



MINING & TUNNELLING

Cavotec wants to contribute to a future world that is cleaner, safer and more efficient by providing innovative connection solutions for ships, aircraft and mobile equipment today.



Our Markets

Ports & Maritime

Electrification and automation from berthing to shipping.

Cavotec develops and manufactures innovative automation and electrification technologies for the global ports and maritime sectors.

We continually innovate and develop our technologies to ensure that we deliver the levels of operational performance, safety and sustainability that our customers demand at all types of ports and terminals.

Cavotec is the global leader in automated mooring, shore power, crane electrification, connection and charging systems.

Airports

Powering, cooling and fuelling aircraft.

Cavotec is a leading Ground Support Equipment (GSE) specialist, developing state-of-the-art systems for gates, remote aprons and Maintenance Repair & Overhaul (MRO) hangars for commercial and military applications.

Cavotec's comprehensive range of systems includes 400Hz and 28VDC Ground Power Units (GPU), Pre-Conditioned Air (PCA) systems, wet services and fuel systems integrated under passenger boarding bridges (PBB), as well as in-ground and tunnel systems.

Industry & Mining

Connecting, powering and controlling industry and mining equipment.

Cavotec develops technologies that drive productivity and contribute to customers' operational efficiency. We improve existing systems, and bring new technologies to the market to meet the cost and operational challenges our customers face. We support customers in a wide variety of industrial sectors, such as cranes, energy, processing and transportation, surface and underground mining, and tunnelling.

Our solutions for the Industry & Mining sector include motorised cable and hose reels, Human Operator Interface (HOI) systems, Radio Remote Controls (RRC), power connectors, slip rings and spring driven cables and hose reels.

MINING & TUNNELLING

Cavotec designs and manufactures power, control and connection solutions that ensure safe, efficient and sustainable mining and tunnelling operations.



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Who works with us:

- Agnico-Eagle
- Boliden
- CRCC
- Deilmann Haniel
- Herrenknecht AG
- Perforator
- NFM
- Normet Group
- Rambooms Oy
- Robbins Company

Mining companies

- BHP Billiton Ltd.
- Codelco
- Pilbara Minerals
- Rio Tinto Group
- Vale S.A.

Equipment suppliers

- Aumund Group
- Caterpillar Inc.
- Epiroc
- FAM
- FLSmidth
- Komatsu
- Metso
- Tenova TAKRAF GmbH
- ThyssenKrupp AG
- Sandvik



