



# LATY trainings

With our 95 years' experience in the industrial sealing sector, we offer a series of training courses facilitated by our experts in order to make your equipment and personnel more efficient.

## TRAINING OBJECTIVES

- Understand the different leak occurrences.
- Establish technical specifications which allow us to recommend a sealing system.
- Choose a sealing method according to operating conditions.
- Acquire the good practices in sealing assembly and maintenance on our instrumented benches.

The LATY trainings:

### 1 Valves and fittings

Semi-static sealing: packings and gaskets

### 2 Rotary units

Sealing pumps, mixers

Dynamic sealing: mechanical seals and packings

### 3 Bolted flange connections

Boilermaking, pipeworks

Static sealing: gaskets, expanded graphite packing rings

## CONTENT OF TRAINING COURSES

Our training courses include a theoretical approach and a practical approach which allow you to discover the design and technical specificities of sealing systems.

## PERSONNEL CONCERNED

Engineers, managers or technicians in:

- design offices
- maintenance
- new works
- engineering
- methods
- production

The training sessions are organised for groups of 6 people maximum.

## INDUSTRIES CONCERNED

- energy
- oil & gas
- chemicals
- pharmaceuticals
- agri-food

## TRAINING DURATION

We recommend 3 days for the 3 training courses. But each of them can be provided over one day.

## TRAINING LOCATIONS

Training can either be performed at our production site in Brou (Eure & Loir) or on the customer's premises.



LATY is registered as a training organisation under number 24750019028.

# 1

# VALVES AND FITTINGS

## SEMI-STATIC SEALING: PACKINGS AND GASKETS



## TRAINING PROGRAMME

### PACKINGS AND GASKETS

#### 1. INTRODUCTION

- Units
- Notions of fluid dynamics
- Technical specifications
- Why can a sealing system leak?

#### 2. THE DIFFERENT TYPES OF FLANGES

#### 3. BOLTS AND TIGHTENING

- The different techniques

#### 4. DESCRIPTION OF A GASKET

- Definition and principle
- Components of a gasket

#### 5. STORAGE OF GASKETS

#### 6. DESCRIPTION OF A PACKING

- Definition and principle
- Constituents of a sealing braid
- Braiding methods
- Impregnation

#### 7. THE STUFFING BOX

- Definition
- Operating principle
- Structure and materials
- Rules to be observed (stuffing box, bottom ring, stem, gland, lantern ring)

#### 8. THE DIFFERENT TYPES OF INDUSTRIAL VALVES

#### 9. THE OTHER SEALING COMPONENTS OF A VALVE

#### 10. CALCULATING THE FRICTION OF A VALVE STUFFING BOX

#### 11. VALVE-RELATED STANDARDIZATION

#### 12. FUGITIVE EMISSIONS

- The different standards
- Leak measurement

#### 13. PRACTICAL EXERCISES ON TRAINING BENCH

- Assembly on instrumented training bench to visualise the effects of good practices in seal assembly



# 2

# ROTARY UNITS

## PUMPS AND MIXERS

### DYNAMIC SEALING: MECHANICAL SEALS AND PACKINGS



## TRAINING PROGRAMME

### PACKINGS

#### 1. INTRODUCTION

- Units
- Notions of fluid dynamics
- Technical specifications
- Why can a sealing system leak?

#### 2. DESCRIPTION OF A PACKING

- Definition and principle
- Components of a packing according to the characteristics sought
- Braiding: the differences between the different structures
- Impregnation

#### 3. THE STUFFING BOX

- Definition
- Operating principle
- Structure and materials
- Rules to be observed (stuffing box, bottom ring, stem, gland, lantern ring)

#### 4. CALCULATING THE FRICTION OF A STUFFING BOX IN A ROTARY UNIT

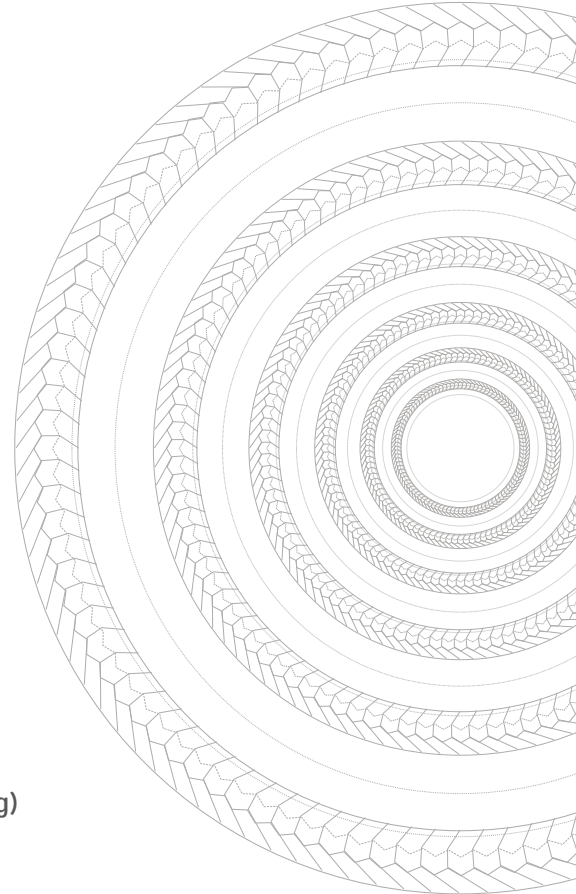
#### 5. CALCULATING THE FLUSH FLOW OF A STUFFING BOX IN A ROTARY UNIT

#### 6. ASSEMBLING A PUMP STUFFING BOX

- Operating principle
- Checking the equipment prior to fitting
- Preparing a ring or a length

#### 7. PRACTICAL EXERCISES ON TRAINING BENCH

- Cutting packings using a packing cutter
- Fitting the rings in a pump on instrumented training bench



## MECHANICAL SEALS

### 1. INTRODUCTION

- Units
- Notions of fluid dynamics
- Technical specifications
- Why can a sealing system leak?

