



INDUSTRIAL SEAL SOLUTIONS FOR THE NUCLEAR SECTOR



S / TRESSSES / JOINTS / GARNITURES MECANIKES / RACCORDES TOUR
PACKUNGEN / FLACHDICHTUNGEN / GLEITRINGDICHTUNGEN / DREH
UNIONS / PACKINGS / JOINTINGS / MECHANICAL SEALS / ROTARY UNI
TIVAS / EMPAQUETADURAS / JUNTAS / GARNITURES MECANIKES / JUNTAS
RNICIONES MECANIKES / RACCORDES TOURNANTS / TRESSSES / JOINTS
UNGEN / GLEITRINGDICHTUNGEN / DREHDURCHFÜHRUNG / PACKUN

Industrial sealing solutions



INDUSTRIAL SEAL SOLUTIONS FOR THE NUCLEAR SECTOR

100 YEARS OF EXPERIENCE IN INDUSTRIAL SEALS

Founded in 1920, GROUPE LATTY is recognised for the quality of its products and its ability to provide solutions that meet the most stringent safety and security requirements.

NUCLEAR POWER IS EVERYONE'S BUSINESS AT EVERY LEVEL!

A world leader in the industrial seals field, GROUPE LATTY designs and manufactures its products at its production site in France, demonstrating its expertise and commitment to impeccable quality.

In accordance with the strict and specific requirements of the nuclear industry, our products are rigorously designed, checked and tested at every stage of the manufacturing process.

Thanks to this expertise, we offer our customers tailored sealing solutions that meet the highest industry standards.



RESEARCH AND DESIGN

Our technicians and engineers work upstream of projects and in collaboration with our customers to determine the specifications document. This can be supplemented by customer site visits to better integrate the issues specific to each project and to consider all possible options.

During the design phase, our mechanical seals are systematically modelled using CAD/CAM software to anticipate their operational behaviour. Based on the customer's specifications, GROUPE LATTY studies and designs an appropriate sealing solution.

QUALIFICATION AND APPROVAL

Safety and security requirements in the nuclear industry impose technical validations, including intrinsic qualifications and product approvals such as the PMUC certifications.

Within that framework, GROUPE LATTY works alongside EDF's engineering teams to carry out mechanical, thermal, corrosion resistance and irradiation validation tests.



ISO 19443 certified, GROUPE LATTY is in a position to meet the new requirements and changes in energy production directives thanks to its policy of constant innovation supported by the Research and Development department.

NUCLEAR INDUSTRY

Industrial Sealing Solutions

INTERVENTION AND ASSISTANCE

Our technicians are at your service to help you install our sealing solutions. They can also provide you with technical advice on the preventive maintenance of existing sealing systems.

REPAIRS

After an expertise based on an estimate, we will repair and recondition your mechanical seals. Once the work has been completed, your mechanical seals will fully meet safety compliance requirements, providing the

performances expected of new equipment. Furthermore, mechanical seals can also be tested on test benches.

