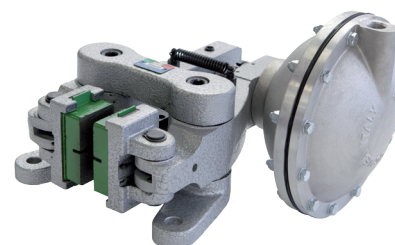
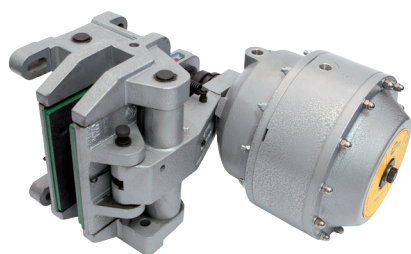
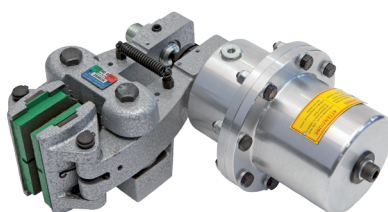


Hydraulic and Pneumatic Caliper Brakes



Coremo Ocmea draws on its long tradition in the manufacture of brakes and clutches for industrial, marine, oil & gas, energy and entertainment sector applications to look firmly to the future, to the realisation of services with a high degree of customisation: structured projects including products, technical support, maintenance and consulting.

Special anti-corrosion treatments, epoxy paints and the use of carbon steels that provide high strength even in the coldest temperatures have also opened the market to the most extreme applications, especially in the oil & gas (both on-shore and off-shore), shipping and energy sectors.



Top of the range
Coremo ID3000 N

Coremo Ocmea products range

The vast range of Coremo brakes - which includes pneumatic and hydraulic brakes - clutches and radial units, is suitable for a variety of industrial applications, from the marine and shipping sector to mining, through to renewable energy, the entertainment industry and textiles. Design is particularly meticulous, while the reliability of the production process is equally impressive.

The Coremo Ocmea engineers develop technical solutions that meet the most innovative industrial requirements in compliance with environmental regulations, considering the mechanical and thermal parameters to which brakes may be subjected.

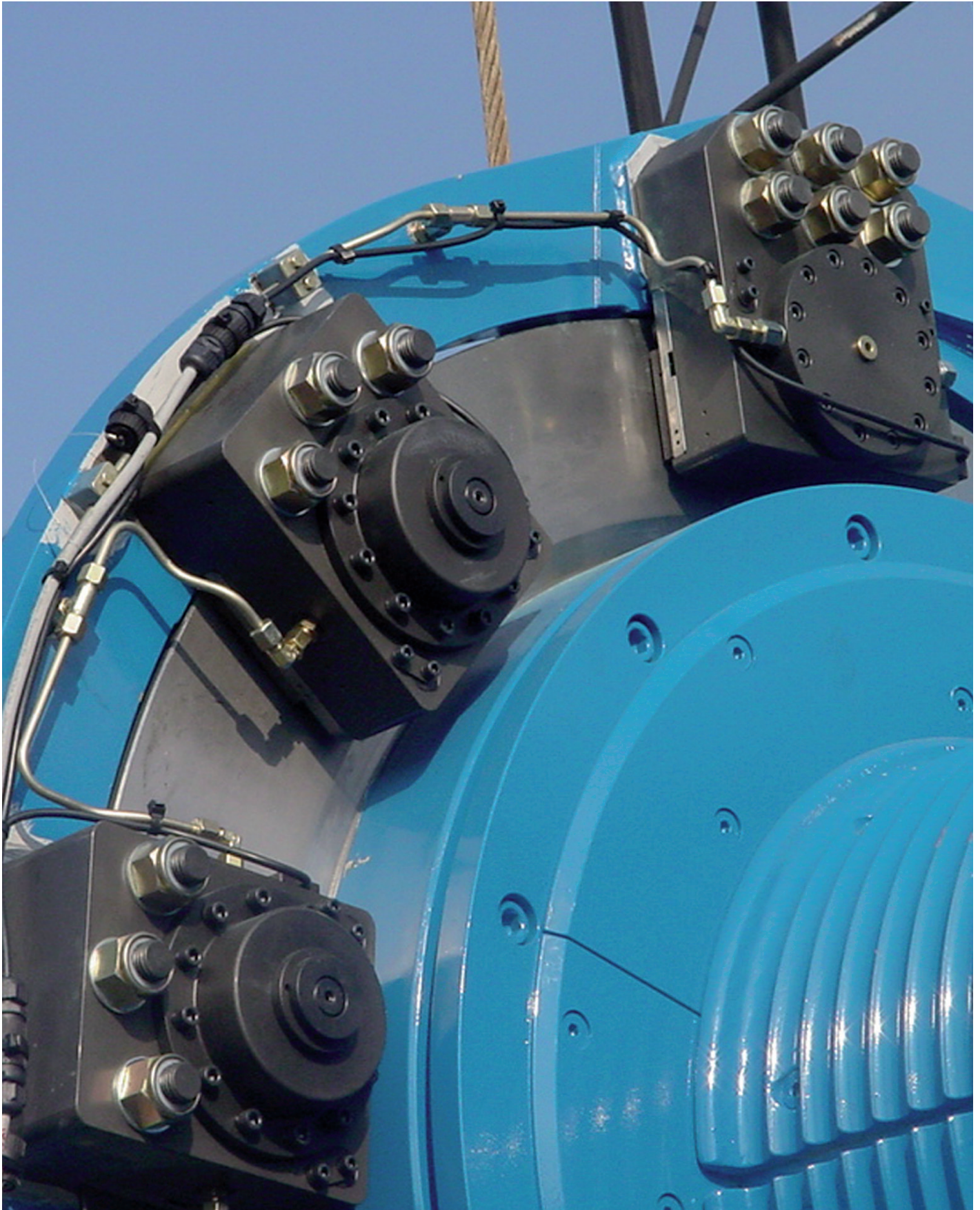
In this phase, close cooperation with the customer is crucial. Through clear communication, accurate preparation of data and the transfer of information concerning individual requirements, selection of the appropriate unit can be assured. Coremo Ocmea has always supported and encouraged this invaluable input from the customer, the basis for a fruitful cooperation, leading to choice of the most suitable product.

