

CORPORATE PRESENTATION

Centro de negocios Santiago

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Since 1980

Founded in 1980, Termomin was born with the aim of positioning itself as an innovative provider, leader in finding personalized solutions to problems of wear, Energy and services.

The company have a fundamental commitment to protect the interests of our providers and clients benefiting **long lasting relationships** with loyalty and providing personalized solutions always on time and with the technical severity that our clients expect from world class companies.

Our main line of business focuses on providing solutions for:

- Thermo-ceramic coatings (alumina and silicon carbide), wear-resistant ASTM A532 steels, ceramic valves, polymeric epoxy compounds with high resistance to compression, impact and abrasion.
- Design, construction and assembly of combustion systems for oil and gas lines and repair and maintenance services for equipment in the field.
- Assembly, technical Consulting, Commissioning and Maintenance of Rotating Equipment.

Our team has permanent training and updating of technical, operational, safety, health, and environment (**HSEQ**) knowledge.

Some of our services are:

- Assembly, overhauling, and technical advice for industrial burners, Steam turbines, and reciprocal compressors.
- Repair and maintenance of equipment on site (bucket wheel excavator, agglomerate drums, transfer chutes, screens, etc.).
- Control, monitoring, quality, and planning for the maintenance of worn items.
- Operational services for work at height, in confined spaces, and handling dangerous substances (sulfuric acid and epoxy coatings).





Our Facilities

Termomin has two production plants

Santiago (Capital of the country) 54.000 sq ft Antofagasta (North of the country) 21.500 sq ft



Our company and all its production processes are certified according to **ISO 9001 - 2015.**











Our Facilities





HEAD QUARTERS BRANCH ANTOFAGASTA



Our facilities



Painting rooms



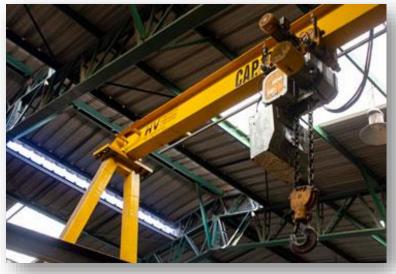


Our company and all its production processes are certified according to ISO 9001-2015.









Gantry Crande 10 Ton



Vulcanizing press



About Us



Our company has been providing tailored services to the mining and oil and Gas industry for more than 40 years. The company values have forged the spirit of our employees.

For this reason, on I would like to thank the more than 100 collaborators who made their best efforts to ensure the company's commitment to excellence, advancing through continuous improvement, with the flexibility and rapid response that has always characterized Termomin Ltda. ., and thus contribute to the specialized industry with solutions that meet the real needs of our customers.

P

Gerente General Termomin Ltda.

Pablo Galleges

PABLO GALLEGOS M

CEO











Anti-abrasive solutions



ANTI-ABRASIVE SOLUTIONS



Ceramic modules

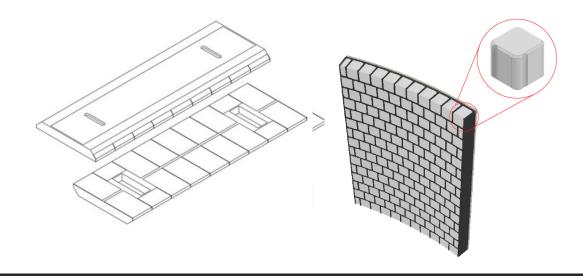
Thermoceramic linings are specially designed to resist the abrasion caused by mineral transport, absorbing impacts due to their rubber content and resisting wear thanks to their construction in **silicon carbide or ceramic with a high alumina content**.

Brick modules can be manufactured in a wide variety of shapes and sizes to suit the requirements of each site. This provides excellent resistance to abrasion in the grinding area, crushing (tertiary and quaternary plant), transportation area, among others. Vastly surpassing any other metal coating.



Silicon carbide deflector









Silicon carbide Spoon



Dissipative Rings

Energy Dissipating Rings (Chokes) are widely used in mineral pulp, tailings and concentrate transport systems.

A Choke is an element that generates a flow restriction, hindering its passage through the pipe, so that there is a pressure drop in the fluid as it passes through it. Physically, the mechanism of action they use is the same as that of orifice plates; singularity corresponding to a reduction and a subsequent return to the original section in a section of pipe.