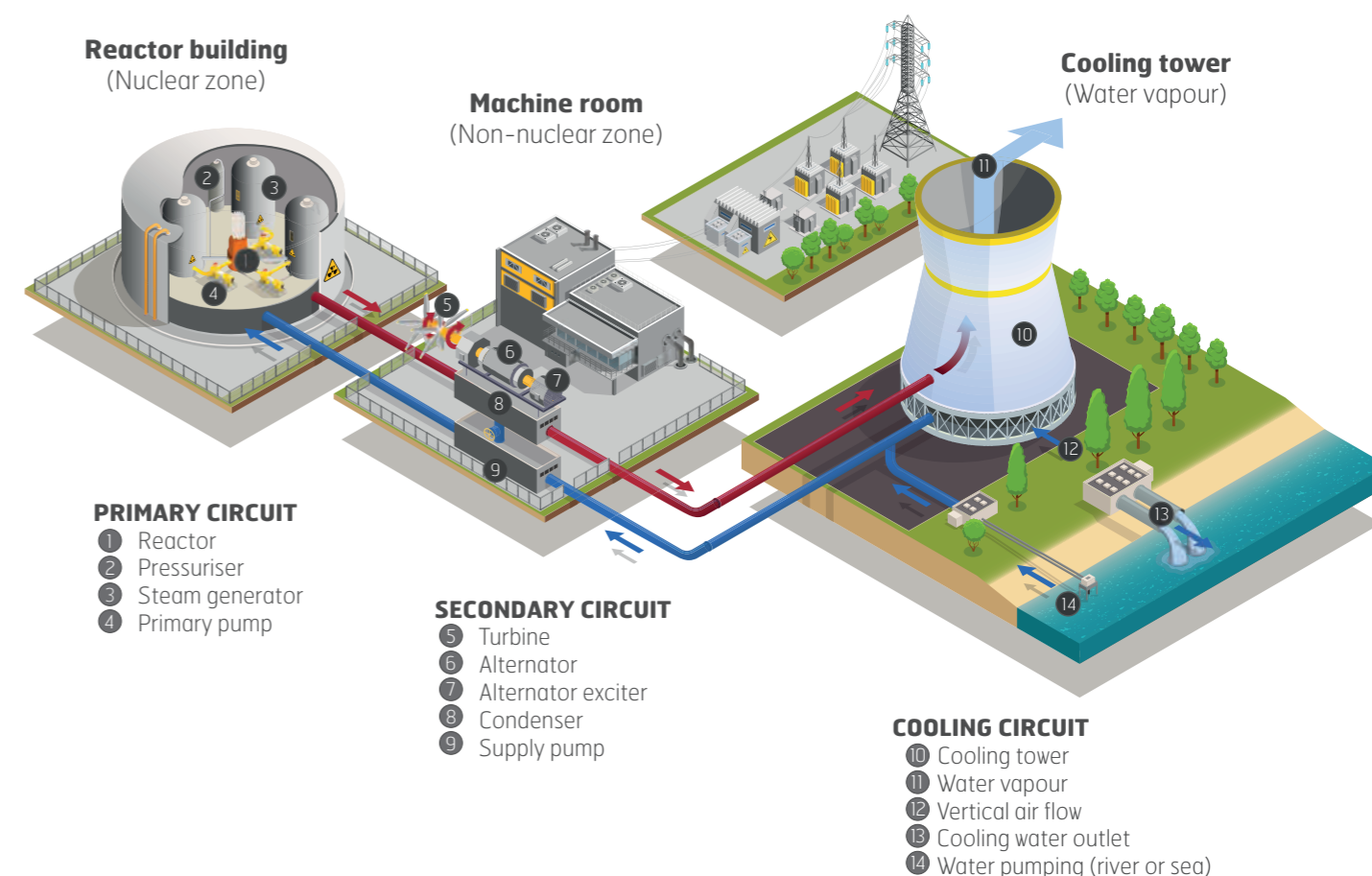
TRAINING

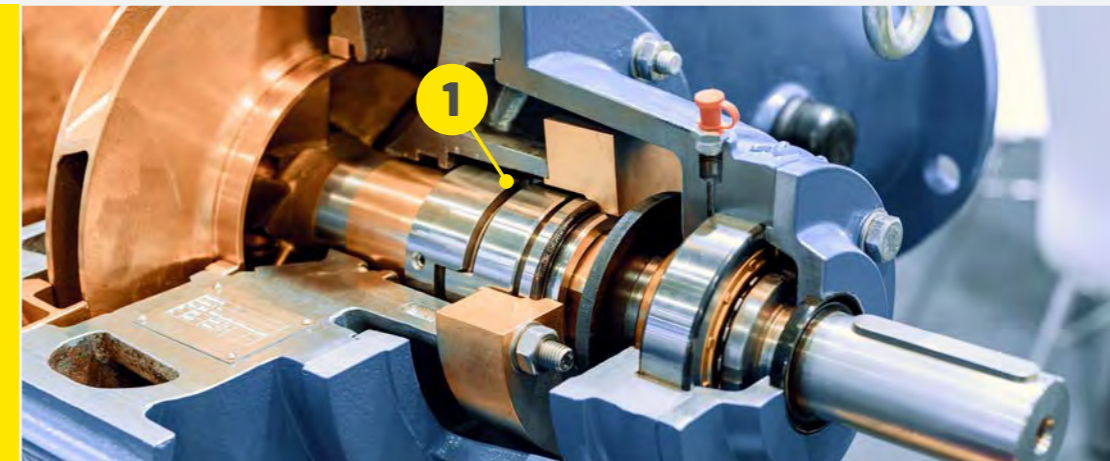
Our training courses on the selection of sealing solutions focus on their installation and good assembly practices. They guarantee the safety of your teams, the reliability of your equipment, and an extended equipment service life.