Reliable and versatile

The company supplies a complete range of hydraulic brakes able to deal with the most difficult conditions, such as those in which on- and off-shore installations operate, including temperatures over 60°C or below 40°C, extreme geographical locations, oxidation of ferrous materials, and the presence of gases and hydrocarbons which increase the danger level of the workplace and the explosion risk.

The top of the range: the Coremo ID3000 N

The jewel in the company's crown is the Coremo ID3000 N spring-applied hydraulic brake, which delivers a maximum clamping force of 270 kN with release pressure of 150 bar. The gaskets chosen make it reliable and durable, minimising the risk of oil leaks. Maintenance is simple, with no need to remove the unit from its installation position. The quality of the materials used is high, and together with the protective treatment it enables the brake to operate with lower corrosion risks, even in aggressive environments.



1500HP on-shore drawwork,
fitted with 4 Hydraulic brakes ID2000 for tensioning + 4 Hydraulic Brakes ID2000 N for stopping/holding



Providers

The choice of suppliers for every component complies with strict design specifications, and prior to selection they undergo audits of their certification with regard to machining allowance precision, surface finishes, and the mechanical strength and thermal resistance of the materials used.

Lots are constantly controlled by means of random inspections, for guaranteed quality control. What's more, independent research centres perform regular checks on mechanical and thermal characteristics to verify compliance with suppliers' declared values. In general, all Coremo hydraulic and pneumatic brakes are continually monitored from the raw material right through to machining and assembly. Testing and inspection provide the customer with full guarantees of trouble-free service in the specified application and environmental conditions.



Hydraulic and Pneumatic Caliper Brakes

Hydraulic Brakes

The know-how acquired in more than 50 years' experience and the use of 2D and 3D CAD technologies in design assure solutions consistent with the market's specific demands, thanks also to each product family's different clamping force ranges. Coremo hydraulic brakes are also available in caliper and direct versions, both in oil-applied and spring-applied types. As the names indicate, oil-applied brakes are operated by the action of the hydraulic oil, while the spring-applied type are operated by the action of their springs.

The appropriate brake must be selected on the basis of the mechanical size required and the application's thermal and operational conditions, depending on the customer's specific requirements.

Hydraulic caliper brakes

Coremo oil-applied caliper brakes use the lever principle to generate the clamping force, which is applied to the brake disc in proportion to the oil pressure.

The certified, tested and inspected SG iron levers are designed to withstand the stresses during dynamic braking, while the steel thruster is calculated to support pressures of over 100 [bar]. The lining pads are produced using materials compliant with the relevant European standards on safety and toxic substances. Oil-applied caliper brakes can be supplied complete with wear indicator and electromechanical ON/OFF position indicator. Operating temperature vary from -20 [°C] to +200 [°C] and must be assessed in relation to the type of application.

In Coremo spring-applied hydraulic caliper brakes, the forces are produced by the action of the springs installed inside the thruster. The levers are in SG iron and are certified, tested and inspected to withstand the stresses generated during dynamic braking. The thruster is in steel to withstand pressures over 100 [bar], while the friction material of the lining

pads complies with the provisions of the relevant European standards on safety and toxic substances. On request, spring-applied hydraulic caliper brakes can be fitted with a wear indicator and an electromechanical ON/OFF opening and closure indicator. Operating temperature cover a range from -20 [°C] to +200 [°C] depending on the type of application.

Coremo oil-applied direct hydraulic brakes provide a clamping force proportional to the pressure of the oil acting within the chamber in the brake body. Brake bodies - in cast iron or steel - are designed to withstand high pressures and prevent oil leaks. The brake operating temperature varies from -40 [°C] to +200 [°C]. ID direct hydraulic brakes are complete with wear indicator and inductive ON/OFF positioning sensor. Spring-applied direct hydraulic brakes generate a force produced by the action of the cup springs inside the thruster body.

The steel and SG iron bodies are certified, tested and inspected. ID brakes are designed to withstand the stresses generated during dynamic braking, while the steel bodies are calculated to support pressures of over 100 [bar]. The lining pads are produced in full compliance with the relevant European standards on safety and toxic substances.

Coremo spring-applied direct hydraulic brakes are complete with wear indicator and inductive ON/OFF positioning sensor to indicate opening and closure. Operating temperatures vary from -20 [°C] to +200 [°C] and must be assessed in relation to the type of application. These brakes are suitable for emergency or holding and parking braking.

Pneumatic Caliper Brakes

Pneumatic caliper brakes are designed for those industrial applications which use air pressure to operate the braking system. The lever mechanism principle ensures simple but very effective operation.

The product offering covers a clamping force range that meets the conditions required by the various applications. The quality of the product and its long life cycle are ensured by meticulous selection of materials, fifty years' experience, painstaking design with the latest 2D / 3D software, FEM modellers and laboratory tests.