Currently, the most used material for the manufacture of these elements is Reacted Silicon Carbide, which consists of an insert made of ceramic material fused on a porous metal matrix with a high specific surface area, which significantly improves resistance to abrasion. and durability.





Dissipative energy ring



Quality control

Registro del Control de Calidad Control Unitario

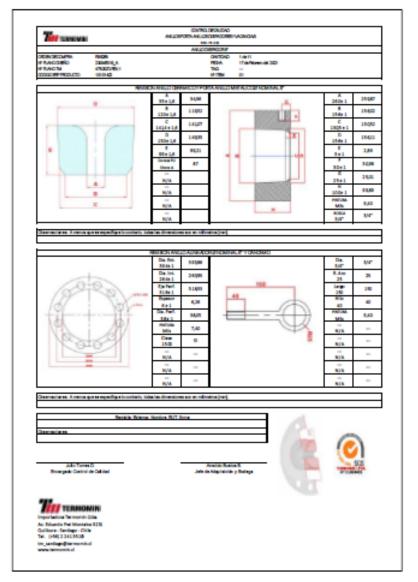


Ensayo de Tintes Penetrantes Anillo Cerámico CSi

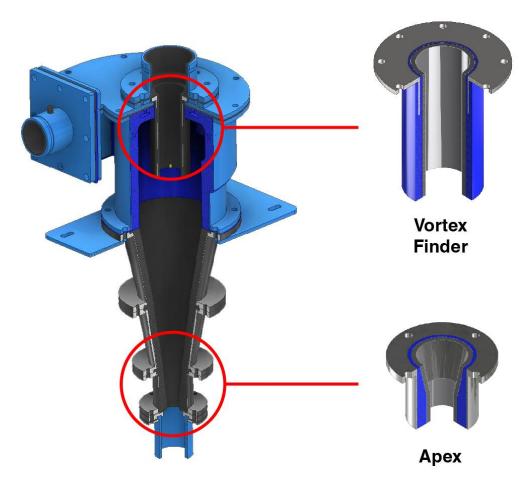


In order to improve and ensure the quality of our products, detailed quality studies are carried out on each of the pieces, using different techniques such as thickness measurement, hardness, and penetrant ink testing, among others





Hydrocyclone



We constantly work on the development of special parts to adapt to the unique requirements of each Hydrocyclone in particular. The projects are made with high quality raw materials such as reacted or nitrided silicon carbide and high resistance polyurethane to ensure the maximum possible durability.

- _ Apex
- Vortex Finder
- _ Splash







ABRECO



Abreco® is a Canadian company with more than 30 years of experience in the manufacture of castings, specializing in gray, ductile and abrasion resistant white iron alloys.

They have an in-house design and pattern making workshop providing extremely efficient processing from concept to completion.

All batches of product are sampled and recorded to provide full traceability from the foundry to the final Abreco® product. Metallurgical analyzes include mass spectrometry, Brinell hardness, tensile, microscopy, and on-site liquid penetration testing.

Composition:

- Alloy with a high content of Chromium-Molybdenum Carbides in a White Iron matrix.
- Mild Steel reinforcement base plate, metallurgically bonded, at a ratio of 3:1.
- ASTM A532, Class II, Type B.

Characteristic:

- Hardness of 700+ BHN (64 RC) constant throughout the material.
- Weldable and highly resistant to impact conditions.
- Bond Strength: 33,000 PSI (227 MPa).
- Temperature resistance: 1000°F (537°C).



CHOK BARS



BUTTONS



SKID BARS



GRIZZLY CAL







WEAR PLATES



BARS



Severe use ceramic valves

The ceramic valves for severe uses are unique, state-of-the-art products that considerably increase the useful life of this equipment when subjected to uses with high corrosion and/or abrasion. The performance, reliability, and useful life of the ceramic valve are far superior to all the metallic ones currently available on the market.