French government approved training organisation and QUALIOPi certified under no. 2021/96874.1.

GROUPE LATTY sealing solutions are present on all nuclear power plant circuits.





Our standard mechanical seals not only meet EDF requirements, but also the safety and security concepts required in the nuclear industry. They are also part of the environmental compliance of facilities (leak optimisation, exemplary installation condition / maintenance in exemplary condition, etc.). Our **accident condition qualified** mechanical seals are also designed and manufactured in accordance with RCC-M and or CRT*.

CARTSEAL B 24810

Dynamic sealing using cartridge mechanical seals

Static mechanical seal for high rotation speed applications. Accepts angular shaft offset and fits all types of equipment.

Ready to use: no adjustment on installation, reduced maintenance times.

- Pressure: < 25 bars
- Temperature: -20 °C to 200 °C
- Speed: < 20 m/s

LATTYSEAL B 23, B 17 & U 68

Dynamic seal with twin-component mechanical seal

Mechanical seals for high rotation speed applications.

- LATTYseal B 23**
- Pressure: 25 bar
 - Temperature: -20 °C to 200 °C
 - Speed: < 20 m/s

- LATTYseal B 17**
- Pressure: 20 bar
 - Temperature: -20°C / +200°C
 - Speed: 25 m/s

- LATTYseal U 68**
- Pressure: 10 bar
 - Temperature: -20°C / +200°C
 - Speed: 15 m/s

HEAT EXCHANGER

Manufactured in accordance with RCC-M and/or CRT*

Designed and manufactured in accordance with RCC-M for our mechanical seals with cooling in as per API 23. EAS / RIS / GSS etc. circuits.

Stainless steel lubrication and cooling system with removable flanges. GSS circuits.

LATTYSEAL B 11200 C

Dynamic seals for charged fluids

Abrasion-resistant compensated cartridge mechanical seal.

For high-pressure, high-temperature applications with thermal shock, high speeds and charged fluids,

MQCA certified for EDF. **ASG / RRI / RCV / EAS / RIS / APP circuits**

- Pressure: 50 bars
- Speed: 48m/s
- Temperature: 120 °C
- Thermal shock: 135 °C
- Load: Yes

1 Mechanical seal

LATTYSEAL U/B 2210 C

Cartridge mechanical seal, dynamic single-action

Single-action, dynamic cartridge mechanical seal with springs immersed in the product to prevent blockage by crystallisation.

Circuits: RRI / SEC / SRU

- Pressure: 7.2 bar
- Speed: 12 m/s
- Temperature: 70 °C
- Load: 200ppm (Ø<1mm)

LATTYSEAL B 11610 C

Compensated cartridge mechanical seal

With built-in pumping screw. Cover with and without welded manifolds and cooling as per API 23 drawing, with exchanger. For high-temperature, high-pressure and high-speed applications.

Circuits: APP / RIS / GSS

- Pressure: 38 bar
- Speed: 44m/s
- Temperature: 75 °C

EPR2 RIS (MHSI/LHSI), EASu 1300 circuits under development

- Pressure: 61 bar
- Speed: 19 m/s
- Temperature: 180 °C
- Thermal shock: 170 °C
- Load: 3000ppm

LATTYSEAL B 2610 C

Cartridge mechanical seal, dynamic single-action

Cartridge mechanical seal, dynamic single-action, with multi-springs immersed in the product to prevent blocking by crystallisation and pumping screw (API26 drawing) and packing ring