This family includes both air-actuated and failsafe brakes.

In air-actuated brakes, the braking force is generated by the air pressure, which can be modulated between 0 and 6 bar to vary the clamping force. Once the required force has been obtained, it will remain constant regardless of lining wear. Conversely, in failsafe brakes the action of the springs generates, within short reaction times, clamping forces which guarantee plants' safety during maintenance and/or in emergencies.

Adjustment to compensate for wear, as and when necessary, is simple

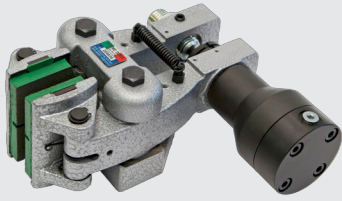
and immediate thanks to a hand-operated mechanical system. Moreover, all failsafe pneumatic caliper brakes have a mechanical system which allows the brake to be made safe before any planned or unplanned maintenance work on it. All hand-applied and air actuated and failsafe pneumatic caliper brakes can be fitted with a wear indicator and an on/off indicator device to protect the system during operation.

Air-actuated pneumatic caliper brakes are intended for all industrial sectors which require pneumatic operation of the system. This type of brake is normally chosen for service stops or tensioning braking. Forces vary depending on the pressure of the air supplied; the maximum operating pressure is 6 [bar].

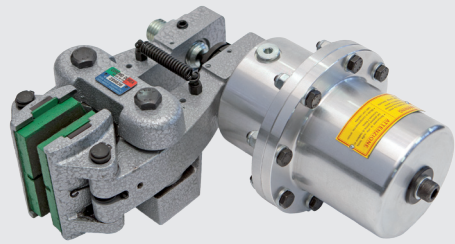
Failsafe pneumatic caliper brakes are used in all industrial sectors where pneumatic operation is possible and are normally chosen for emergency and/or parking brake functions. The clamping force of each model is generated by helical springs which allow low reaction times. All brakes operate up to a maximum pressure of 6 [bar].

The **Coremo DUAL (Combined, air & spring applied) pneumatic caliper brake** is able to function as both an air-actuated and a failsafe brake. It comprises a single thruster and is designed for industrial applications in which the clamping forces are applied by the air (air-actuated) or the springs (failsafe).

Quality controls ensure a reliable, safe product and trouble-free caliper operation. The brake is suitable for applications which require both continuous and emergency braking simultaneously, with the advantage that just one brake can be used instead of two.



Hydraulic actuated caliper brakes
From 15kN to 16kN braking force



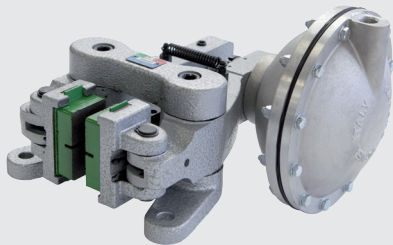
Spring applied hydraulic caliper brakes
From 6kN to 42kN braking force



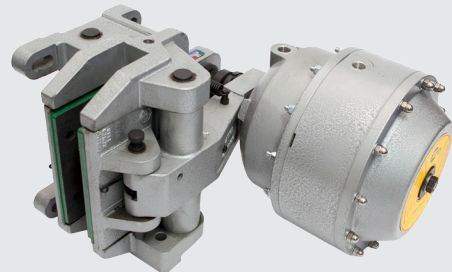
Hydraulic actuated direct brakes
From 20kN to 300kN braking force