Benefits of this solution:

- ✓ Ceramic materials are 6 to 8 times harder than stainless steel.
- \checkmark The thickness of ceramic material is often measured in inches, typically 1/4" or more.
- ✓ Most hard coatings are measured in micrometers, for example hard chrome coatings are typically less than one thousandth (0.001") of an inch.
- Extreme hardness and ability to resist high temperatures.
- Ceramic is exceptionally resistant to cavitation, even continuous cycles of cavitation, even very aggressive ones, do not affect the material.
- ✓ With the special process that is done to the ball and the seat, (in the case of Ball valves), it comes very close to achieving a totally hermetic closing bubble.



All purpose valves

We stand out for providing a wide variety of quality products for many commercial and industrial applications. We have a complete range of knife gate, gate, ball, butterfly, globe, check, dart and triple function valves, Termomin has your valve solution.

























Epoxy Line

Termomin sells Epoxy Polymeric Compound products to meet the requirements and provide solutions to a variety of applications in the protection, recovery of equipment and infrastructure, in mining and quarries; in various industry segments; for engineering and construction contractors. The following are some of the products we sell:



TermoBacking® Backing Compound



TermoFlooring® **Chemical Resistant** Floor Coat

TermoGrouting® **Hi Resistant** Grouting





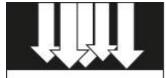


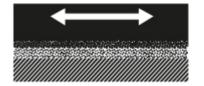
TermoCasting® **Electric Casting** Compound















Energy Solutions





Combustion

Engineering studies for the optimization of combustion systems and furnaces, considering:

- _ Energy balances.
- _ Thermal efficiency studies.
- _ Theoretical modeling of operational conditions.
- _ Selection of equipment according to operational conditions or requirements.

Assembly and installation of combustion systems for the use of liquid and gaseous fuels, turnkey projects:

- Assembly of oil trains and gas trains.
- Assembly of burners with thermal insulation or refractory works.
- Installation of fans, control panels and electrical installation of the systems.

Installation and supply of main gas or oil lines, including pumping stations to different consumption points:

- _ Assembly and supply of pumping stations, from the tank to the point of consumption.
- Assembly and supply of main gas lines, from gas station connection points to burners.
- _ Declaration of main oil and gas lines before the SEC (Superintendence of Electricity and Fuels).





Combustion

Installation and supply of measurement and regulation stations:

- Assembly and supply of flow meters for liquid fuel.
- _ Assembly and supply of flow meters for gaseous fuel.
- Commissioning of systems.

Management for Burner Certifications and field consultancies:

 Preparation and delivery of necessary documentation for certification of burners with diesel oil and/or gaseous fuel.

On-site maintenance of combustion systems

- Disassembly of gas trains, with the intervention of pressure regulators, flow meters, flow control valves, actuators or modulation motors, etc.
- _ Burner disassembly and disassembly, revision of internal parts, air access, fuel access, revision of oil nozzles, revision of gas nozzles, etc.
- Review of control panels, electrical connections between equipment and panel, verification of control signals in the field, etc.
- Re-assembly or reassembly of the systems, with start-up, calibration, and final delivery to the client.









Combustion

In particular cases, joint work and technical-commercial support with local companies, to meet special requirements and applications of some clients:

- _ Engeneering, assembly, and commissioning in Chile of burners, boilers heat pump, from different suppliers.
- _ Engeneering, assembly, and start-up in Chile of a high-energy ignition system (John Zink-Chentronics).
- _ Engeneering, assembly, and start-up related to the electric-control system for burners and combustion systems.

Burners:











Boilers:



Heat pumps:





Power generation

Simple cycle(ISO) up to 2 MW

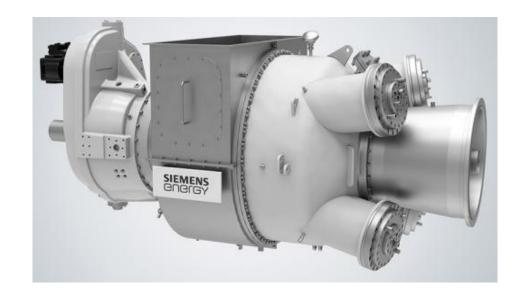
Benefits:

- High availability and operational reliability.
- _ Competitive cost-power ratio.
- Excellent load acceptance and shedding characteristics.
- _ Available with a Dry Low Emissions (DLE) combustion system.
- Possibility of on-site maintenance.
- Center motor quick swap option (minimizes downtime).
- Proven in applications in combined heat and power (CHP) plants.

