a leading supplier of safety-critical sub-systems for rail and commercial vehicles.

OUR DIVISIONS

Rail Vehicle Systems division

In our Rail Vehicle Systems division we equip mass transit vehicles such as metro cars and light rail vehicles, as well as freight trains, locomotives, long-distance passenger trains and high-speed trains, with highly advanced products. Along with braking systems these include intelligent entrance systems, HVAC systems, auxiliary power supply systems, control components and windscreen wiper systems, platform screen doors, friction material, driver assistance systems, electrical traction equipment and control technology.

Sophisticated interplay: mechanics and electronics:

When creating our system solutions, we draw on our unrivalled command of the complex interplay between electronic and mechanical components.

Tried-and-tested combination: reliability and sustainability:

As a family firm with a pool of expertise acquired over more than 110 years, we stand for reliability and sustainability in our mindset and our activities – and we spare no effort to keep our promises.

Innovative solutions: local presence and global connections:

Innovations drive Knorr-Bremse forward. When we innovate, we draw upon an in-depth understanding of market needs and customer requirements, applying a blend of local knowledge, responsible management and the expertise of a global high-tech player.

Crucial basis: outstanding employees pave the way to success:

Our success is founded on motivated, dedicated and highly focused employees, which is why we also invest in their development.

Commercial Vehicle Systems division

The Commercial Vehicle Systems division offers its customers braking systems for trucks, buses, trailers and agricultural machinery. In the chassis systems sector, Knorr-Bremse is a leading player in electronic control, driver assistance and air supply systems. Other product fields include steering systems, powertrain-related systems and torsional vibration dampers for diesel engines.

SERVICE & SPARE PARTS SUPPORT

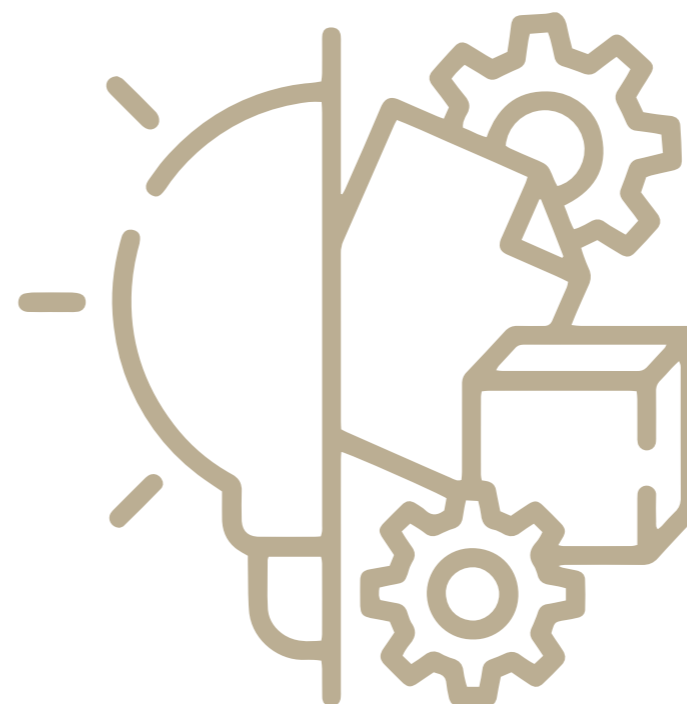
SIGMA's Customer Support Group recognises the need for total product support and all service and spare parts facilities are geared to provide this support. Close co-operation with equipment suppliers and end users is of paramount importance; such that all equipment-running requirements are strictly compliant at all time.

TRAINING

SIGMA provides customer service schools and training programmes. These programmes are structured to acquaint customer service personnel with the basic features, installation, operating and service of SIGMA equipment.

QUALITY ASSURANCE

- ISO 9001:2015 certified company
- RIS Certification ISO/TS 22163:2017



OVERVIEW

SIGMA AIR
CONDITIONING



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**SIGMA****KNORR-BREMSE****NEW YORK AIR BRAKE****IFE****MERAK****MICROELETTRICA****SELECTRON****KIEPE ELECTRIC****EVAC****ZELISKO****RAILSERVICES**