Circuits: APP / GSS

- Pressure: 13.5 barg
- Speed: 5.4 m/s
- Temperature: 65 °C

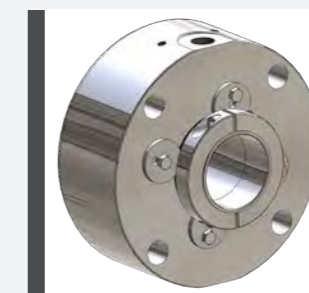
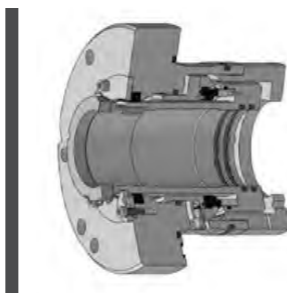
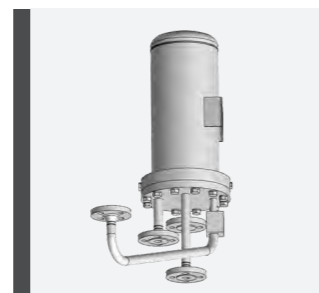
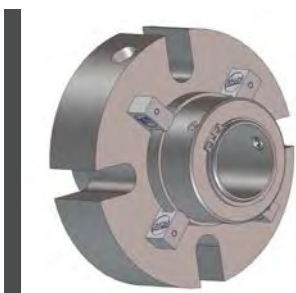
LATTYSEAL B 1102 C / 1110 C / 1610 C

Cartridge mechanical seal, dynamic single-action

Cartridge mechanical seal, dynamic single-action, with single spring immersed in the product to prevent blocking by crystallisation

Circuits: PTR / EAS / ASG / DEL / DER / TEU

- Pressure: 39 bar
- Speed: 12 m/s
- Temperature: 60 °C



* CRT: Technical Rule Specifications

Our sealing braids meet the requirements of cooling circuits that have an impact on the safety of equipment in the reactor building (RB). Our sealing braids are suitable for mounting on secondary and cooling circuits such as: CRF, SEN, JPP, ABP, ASG, SEC...



LATTYFLON 4789

Aramid braid with very high mechanical performances.

Good mechanical performances and ideal for highly charged fluids.

- Excellent abrasive fluid resistance
- Few re-tightenings
- Seal service life
- Lubricated friction
- Silicone-free braid
- Reduced maintenance times

- Pressure: 0 to 100 bar
- Temperature: -200 °C to 275 °C
- Speed: < 20 m/s
- pH: 2-12

PMUC n°17-0045



LATTYFLON 4788

Aramid braid with exceptional mechanical performance.

Mechanically strong and suitable for highly charged fluids.

- Excellent abrasive fluid resistance
- Unrivalled mechanical strength
- Seal service life
- Silicone-free braid
- Reduced maintenance times

- Pressure: 0 to 200 bar
- Temperature: -220 °C to 300 °C
- Speed: < 25 m/s
- pH: 2-13

PMUC n°17-0044



LATTYFLON 7188

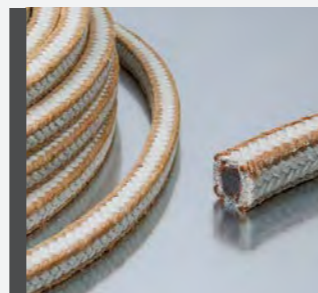
High-performance synthetic braid for charged fluids.

Very good mechanical characteristics combining flexibility and robustness.

- Resistant to abrasive and contaminated fluids
- Shorter running-in time
- Technical characteristics of the threads that limit heating and wear of the jackets
- Silicone-free lubricant
- Reduced maintenance times

- Pressure: 0 to 200 bar
- Temperature: -220 °C to 300 °C
- Speed: < 20 m/s
- pH: 1-13

PMUC n°17-0400



LATTYCORE 7189 G

A graphite core braid for harsh environments and charged fluids.

Braid for charged fluids and very difficult environments. On request, available as pre-shaped braids.

- Excellent resistance to abrasive fluids
- Flexible and robust braid
- Can be used without a lantern
- Very good elastic recovery
- Reduced maintenance times

- Pressure: 0 to 200 bar
- Temperature: -220 °C to 260 °C
- Speed: < 20 m/s
- pH: 1-13