Industrial power generation:

For industrial power generation, the SGT-50 is suitable for the following applications:

- -Gas turbine power plants (simple cycle applications).
- -Combined cycle power plants (combined cycle applications).
- -Combined Heat and Power (CHP) Power generation for the oil and gas industry, on offshore platforms and FPSO (Floating Production, Storage and Offloading) vessels.





Led lights

Termomin Ltda. has a wide variety of LED equipment according to the needs of our clients, which comply with the certifications, degree of protection for aggressive environments or explosive atmospheres. We develop industrial assemblies that include electrical assembly and measurement of the levels of lumens necessary to comply with regulations.

Equipment for applications in chemical plant, laboratory, steel plant, mining and industries, airport, military base, building, factory, storage room, public, parking lot, exhibition building, home block, gas station, and other lighting places.

















Rotating Equipment

Assembly, Consulting, Commissioning and Maintenance of Rotating Equipment

In the past we had the exclusive representation for more than 30 years of the Dresser-Rand line of equipment, today belonging to Siemens, now we only have the representation of the **Steam turbines** business line, since siemens energy took over the reciprocating compressor business line.

We supply new equipment and spare parts for Dresser-Rand Legacy & Siemens Steam Turbines up to a power of 12 MW for generation applications and equipment driver such as Pumps, Compressors, among others.

We have the capacity to offer the service of Assembly, Maintenance and Commissioning of Steam Turbines and Turbomachinery.

Termomin has performed overhaul services and upgrades for compression trains, including supply of spare parts. on-site repairs, maintenance of auxiliary systems, commissioning and start-up.

Our main client is Enap(National Oil Company) a state-owned company in Chile, engaged in the exploration, production, refining, and marketing of hydrocarbons and their derivatives. The refineries supply over 80% of Chile's fuel needs.

We regularly interact with the Maintenance department and its different Divisions: Mechanics, turbomachinery, predictive, among others.





















Predictive Technologies



Predictive Maintenance of Rotating Equipment with Online Condition Monitoring and Protection Technologies

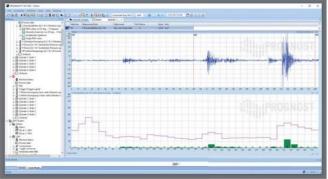
PROGNOST Systems is the market leader for online diagnostic systems for reciprocating compressors and the inventor of the segmented vibration analyses. We offer specialized monitoring solutions and services for Rotating Equipment, including bearings, shafts, and gearboxes. This holistic portfolio allows our customers a successful implementation or expansion of the Predictive Maintenance approach.

Our products build upon 30 years of machine diagnostic experience and expertise in:

- Machine protection system (MPS)
- Machine monitoring system (MMS)
- _ Diagnoses of machine condition.

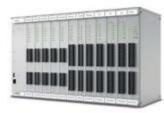












Control Systems



Control Systems for Turbomachines

Leader in optimization services for turbomachinery trains. Since 1974, more than 37,000 installations have benefited from more than two billion hours of CCC operating experience. This expertise runs on a comprehensive platform of hardware, software, and consulting services that optimize the turbomachinery to improve process performance, increase throughput, save energy, reduce downtime, and improve plant safety. CCC optimization services are technology independent. No other controls or automation vendor can better meet different needs with local support and a legacy of proven results.

CCC architecture for TMC solutions allows for easy integration with the DCS and historian through pre-developed integration packages. TMC becomes seamlessly integrated with the primary operator screens and historian environment to further enhance the end user experience and add value through the lifecycle.

We can offer a reliable, safe and modern Control System for Turbogenerators regardless of their manufacturer, including integration to your plant DCS system.







Electrohydraulic actuators

Termomin is representative of the Electrohydraulic actuators™ REXA

Since 1981, REXA Inc. has developed and manufactured its actuators under proprietary technology unique to the industry, Electraulic Actuation™.

Our line of industrial linear and rotary actuators combine the simplicity of electrical operation, hydraulic power, reliability of solid-state electronics, and flexibility in control configuration for the end user.