Spring applied hydraulic direct brakes
From 8kN to 270kN braking force



Pneumatic actuated caliper brakes
From 1kN to 37kN braking force

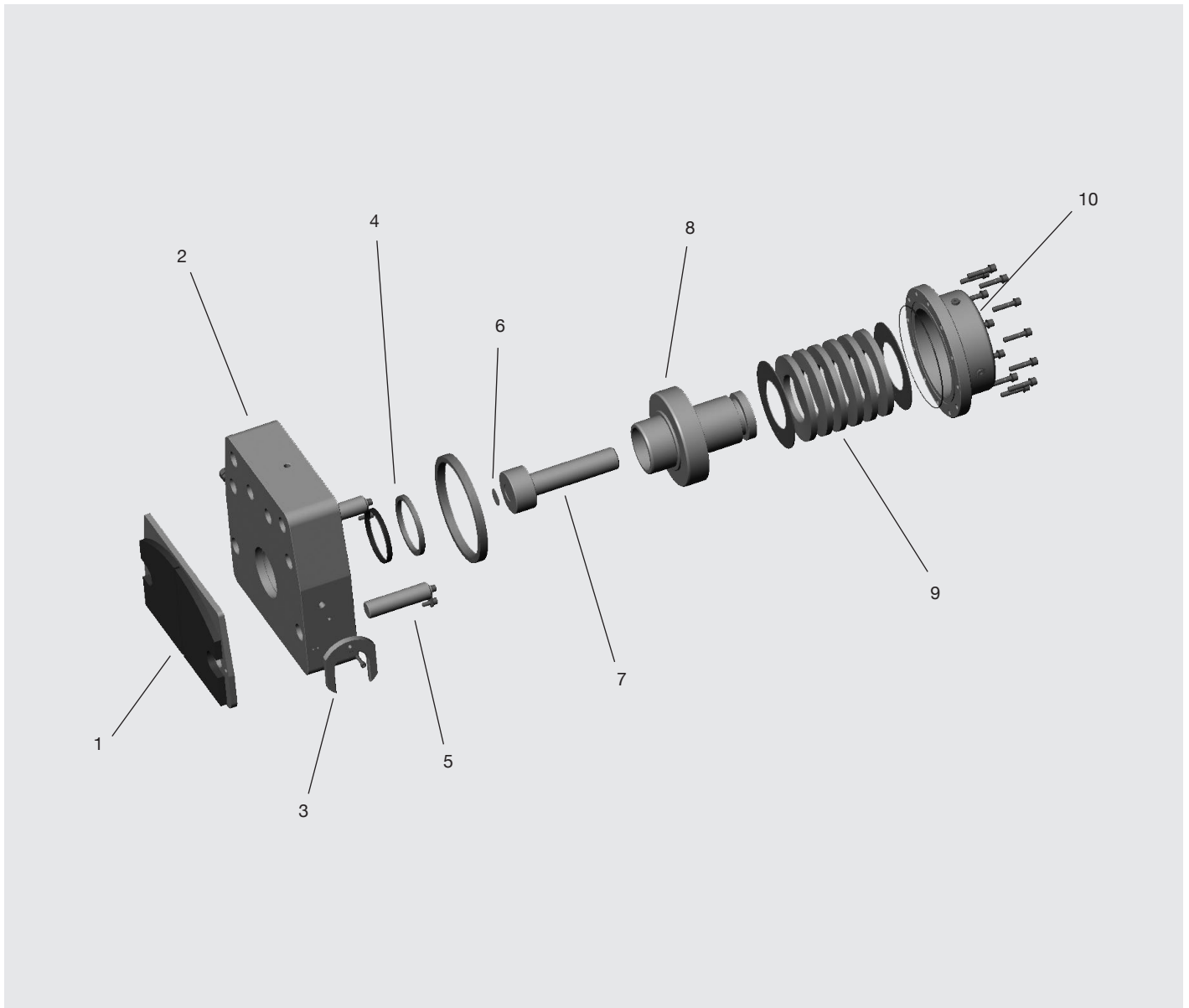


Spring applied pneumatic caliper brakes
From 1kN to 37kN braking force



**DUAL (Combined, air & spring applied)
pneumatic caliper brakes**
Air applied from 4kN to 12kN / spring applied
from 5kN to 11kN braking force.

Hydraulic Brakes



1 Friction Lining

Selection of friction material to optimize the braking system performance.

2 Body

Steel body. Toughness, compact design and low temperature resistance.

3 Safety hook

Ensures high safety conditions during installation and maintenance

4 Seals

Material and design selected to achieve maximum performance and life span.

5 Guide pin

For safety and perfect lining alignment.

6 Magnet

Magnetic system, easy, fast and safe. It drastically reduces the lining replacement time, increasing productivity.

7 Wear Compensator

Wear compensation system to guarantee high performance and safety conditions.

8 Piston

Solid treated steel. Designed to reduce the size of the spring pack.