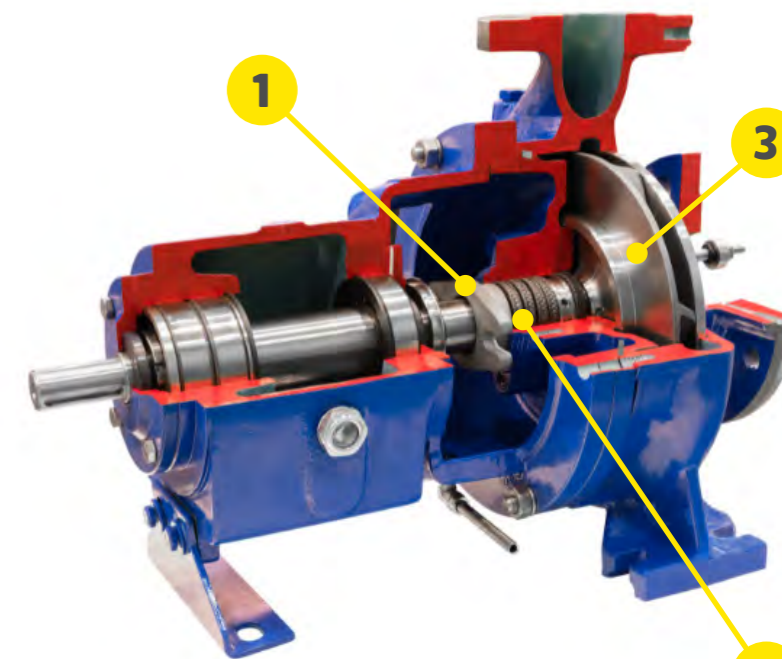
LATTYFLON 4757

Mechanically very strong composite braid.

Braid combining the advantages of graphited PTFE and aramid, mechanically very strong, specific applications for reciprocating and rotary pumps. On request, available as die-cut seals.

- Excellent mechanical strength
- Highly flexible, making it easy to fit the braid and fits to all types of equipment
- Good heat dissipation
- Advantages of graphited PTFE and aramid
- Self-lubricating

- Pressure: 0 to 1800 bar
- Temperature: -220 °C to +300 °C
- Speed: < 22 m/s
- pH: 2 - 14



- 1 Gland
- 2 Gland composed of braids
- 3 Wheel

Available in die-cut rings, pre-formed lengths or braid boxes.

For many years we have devoted part of our research and development to improving sealing solutions adapted to the requirements of the nuclear industries in the field of industrial valves

As a specialist in seals for taps, valves and dampers, our products guarantee the safety of your installations and your staff.

ADVANTAGES

Packings for Packing Presses (PG) made of die-forged rings and anti-extrusion rings specially developed to meet the technical and safety requirements of the nuclear industry with:

- **Radiation resistance up to 4000 kGy**
- An excellent level of seal at low torque,
- Very low friction factor and very good elastic recovery,
- Ready-to-use packing to reduce maintenance time.

Our products guarantee:

- Optimum operating seals for a safe, high-performance installation,
- Reduced operating torque to optimise the opening/closure times of motorised valves by reducing friction,
- Improved safety thanks to more reliable seals,
- Very good resistance to temperature variations or very high pressure,
- Built-in unlimited passive corrosion inhibitor.

OPERATING PARAMETERS (NOT ASSOCIATED)

PACKING AND PACKING RINGS

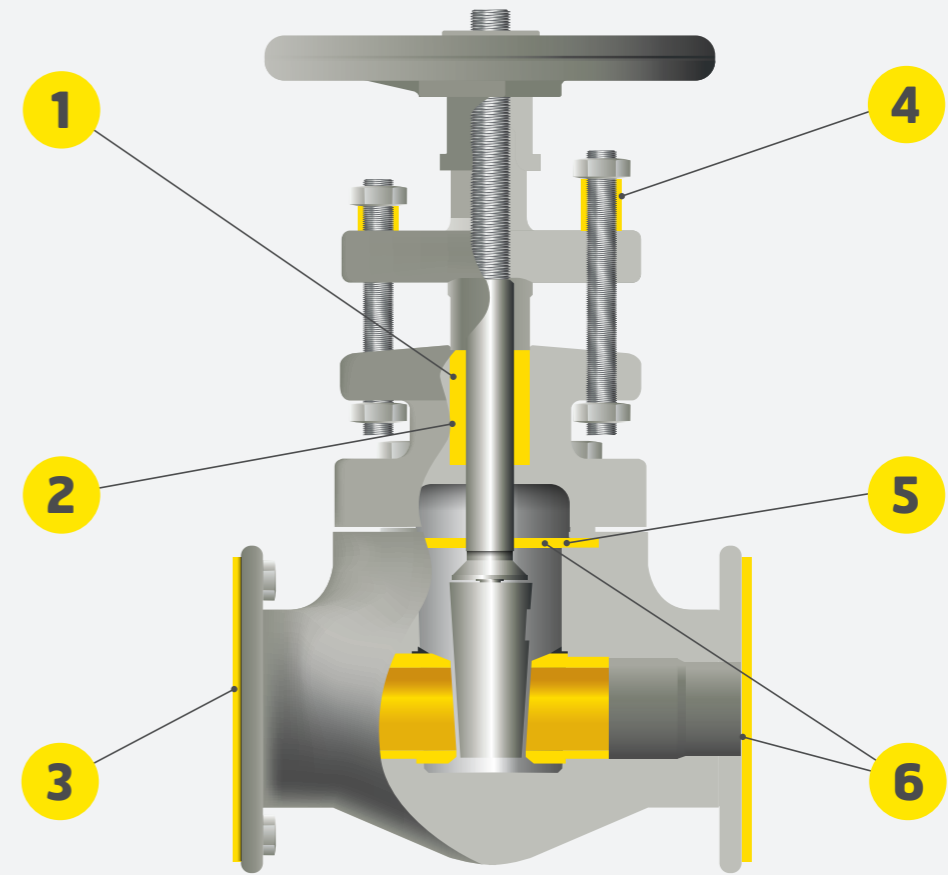
- **Radiation resistance up to 4000 kGy**
- PTFE: 310°C / 185 bars
- Graphite: 450°C / 420 bars