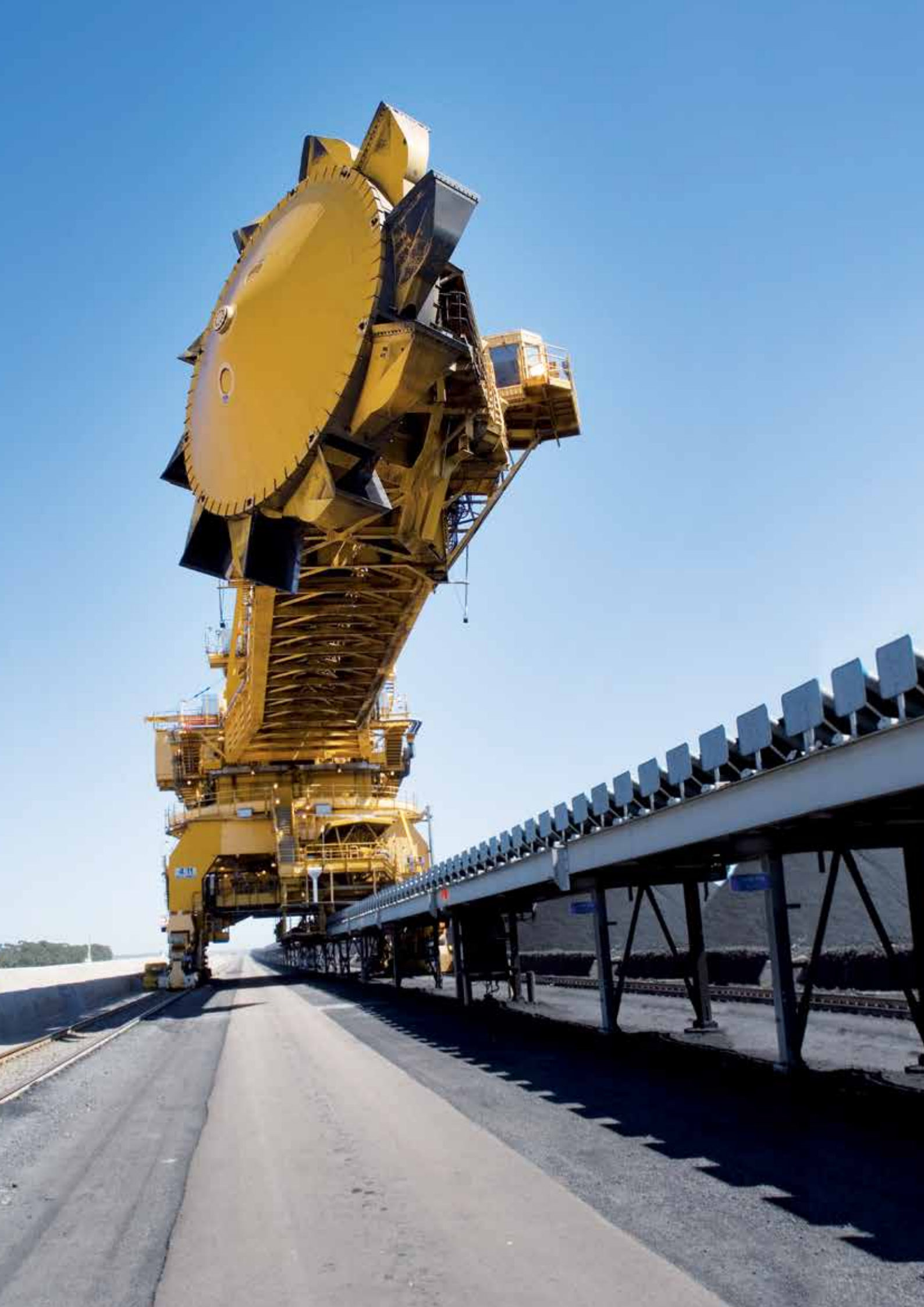
APPLICATIONS

Cavotec supports customers in a variety of mining applications, such as tunnelling, underground and surface mining, with a wide range of offers for powering, controlling and connecting equipment.

With decades of experience in this sector, we partner with clients right from the design stage of projects, to engineer solutions that match specific requirements and challenges.

Benefits of working with Cavotec

- One-stop-shop system offering to connect, electrify and automate all mobile underground mining and tunnelling equipment.
- Tailor-made solutions to match specific demands of applications, including ATEX.
- Proven systems that operate in the harshest of environments.
- Unrivalled engineering experience.
- Innovative solutions and design.
- Customer service excellence.





Tunnelling

Underground technologies are essential in many infrastructure projects. Cavotec's historical presence in underground mining has enabled us to engineer tunnelling equipment capable of working continuously and safely in the most demanding of environments.

Cavotec products ensure the reliable and safe powering of Micro-Tunnel Boring Machines (MTBM) and Tunnel Boring Machines (TBM). Our equipment supports construction methods that minimise environmental impact and cause zero disruption to operations as there is no requirement to dig trenches.

Cavotec's broad product range is versatile and adapted to specific needs. We engineer and manufacture innovative, robust and compact solutions that help the tunnelling industry to meet safety requirements, and enable personnel to work in more comfortable, ergonomic surroundings.

Our global footprint enables us to support clients from the engineering stage, through project execution, commissioning and beyond with strong after sales service capabilities.



Our customers include:

Herrenknecht, Robbins, SELI, NFM, LNSS, CREC, Tianhe, Shanghai Shike, mts perforator and others.



Underground mining

Face drilling, rock drilling and charging are critical operations for underground mining. Cavotec system solutions are engineered for sustainable productivity and safe continuous operations in the harshest environments.

Our advanced, reliable solutions are recognised by equipment manufacturers worldwide for making underground mines safe for drilling operations.

Hard rock mining, underground rock bolting, scaler and concrete spraying, long haul dumping and coal mining are examples of applications that benefit from Cavotec equipment. Our technologies create better working environments and reduce OPEX. They are also often engineered to meet specific customer requirements.



Our customers include:

Agnico-Eagle, Boliden, Caterpillar Mining, CRCC, Epiroc, Komatsu, Normet, Rambooms, Sandvik.



Surface mining

Cavotec's electrical power and control solutions are integrated into surface mining machines such as blast hole drills, track drills and electric rope shovels.

Mining draglines

Cavotec supplies HOI and wireless RRC, spring reels, power units, connectors and cables for use with draglines.

Our expertise in medium and high voltage power transmission has enabled us to engineer electrical systems that ensure safe connection to high voltage power at voltages of between 6.6 and 30kV.

Bucket wheel excavators, spreaders, mobile conveyor bridges

Bucket wheel excavators, spreaders and conveyor bridges on crawlers can also be equipped with Cavotec wireless RRCs, motorised cable and hose reels, spring reels, power units and connectors, cables and operator cabins.