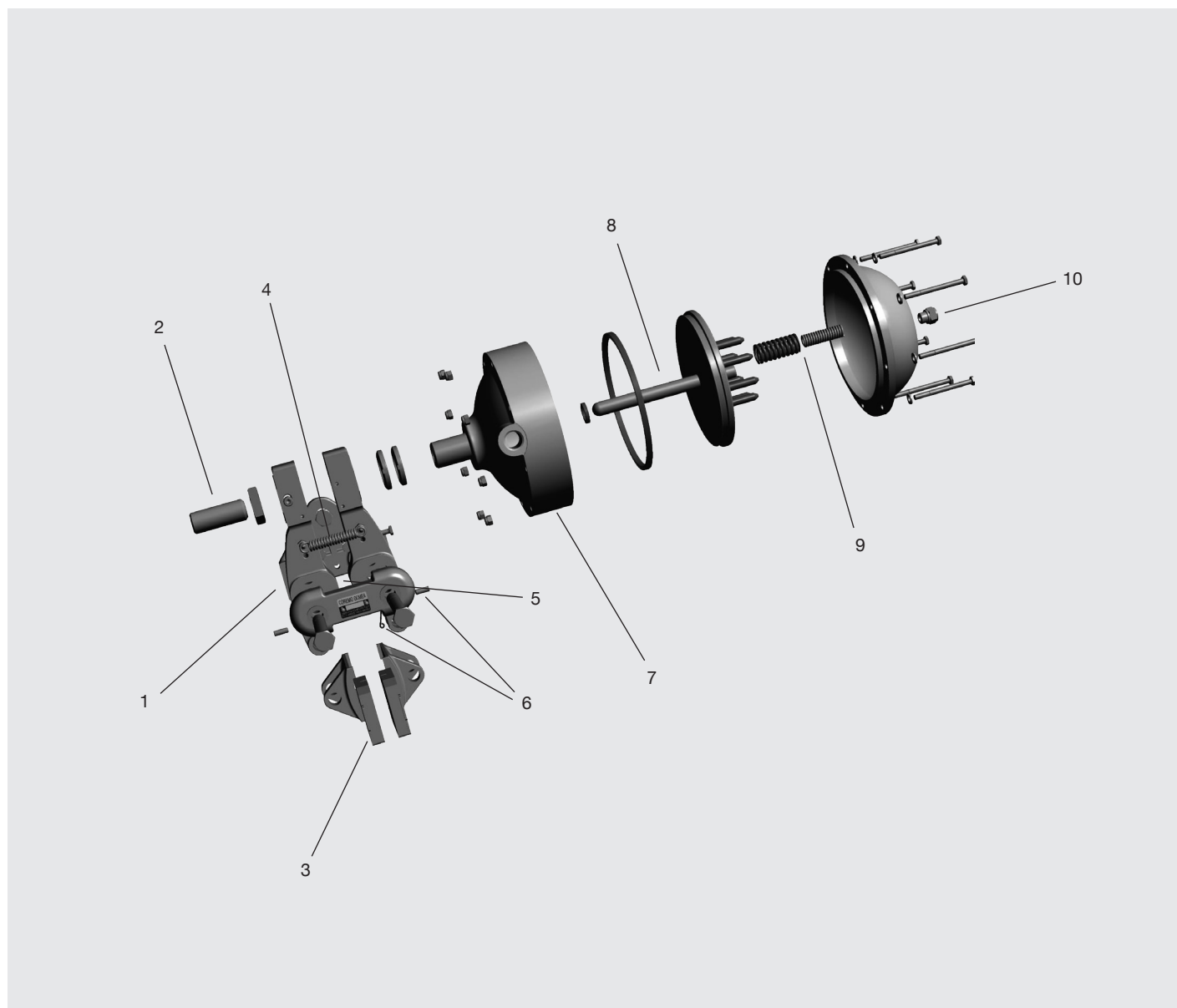
9 Spring pack

Modular and flexible. Certified cup springs, treated to ensure maximum duration and reliability.

10 Cover

Steel made. Designed to ensure the highest protection for the spring pack.

Pneumatic Brakes



1 Body

Spheroidal cast iron body. Designed to increase the thruster force.

2 Wear compensator

Wear compensation system to guarantee high performance and safety conditions.

3 Friction Lining

Selection of friction material to optimize the braking system performance.

4 Return spring:

To open the brake arms if braking is not required.

5 Inclined Mounting Kit

To mount the brake in any position.

6 Pads self-alignment

To get the perfect alignment between pads and disc surfaces.

7 Thruster

Low weight aluminum thruster.

8 Internal piston

Steel piston with hardened rod pusher.

9 Spring set

Modular spring set available to meet different clamping forces requirements.

10 Retaining screw/ Silencer

To guarantee safety during mounting operations / Air silencer once the brake is mounted.

Optional:

Wear indicator

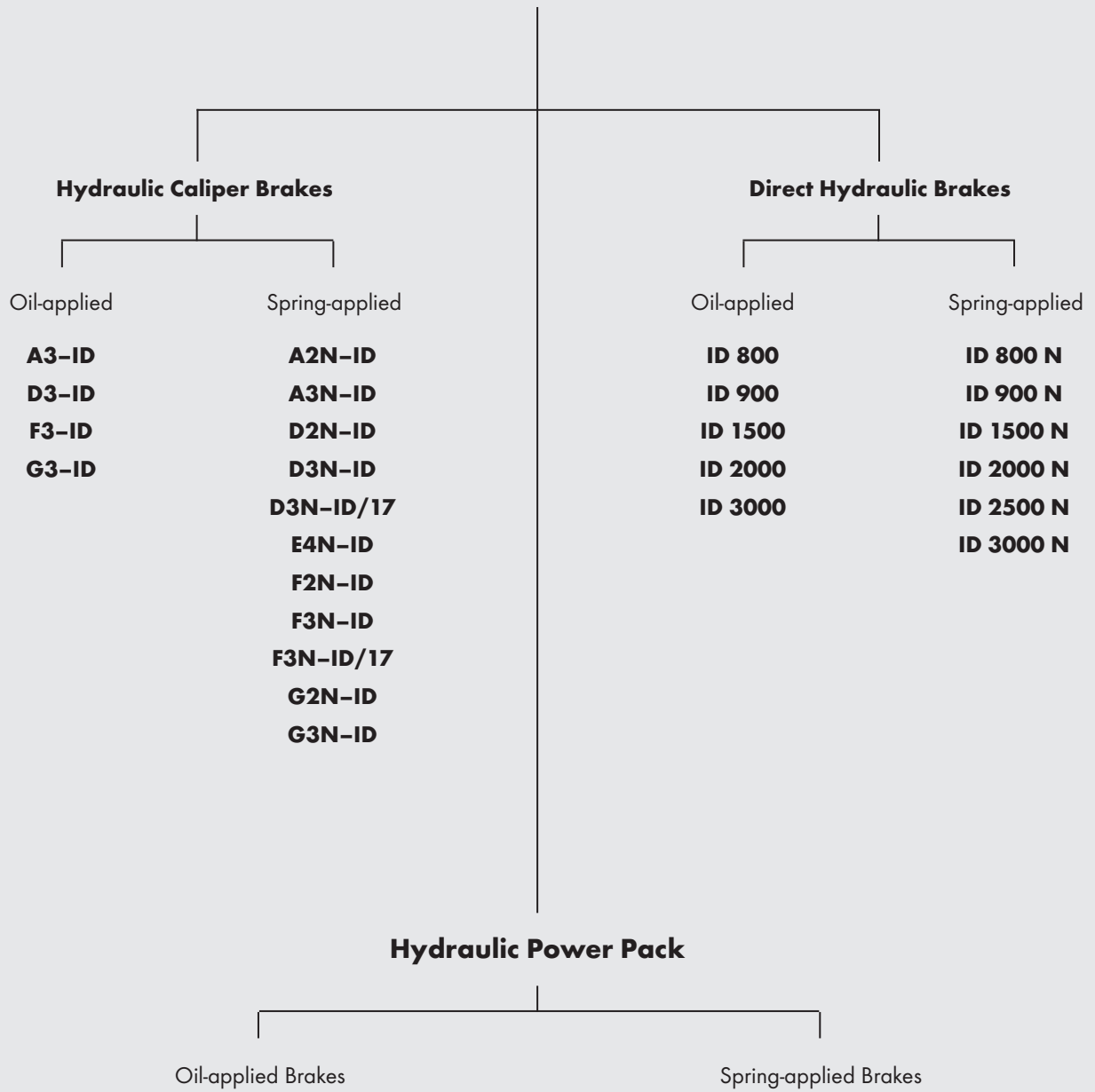
Cable indicating worn out pads.