RINGS FOR STATIC SEALING

- From -196°C to 650°C
- From vacuum to 650 bars for gaseous applications or from 0 to 700 bars for liquid applications



Approvals available on request.



LATTYgraf 8945BS - LATTYgraf 9110
PMUC n° 17-0364 and 17-0391



LATTYgraf 8945 BS - LATTYflon 3265 FR
PMUC n° 17-0364 and 17-0363



LATTYgraf REFLEX NUC
PMUC n°17-0185



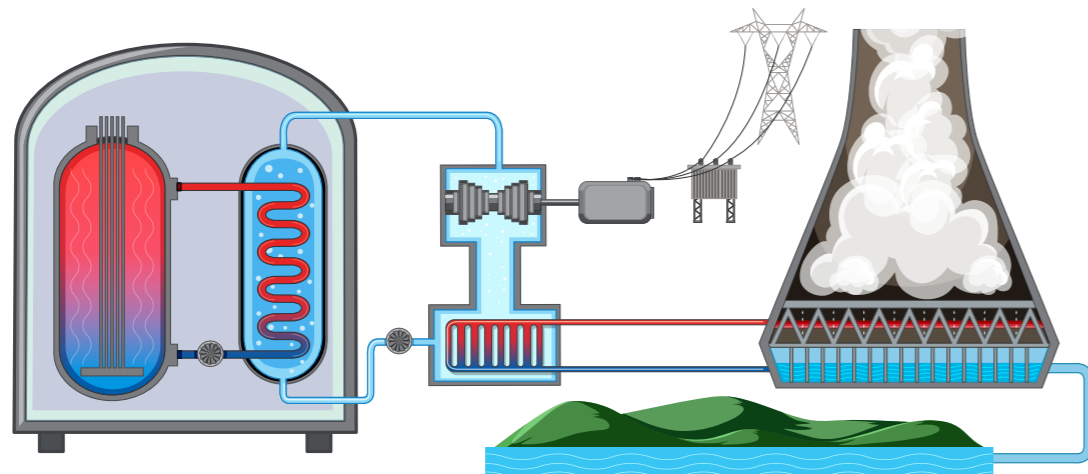
LATTY Live Loading System



Autoclave and graphite rings
PMUC n° 17-0186



LATTYgraf HPML NUC
PMUC n°17-0404 and 17-0405



Our static seals meet the requirements of the different types of assemblies and circuits used in the nuclear industry: **Piping, pressure vessels, rotating machinery and valves.**

Regardless of the configuration of the equipment and processes, our static sealing solutions can be fitted to operating and test circuits (high-pressure and high-temperature).

GRAPHITE RINGS

High-purity expanded graphite

Can be fitted to damaged or warped flanges. Shapes and sizes adapted to your needs for static seals: cap body...

- Optimisation of the time between interventions,
- Contains a corrosion inhibitor allowing vacuum pressures to 1000 bars and temperature variations from -200°C to 650°C.

- Pressure: 0 to 1000 bar
- Temperature: -200 °C to 650 °C

LATTYGRAF 9110

New generation of 99.5% pure graphite

High-purity expanded graphite closed-die-forged rings meeting PMUC requirements.