Bulk material handling, yard equipment

Bulk processing and transportation is an area where Cavotec solutions minimise delays and prevent incidents that impact operational safety.

Cavotec equipment supports the streamlining of bulk material handling. It reduces bottlenecks and improves mine security and worker safety. Whether integrated onto stacker-reclaimers, bucket wheels or circular reclaimers, we ensure that our clients' minerals are shipped as efficiently and cost effectively as possible.

Crushers, conveyors and inland transportation by trains are also standard practices where Cavotec systems also improve equipment service life and reduce downtime for crushers, conveyors and train transportation applications.



Our customers include:

FAM, ThyssenKrupp Industrial Solutions, FLSmidth, Tenova Takraf, Schade Lagertechnik, Bedeschi, DHHI, BHP Billiton, FMG, Rio Tinto, ISGEC and others.





POWER SOLUTIONS

Cavotec powers a broad range of mobile equipment operating in underground and open pit mining, and tunnelling applications, including TBM, face drilling machines, stacker-reclaimers and electric rope shovels. Our solutions ensure the safe and reliable transmission of power.



Motorised cable and hose reels

Cavotec supports customers from design to commissioning of motorised reels ready for use in the harshest operating and ambient conditions.

We manufacture motorised reels for horizontal, vertical, continuous and intermittent use. We provide tailored solutions for LV or MV applications, with or without fibre optics, for various applications.

Benefits of Cavotec motorised reels

In-house engineering

In-house engineering and integration of products according to specific application and operational requirements. Designed and built for intermittent, (patented hydrodynamic system), and continuous, (Cavotec T-series gearboxes), use.

Complete, compact design

Monospiral, random lay, parallel lay and Pull & Store configurations, for use with several drive systems and standard motors for low maintenance costs and effective system integration.

Engineering capabilities

Engineering capabilities to design the largest drums, (currently 9.2m radius), for the fastest speeds, (300m/min), in the harshest of environments, (offshore, nuclear, underground mining).





Spring cable and hose reels

Cavotec spring driven cable and hose reels guarantee reliability even in the most difficult and demanding applications.

Our spring loaded reels are fully assembled, tested and ready to be installed in a short amount of time. Equipped with two totally sealed bearings which are lubricated for life, Cavotec spring driven reels are built with slip rings that are entirely sealed and fully separated from mechanical parts ensuring a longer life cycle.

Engineered and manufactured in Germany, based on standard and custom designs, Cavotec spring-driven reels offer a reliable self-retracting system for industrial cranes, stage technology, material handling, industrial automation and transportation.

Benefits of Cavotec spring reels

Easy adaptation

The cable feeding point can be placed on either side of the drum allowing for easy adaptation for horizontal and vertical applications.

Minimised friction

Cavotec spring units are made from high-grade special steel and are mounted inside a housing to minimise friction and wear.

Most complete line

Stationary or mobile applications, horizontal or vertical movement, from 150 to 2500N tension, standard or customised.

Reduced maintenance costs

Innovative modular design ensuring single parts replacement for a reduced maintenance cost and faster trouble shooting.

Fast and efficient exchange of springs

Each unit features a well dimensioned shaft and bearings which enable the fast and efficient exchange of springs whenever required.

IEC standards and eu requirements

Every unit meets all applicable IEC norms and standards and follows the latest EU requirements (CE-marking). All reels and slip rings have a protection grade of IP65/66.



Slip ring columns

Cavotec's range of slip ring columns are used in a wide variety of applications, and are continually adapted and developed to meet market requirements.

In addition to standard models, a range of special models is also available.



Cables

To provide customers with turnkey electrical connection cable management systems, Cavotec has partnered with selected leading cable manufacturers who share the Group's commitment to quality and customer service.

We engineer comprehensive solutions that meet electrical and mechanical requirements in all types of ambient conditions. Cavotec supplies a wide range of flexible cables from standard to advanced power and signal cables, including special configurations adapted to specific requirements:

- Specialised products that can guarantee high traveling speed and acceleration under the harshest environments and dynamic stress.
- Medium and low voltage cables in rubber or PUR.
- Power or control cables with or without fibre optic.
- Up to Class 6 copper, and based on international standards.





CONTROL SOLUTIONS

Cavotec enables remote controlled, tele-operation and semi-autonomous operation by integrating multiple human operator devices such as our wireless Radio Remote Control (RRC) and video systems. Operators are able to work at safe distances from the machinery that they are operating, and away from hazardous areas.