ON-OFF indicator

Indicates if the brake is opened or closed

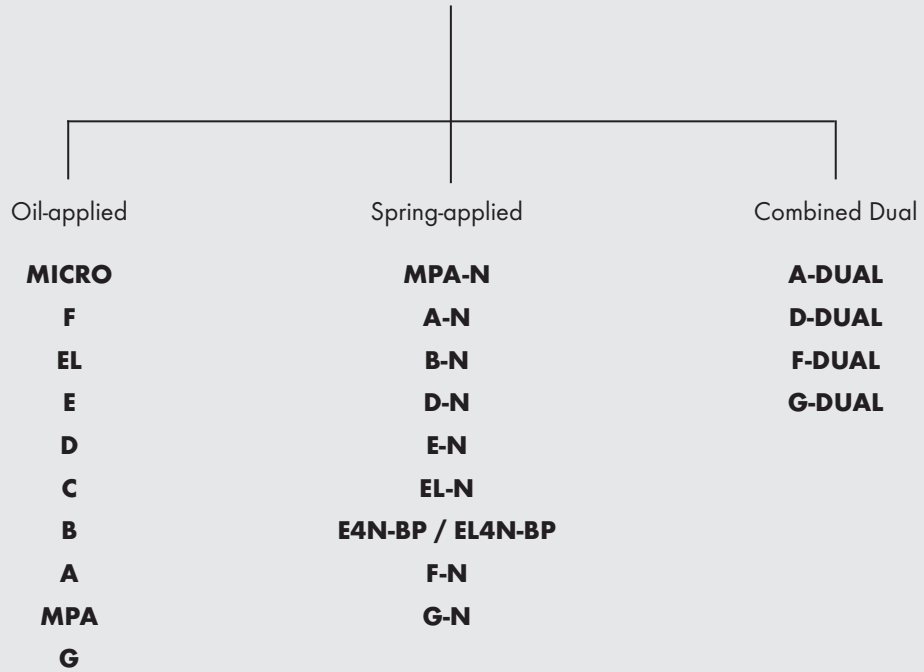
Coremo Ocmea

Hydraulic Brakes



Coremo Ocmea

Pneumatic Caliper Brakes

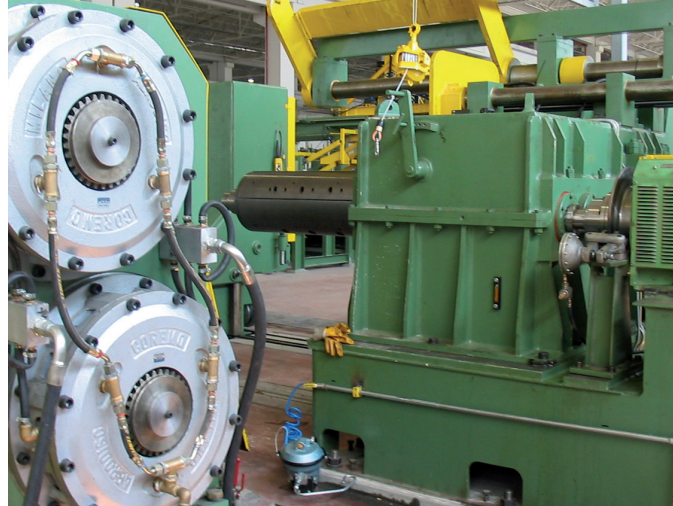


1 60kW wind turbine, fitted with D-E electromagnetic failsafe caliper brake, type D-E 5.7kN



1

2 Steel coil slitting line, fitted with water-cooled brakes type 140W for tensioning + pneumatic caliper brake type A3 for machine stopping



2

3 Power transmission line in wire machine, fitted with air applied caliper brake type B2 for machine stopping



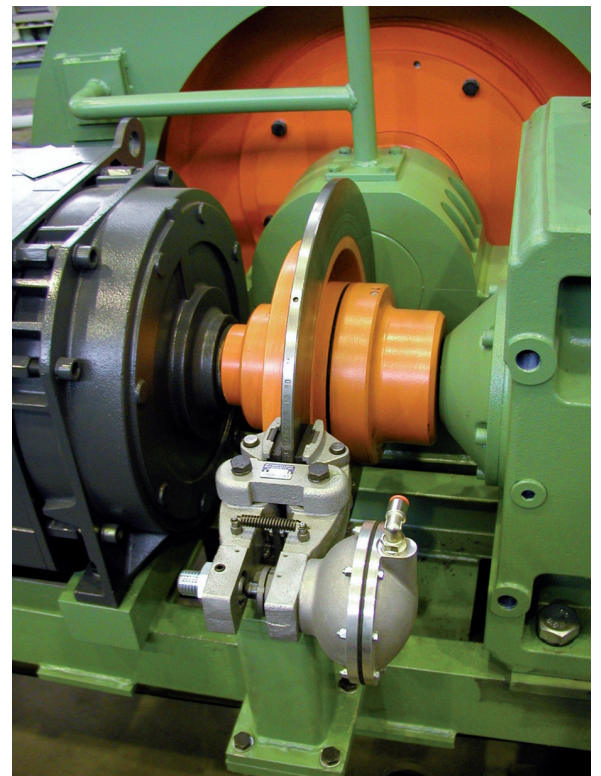
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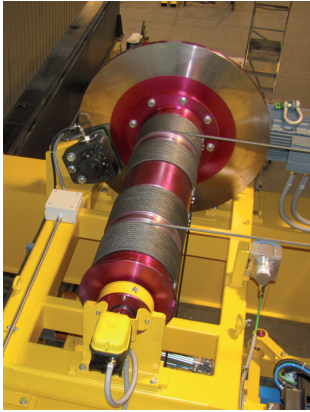
4 Coating machine for paper, fitted with pneumatic caliper brake type TB and Coremo cast iron disc for tensioning