### 2. DESCRIPTION OF A MECHANICAL SEAL

- Structure
- Analysis of the forces applied to faces
- Compensation (or hydraulic balancing of mechanical seal)
- PV factor

### 3. SELECTION CRITERIA, PROBLEMS AND SOLUTIONS

- Selecting the type of mechanical seal
- Selecting the type of mechanical seal assembly and operation

### 4. FACTORS AFFECTING SEALING EFFICIENCY

- Friction faces
- Geometry of friction faces
- Secondary sealing
- Other components

### 5. ASSEMBLY, MAINTENANCE AND SAFETY, FAILURES

- Assembling, starting up and monitoring instructions
- Monitoring and maintenance
- Cases of failures and causes

### 6. PRACTICAL EXERCISES ON TRAINING BENCH

- Assembly of single mechanical seals or cartridges on instrumented training bench to visualise the effects of good practices in seal assembly.

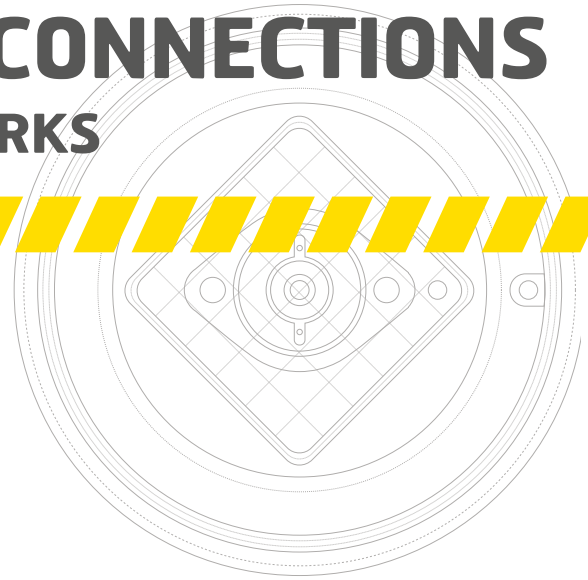


# 3

# BOLTED FLANGE CONNECTIONS

## BOILERMAKING & PIPEWORKS

### STATIC SEALING



## TRAINING PROGRAMME

### STATIC SEALING

#### 1. INTRODUCTION

- Units
- Notions of fluid dynamics
- Technical specifications
- Why can a sealing system leak?

#### 2. THE DIFFERENT TYPES OF FLANGES

#### 3. BOLTS AND TIGHTENING

- The different techniques

#### 4. DESCRIPTION OF A STATIC SEAL

- Definition and principle
- Components of a flange seal

#### 5. THE DIFFERENT TYPES OF SEALS

- Compression, elastic recovery
- Creep, relaxation
- Notion of metal-to-metal contact

#### 6. STORAGE OF GASKETS

#### 7. CALCULATING ASSEMBLIES WITH BOLTED FLANGES

- Introduction to CODAP/ASME (Taylor Forge method)
- Introduction to EN 1591-1, EN 1514-1, EN 12560
- Other types of calculation (LATTY method)

#### 8. FUGITIVE EMISSIONS

- The different standards
- Leak measurement

#### 9. PRACTICAL EXERCISES ON TRAINING BENCH

- Assembly on instrumented training bench to visualise the effects of good practices in seal assembly



# REGISTRATION FORM

## TRAINING SESSIONS

### Full name of participants:

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....

Company: .....

PC: ..... Town: .....

Tel.: .....

E-Mail: .....

Name of the training coordinator: .....

### Position:

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### Desired periods:

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### Training:

- Valves and fittings**  
Semi-static sealing: packings
- Rotary units - pumps and stirring**  
Dynamic sealing: packings and mechanical seals
- Bolted flange connections - boilermaking, pipeworks**  
Static sealing: gaskets, expanded graphite packing rings



### CONTACT FOR TRAINING

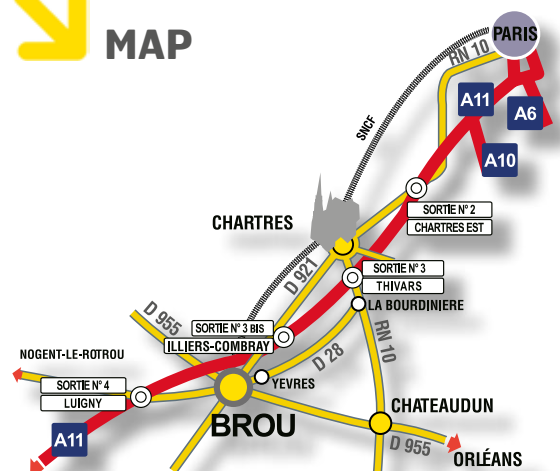
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### MODALITIES

The costs may be paid for by your training organisation. We can send you, upon request, a training agreement pursuant articles L.920-1 and L.920-13 of the Labour Code.

**LATTY International is a training organisation registered to the French regional office of the work of the employment and the vocational training under number 24750019028.**

### MAP



# Designer for industrial sealing solutions



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**LATTY Seal Service**  
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**LATTY trainings**

\*Subsidiaries with workshop for mechanical seals repair and repackaging



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