- Reduced friction
- Very good resistance to pressure and temperature variations
- Reduced manoeuvring force

- Pressure: 400 bars
- Temperature: -200 °C to 600 °C <450°C in a highly oxidising environments
- Speed: < 20 m/s

PMUC n°17-0391

LATTYGRAF EHT NUC

High-purity expanded graphite die-cast rings

Made of high-purity expanded graphite, without binder. These rings have a very good chemical inertia and a very high thermal conductivity.

- High self-lubricating properties
- Good chemical inertia and high thermal conductivity
- Very good resistance to oxidising environments
- Oxidation inhibitor

- Pressure: 400 bar
- Temperature: -200 °C to 650 °C
- pH: 0-14

LATTYGRAF REFLEX NUC

Composite seal with crush limiter

An active part made from expanded graphite for sealing, a precision-machined metal outer ring to limit crushing and act as an anti-extrusion ring, and a metal inner reinforcement ring.

Seals in extreme and variable pressure and temperature conditions.

- Pressure 0 to 500 bars
- Temperature: -200 °C to 600 °C
- pH: 0 - 14

ELASTOMER SEALS

Radiation-sensitive environment qualification up to 245 kGy and 1700 kGy

LATTY elastomer seals qualified in accordance with the EDF programme with a radiation resistance of up to 245 kGy and 1700 kGy and meeting the PMUC chemical specification with halogen and sulphur content values of less than 200 ppm

- Suitable for dynamic and static sealing,
- Different seal shapes possible, contact us
- EPDM, methyl ethylene rubber, hydrogenated nitrile rubber

LATTYGOLD 92

Resistant to high mechanical stress

Aramid seal sheet made from synthetic fibres bonded with a mixture of NBR-SBR elastomers and compressed into sheets.

- Excellent resistance to mechanical, thermal and chemical stress,
- With non-stick treatment on both sides

- Pressure: 0 to 100 bar
- Temperature: 0 °C to 440 °C

LATTYFLON 94L

Loaded modified PTFE seal sheet

Isotropic structure for high creep resistance and elastic recovery, giving it excellent sealing properties. The total chemical inertia of its components means it can be used for a wide range of aggressive chemicals.

- Pressure: 0 to 80 bar
- Temperature: -210 °C to 260 °C
- pH: 0 - 14

LATTYGRAF HPML NUC

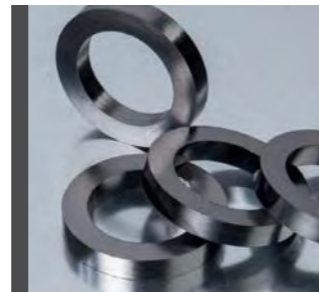
Multi-layer metal-graphite seal

The insertion of stainless steel sheets improves pressure resistance, and facilitates handling and seal cutting. Excellent chemical and thermal resistance.

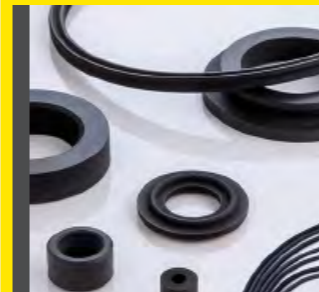
- Pressure: 250 bar
- Temperature: -200°C to 550°C (oxidising atmosphere)
- Temperature: -200°C to 700°C (inert atmosphere)
- pH: 0 - 14