Rotating Equipment applications

- _Steam Turbine Governors
- _Steam Turbine Pilot Valves
- _Steam Turbine Extraction
- _Inlet Guide Vane Control
- _Compressor Antisurge / Recycle
- _Water / Steam Injection Valves
- _Fuel Gas Valves
- _Fuel Oil Valves
- Gas Turbine Inlet Bleed Heat
- _Scoop Tubes

Downstream

- _Pump Station Pressure Control
- _Meter Back Pressure and
- _Balance Control
- _Terminal Inlet Pressure Control
- _Pump Recycle / Min. Flow Control
- _Well Head Shut Down
- _Extraction Well

Metals & Mining Applications

- _Flotation Cell Pulp Level Control
- _Clave Inlet / Discharge Isolation
- _Clave Pressure Letdown
- _ILS Pump Station Flow Control
- _Acid Flow Control for Leaching
- _Cement Kiln Feed Control
- _Coke Oven Collection Main
- _Recycle Gas Pressure
- _BFG Pressure to Boiler Control
- _Mixed Gas Pressure
- _Blast Furnace Wind Turbo
- _Blower Speed Control
- _Reheat Furnace Pressure Control















Fail Safe configurations, High Speed, for classified areas. We have the ability to reuse your existing valve or supply the best valve your process requires.



Field Service Solutions





Field Service Solutions

A complete and comprehensive service that helps with the planning of maintenance or your projects, which ensures the correct operation of the equipment.

Our engineers and technicians will offer and recommend the most suitable coating service and installation advice to solve your abrasion problems.

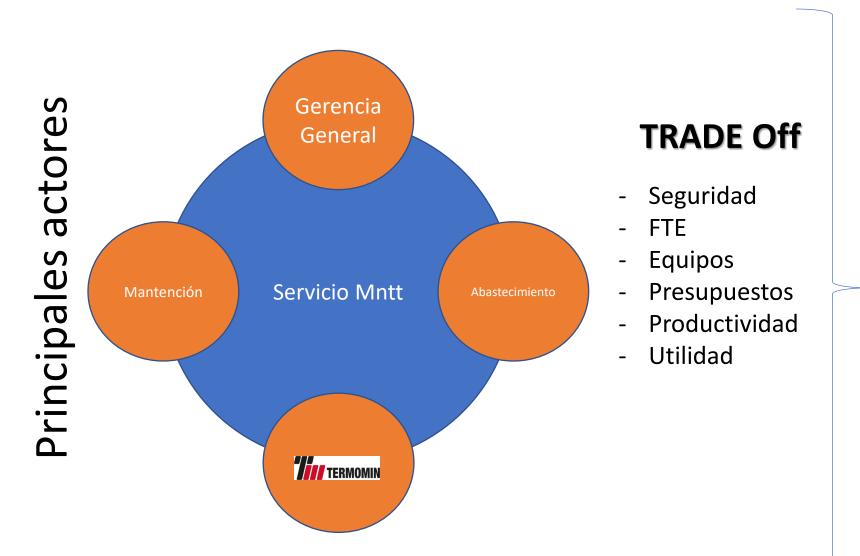
Termomin carries out the execution of mechanical assemblies, repair and maintenance of parts and/or equipment related to the areas of anti-abrasive coatings in the form of annual or specific contract.

	INFORMES TECNICOS ENTREGADOS POR TERMOMIN
1	Carta Gantt de los movimientos que tendrá Termomin en la mantencion
2	Recomendaciones del cambio de placas de acuerdo al nivel de desgaste observado por los supervisores TM, equipo por equipo.
3	Propuestas para proximos trabajos de mantencion, equipo por equipo.
4	Informe detallado hora a hora y dia a dia, de los trabajos realizados en las distintas areas.
5	Fotografias del antes y el despues de los trabajos realizados en cada equipo.
6	Mapas de calor de las placas instaladas, identificando criticidad de re cambio.
7	Conclusiones y planteamientos de mejora continua



Identificación de los principales actores





Entendemos que:

- 1. Los principales actores en nuestro ecosistema son la gerencia general, mantenimiento, abastecimiento y el prestador del servicio en este caso Termomin.
- 2. Y los Indicadores claves del ecosistema, a optimizar son seguridad, FTE, equipos, presupuestos, productividad y utilidad.