5 Power transmission line, fitted with air applied caliper brake type D2 for machine stopping and holding



5

6 Bridge crane winch, fitted with spring applied Hydraulic brakes type ID1500N for machine stopping and holding



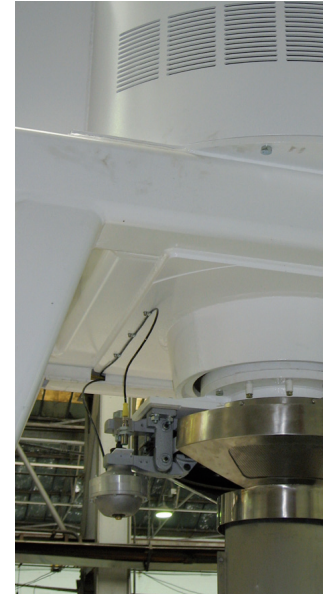
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7 Planetary wire strander, fitted with air applied caliper brake type E4 for machine stopping and holding

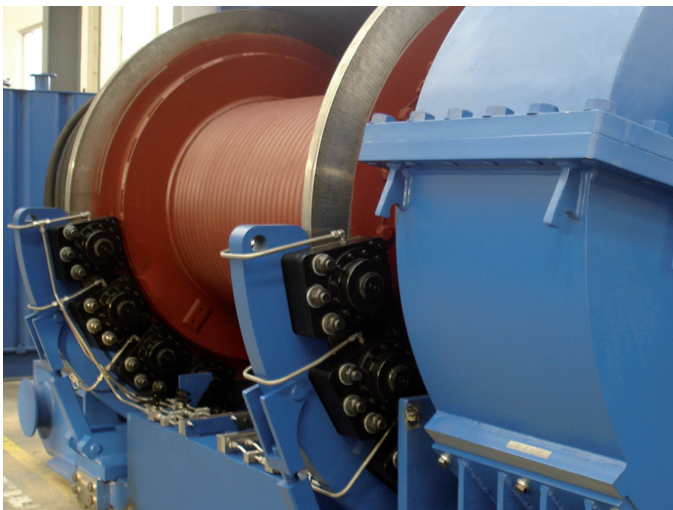


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8 Sugar batch centrifuge, fitted with spring applied caliper brake type F2N for machine stopping



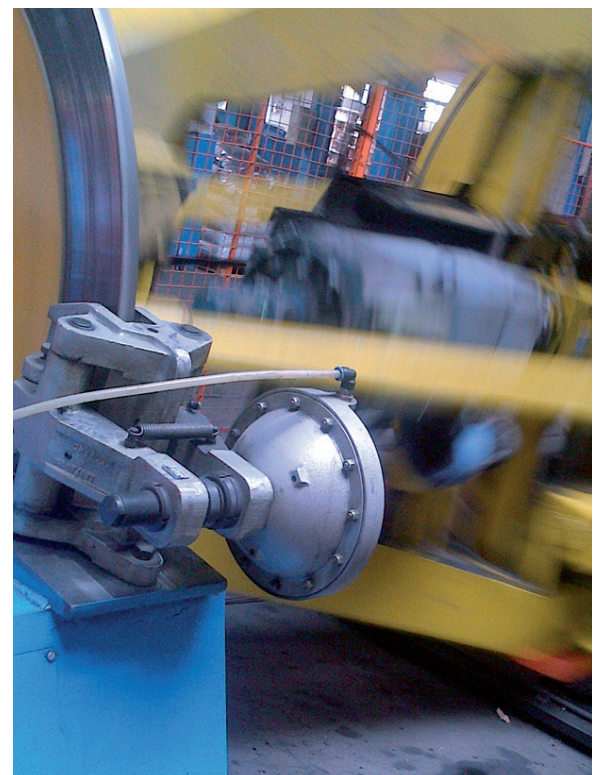
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9

9 3000HP off-shore deep-water drawwork, fitted with 8 hydraulic brakes ID2000 N. Emergency, stopping & holding purposes

10 Drum twister laying up line, fitted with air applied caliper brake type E4 for machine stopping and holding



10

Clutches & Other Products

With its clutches, Coremo Ocmea offers solutions designed to transmit power rather than limiting it, as in the case of brakes.

Clutches perform the task of connecting together two normally separate shafts, so that the power of one of them (the drive shaft) is transferred, by means of the clutch, to the other (the driven shaft).

When selecting a clutch, special attention must be paid to the engagement speed and the calculation of the heat generated by slippage between the friction and steel disks.