HOI – Video System

Cavotec manufactures advanced HOI video systems that enable remote controlled, tele-operation and semi-autonomous operation. Designed for the harshest of environments, our HOI systems are used with a broad range of equipment including rock breakers, construction and demolition machines, underground scoops and continuous loaders, terminal cranes and at offshore applications. Cavotec HOI systems are design-based on our high-end and robust Radio-remote controls capable of working under the harshest environment including ATEX zones.

Benefits of Cavotec HOI Systems

- Increased safety by removing operators from hazardous areas.
- Improved working environment for operators.
- Additional visual features to reduce risk of incidents.
- Improved productivity with safer and faster movement of materials.
- Improved operation accuracy to reduce downtime and maintenance.
- Real-time process monitoring and data storage on remote displays and control rooms.
- Visual and audio features supporting operators to react to problems in real time.

HOI Devices

RRC

Our RRC systems are available in a wide variety of terminal designs and receiver options, ranging from hand-held solutions, to full belly packs with colour display screens and receivers. These work as stand-alone mini-PLC to fully PLC-integrated solutions. Cavotec RRC comply with all relevant international standards, including IEC 61508, (SIL3) and EN13849, (Cat3 PL d and Ple).

Integrated operating centres

We integrate several types of operating centres:

- Ergonomic control desk and chair: pre-wired and equipped with monitors.
- Cabins: complete cabin with integration of the control chair, joysticks, RRC, monitors.
- Containerised office: complete container equipped with all control desks and chairs, video and air-conditioning.

Visualisation devices

Our HOI systems are readily integrated with real-time video and audible feedback through the use of industrial tablets and monitors. These are sealed to IP66, and are fully HD1080P-compliant.

Cameras

All our cameras are designed for use in industrial environments. They are available in analogue and digital versions, with long service life and high shock and vibration resistance.

Communication protocols

Our systems include the following communication protocols specifications: Wireless LAN, Wireless Real-Time, Ethernet TCP/IP and fibre optics.





CONNECTION SOLUTIONS

Cavotec plugs and power units offer extensive configurations, custom capabilities and numerous interlocked designs that are widely used in several mining and tunnelling applications and are certified to ISO9001 and ISO14001.



Our solutions ensure plug-in and connection of mobile electrical equipment in the most adverse conditions.

Benefits of Cavotec plugs and Power Units

One stop-shop system

One stop-shop system with integrated power connectors and power units, pre-assembled and tested with other systems such as cable reels.

Safe and ergonomic

Safe and ergonomic with Cavotec Push & Pull sockets. Ex and Non-Ex standards.

Durable and reliable

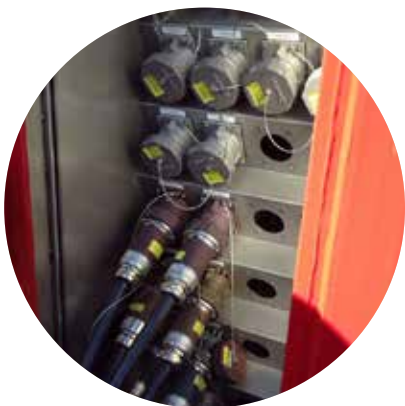
Durable and reliable solutions with hot-dipped galvanised or stainless steel AISI316 and MWT (Multi-Way Technology).

Heavy duty

Heavy duty design for longer maintenance cycle.

High safety standards

Design-based on high safety standards - IEC 60947, IEC 62271, IEC 60204, SS-EN_61439.



Plugs and sockets

Cavotec plugs and sockets are designed for safe and frequent connection and disconnection. They incorporate ergonomic push & pull handles, bayonets, and Eye-bolt or screw ring functionality. Cavotec connectors are also readily integrated with fibre optic assemblies.

Power Units

Cavotec Power Units are designed for easy use in harsh conditions over many years with minimal downtime or service requirements. Only high quality components are used and all units are equipped with Cavotec Push & Pull sockets that allow safe and simple connection.

After-sales service

Cavotec's Services division helps customers to maximise the availability of their assets, reduce operating costs and extend equipment lifespan.



With 70 service experts in more than 30 countries, Cavotec supports customers with a range of service offerings, including:

- inspection, training and preventive maintenance
- spare parts
- repair and replacement
- equipment renovation and upgrades

Furthermore, four service level agreements have been developed to support the maintenance of the 18,000 Cavotec units currently in service worldwide:

- Cavotec Care
- Cavotec Care Enhanced
- Cavotec Care Enhanced Plus
- Total Cavotec Care



We are present in:

Australia	Germany	New Zealand	Switzerland
China	Hong Kong	Norway	Turkey
Denmark	India	Singapore	UAE
Finland	Italy	Spain	UK
France	The Netherlands	Sweden	USA



cavotec.com

Disclaimer: specifications are subject to change without notice.