PMUC N°17-0106



PMUC N°17-0185



PMUC n° 17-0389 / 17-0390
PMUC n° 17-0414 / 17-0415



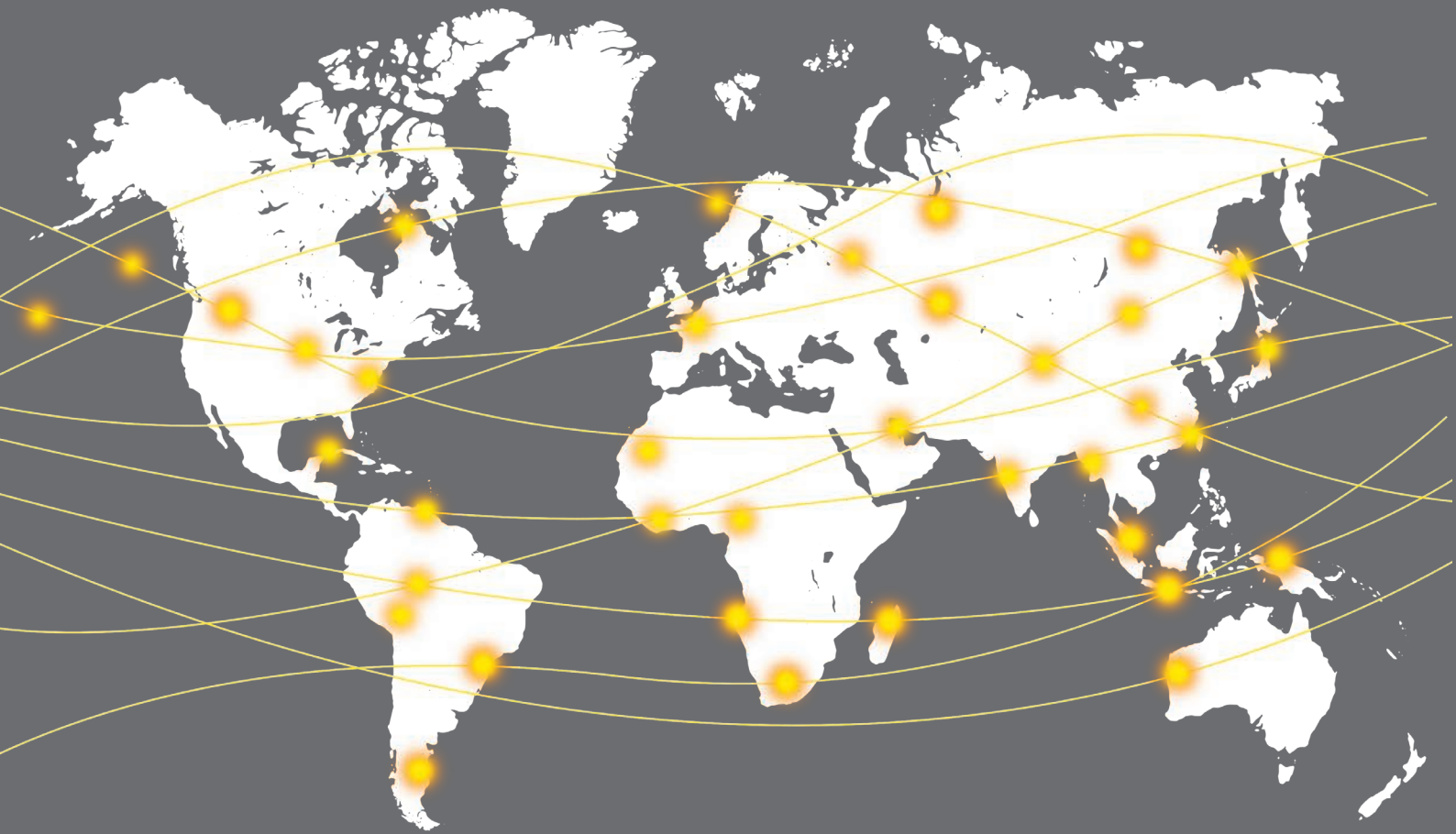
PMUC N°17-053



PMUC N°17-0188
ultimate EAS U



PMUC N°17-0405
17-0404



The GROUPE LATTY's subsidiaries and service centres worldwide are at your disposal to respond to your requests. All our contact details can be found on our website.

The information contained in this document is for information purposes only and cannot incur the liability of LATTY international in any way. We do not guarantee our product performances in cases of defective assembly or use not compliant with the given instructions. LATTY international only answers for the quality of its products, it has no role in their assembly or use which must be in line with trade practice.

LATTY BROU (01/2025) - Réf 900026094



TS / TRESSSES / JOINTS / GARNITURES MECANIKQUES / RACCORDS TOURNANTS / TRESSSES / JOINTS
PAKUNGS / O-RINGDICHTUNGEN / GLEITRINGDICHTUNGEN / DREHDURCHFÜHRUNG / PACKUNGS
UNIONEN / JOINTINGS / MECHANICAL SEALS / ROTARY UNIONS / PACKINGS / JOINTINGS
AT / TADURAS / JUNTAS



1 rue Xavier Latty 28160 BROU - FRANCE Tel. : +33 (0)2 37 44 77 77

www.latty.com