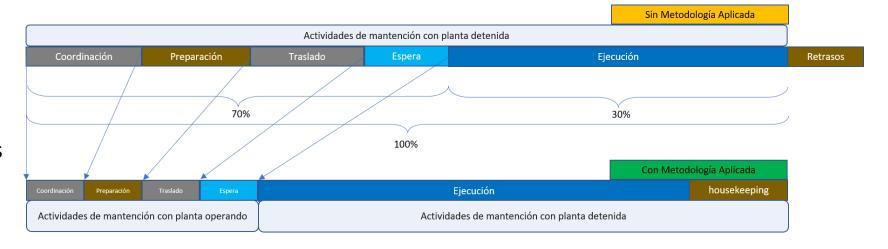
Y que:

La conversación entre ellos siempre busca tener un trade off que optimice los indicadores mencionados anteriormente.

Entendiendo las barreras

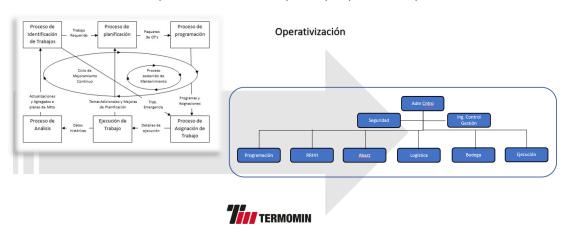


Para lograr la innovación fue necesario entender lo que se hace durante la mantención y cuáles son las principales barreras que no permiten cumplir con el óptimo de los indicadores. Esto nos llevó a crear una forma de hacer las cosas, la cual se sustenta en el ciclo de mantención y asigna roles y funciones específicas con un roadmap de seguimiento con controles que permiten asegurar el cumplimiento.



Operativización de Ciclo de Mantención en Contratos Lo primero es entender para que estamos o para que fue contratado el servicio

"Somos los responsables de devolver la capacidad para producir de la planta"





Optimización de los indicadores

Gracias a esta innovación, hemos logrado optimizar los indicadores de seguridad, FTE, equipos, presupuestos, productividad y utilidad.

Además, hemos mejorado nuestra comunicación y coordinación entre los diferentes actores del ecosistema, lo que ha permitido una mayor eficiencia en el servicio que ofrecemos.

	03 abril	10 abril	12 Abril	14 Abril	14 Abril	14 Abril	17 Abril	23 Abril	24 Abril	27 Abril	28 abril	03 Mayo
	Difusión del Plan de Mantención	Envio de RQ	Desafio en Terreno	Confección frente de trabajo	Validación de la dotación	Validación del estado de los Equipos	Confección Workpack Y Preparación de Herramientas	Gestión temprana (Difusión Programa de Actividades)	Inicio actividades de mantención	Gestión Conductual	Seguimiento en terreno	Pos mantención interno
			TON'S									
Etapa del Ciclo	1	2	3	4	5	6	7	8	9	10	11	12
Participantes	Rodrigo Miranda Valeria Castillo Mario Ormeño Andres Aguilera	Rodrigo Miranda Mario Ormeño Andres Aguilera	Rodrigo Miranda Andres Aguilera Luis Lira. Francisco Contreras	Rodrigo Miranda Andres Aguilera	Rodrigo Miranda Andres Aguilera	Rodrigo Miranda Andres Aguilera Kevin donoso.	Rodrigo Miranda Mario Ormeño Andres Aguilera Kevin Donoso	Rodrigo Miranda Andres Aguilera Hernan Cabello.	Rodrigo Miranda Andres Aguilera Thalia Rojas	Rodrigo Miranda Andres Aguilera Thalia Rojas Francisco Contreras	Rodrigo Miranda Andres Aguilera Luis Lira Javier Cartes	Rodrigo Miranda Valeria Castillo Mario Ormeño Andres Aguilera Joshua Gutierrez
Solicita	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello	Hernan Cabello
Confecciona	Andres Aguilera Valeria castillo Mario Ormeño	Andres Aguilera	Andres Aguilera Luis Lira Javier Cartes	Andres Aguilera	Andres Aguilera	Kevin Donoso	Andres Aguilera Kevin Donos Mario Ormeño	Andres Aguilera Thalia Rojas	Andres Aguilera Javier Cartes José Vega	Andres Aguilera Thalia Rojas Francisco Contreras	Andres Aguilera	Andres Aguilera Javier Cartes Luis Lira Valeria Castillo
Responsable	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda	Rodrigo Miranda