If the clutch is too small in terms of these parameters, not only will it be incapable of delivering the torques required, but the working life of the disks and linings will also be drastically reduced, and in the worst-case scenario the component may fail completely or seize.

Coremo Ocmea offers a range of multi-disk pneumatic clutches capable of torques from 17Nm to 49500Nm. They range from the “MINI” family of small clutches with low torque capacity to larger-sized units, such as the “VS” models, also known as ventilated clutches, the “BI” low inertia units, and, finally, the “W”, series of water-cooled clutches.

The last-named have high heat dissipation capacity thanks to the water pumped through their steel disks, which aids dispersal of the heat generated.

Coremo’s product range is completed by electromagnetic caliper brakes. With a power supply of 110 or 220Vac at 50Hz, the D-E caliper series have a braking force of 2.5kN, 4kN and 5.7kN. Coremo has also selected a range of hydraulic power packs to be used together with its entire range of hydraulic brakes.



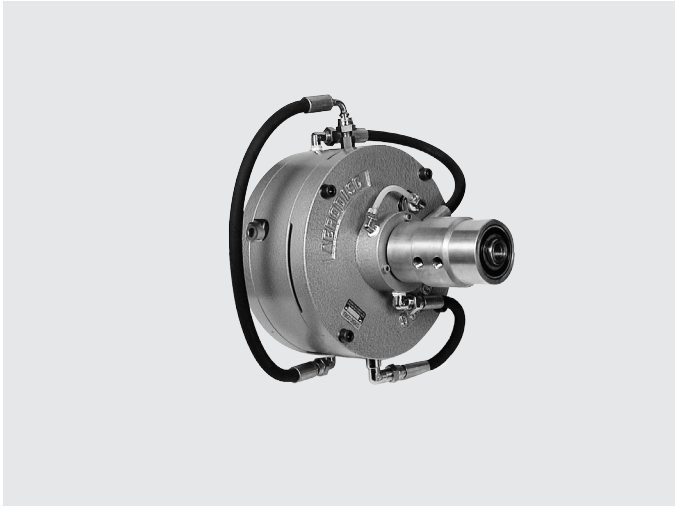
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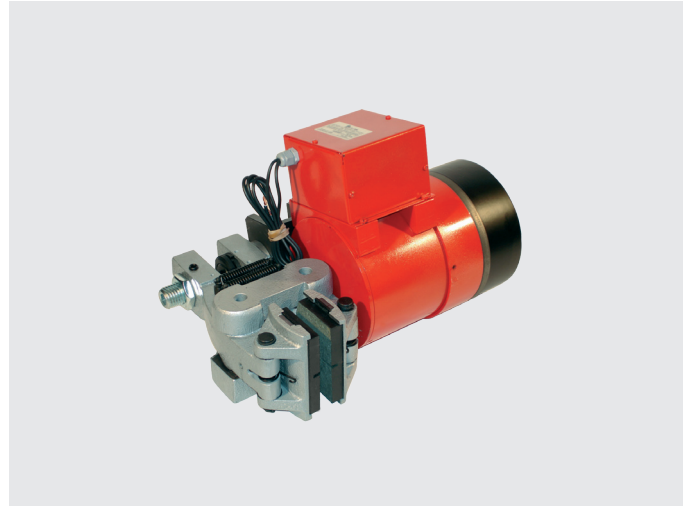
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7

1 Pneumatic clutch series MINI

2 Ventilated clutch series VS. Air tube designed

3 Low inertia clutch series BI. Air tube designed

4 Water-cooled clutch series W. Air tube designed

5 Hydraulic power pack, P type, for both caliper and direct oil applied hydraulic brakes

6 Electromagnetic caliper brake, series D-E

7 Hydraulic power pack, N type, for both caliper and direct spring applied hydraulic brakes

Coremo Ocmea Services and Support

Coremo's support to its customers is increasingly becoming a highly specialised integrated service, offering not only guidance on selection of the braking system but also consulting, maintenance, analysis and reporting.

The starting point, meaning the product, is conceived and designed to guarantee reliability and certification with regard to both materials and operation, but Coremo's aim is not merely to supply a product compliant with safety standards and each customer's specific needs, but rather to deliver a complete service, starting from the information the customer provides, to obtain a detailed picture of requirements, and supply the braking system best suited to individual needs.

First and foremost, its engineers have developed spreadsheets with answers to constructors' and customers' queries about the brake, its response times and the heat generated. The spreadsheets and the resulting report are included with the reports sent to the customer.

The Technical Department's professional skills are supported by constant training and refresher courses for its engineers, who have the know-how needed to manage every type of order and support the customer with consulting during both design and maintenance of the product.

The calculation and simulation software programs are also constantly updated and growing in sophistication, able to deliver data on heat generation, cooling and mechanical strength for many different types of application. Thanks to optimised fluid flow simulation analysis with the aid of SolidWorks Flow Simulation, fluid dynamic analyses are produced to highlight heating of the coolant in water-cooled brakes.

As well as manuals, which include information about screw driving torques, lining pad adjustment and the safety systems to be applied during planned and unplanned maintenance, Coremo Ocmea produces 2D/3D CAD drawings to obtain an immediate, intuitive picture of the product's dimensions and shape, and its application.

The Coremo Ocmea service is completed by reporting which includes calculations, FEM analyses and technical reports supplied to the customer to complete the technical documentation of the machine on which the brakes are to be installed. This enables customers to make comments on the design variables and allows the Technical Department to adjust the design to provide the most suitable solution.



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