Predictive Maitenance

To keep track of wear and formulate a predictive wear report for our customers, we have included an ultrasound thickness gauge for our maintenance team and our staff is trained in its use. This helps us determine the timely change of thermo-ceramic plates and thus avoid unnecessary stops due to abrasion damage. Once these measurements are made, a heat map is delivered according to the wear and criticality of the areas.





SIUI



Medidor de Espesores Ultrasónico CTS-59

- Medidor de espesores ultrasónico, fabricado con las más avanzadas tecnologías disponibles, combina tecnología de punta y un diseño innovador.
- Adecuado para un amplio rango de aplicaciones, especialmente en aplicaciones de corrosión.
- Rango de medición de 0.5 a 600mm dependiendo del palpador y del material
- Tamaño compacto, pesa solamente 0.6kg con sus pilas.
- Pantalla color TFT de 5" de alta resolución con alto brillo de 800 x 480 pixeles, visible bajo luz solar.
- Puede medir el espesor sin necesidad de retirar el recubrimiento y mide también el espesor del recubrimiento si se conoce su velocidad sónica.
- · Menú en diversos idiomas, incluido el español

	ESPECIFICACIONES TÉCNICAS
Pantalla	Color TFT de 5" de alta resolución con alto brillo, de 800 x 480pixeles.
Resolución	0,1 mm y 0,01 mm (0,1" y 0,01") seleccionable
Unidades	mm y pulgadas seleccionable
Rango (acero)	0.5 a 600mm dependiendo del palpador y del material.
Palpadores disponibles	Dobles: 2, 5 y 7.5MHz; Monocristal: 7.5MHz
Rango Velocidades	400 a 15000 m/s
Ganancia	Se ajusta manual o automáticamente, entre 0 y 110dB
Calibración	Calibración de cero; Calibración de un punto; Calibración de dos puntos
Salida de Datos	Vía tarjeta micro SD y vía puerto míni USB
Memoria	Capacidad de hasta 20.000 set de datos de medición / Hasta 100 sets de parámetros
Visualización en pantalla	A-Scan y B-Scan
Auto apagado	Seleccionable: Off/2/5/10/20/30 minutos
Fuente de Poder	Set de pilas recargables de litio de 7.4V para más de 5 horas de uso /Adaptador 12Vdc
Tiempo de carga	Con cargador externo: 3 horas aprox.; con las pilas puestas: 6 horas aproximadamente
Visualización de valores	Estándar / mínimo / máximo / promedio / diferencia
Dimensiones	105 x 180 x 42 mm
Peso	600g aproximadamente, pilas incluidas



Track change time Project timely manufacturing





Repairable Equipments

Our company has the technical capacity, inventory of raw materials and facilities to carry out component manufacturing and repair work, under high quality, operational, safety, health and environmental standards.





- Manufacture of curved, standard, sliding or spoon type baffles, lecterns, pivots and other components.
- Repair and coating of transfer chutes, deflectors, idler table, buckets and broken shovel discs.



Value Proposal

We seek to offer solutions to your abrasion problems, from the root analysis of the problems, to the delivery of the best solution and its follow-up, seeking to be an active company that contributes to the development of your business

- Advice on processes of transfer, disposal and storage of our products.
- _ Inductions in the handling and application of our products.
- Participation in arrests to carry out visual inspections and thickness measurements.
- Periodic field visits to answer questions and verify the status of our products.
- Delivery of tracking information, detailing the status of the plates.
- Inspection of the performance of the modules during major or minor stops

The services indicated above are performed and inspected by highly qualified personnel. This to guarantee the quality of our solutions, demonstrating at all times the commitment we have with our clients.





CORPORATE PRESENTATION



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