Design & production of fastening and binding elements through hot forging, machining and thread rolling.
Our History
Tradition and progress

The company founded in 1967 by André Laurent with 4 people, specialized first into forging technology. In the course of time the manufacturing of special screws and bolts as well as mechanical assembly parts has been developed.

Nearly 50 years later the family owned company with about 150 employees has become a system supplier and expert in mechanical assembly engineering. Jean-Jacques Laurent having initiated exports activities in the 90’s and son of the company’s founder, is now leading the company according to the same core values of respect, responsibility, solidarity, and communication with a clear international vision.

Expertise in Hot forging and Cold thread rolling - a must in the production of secure and high quality products, is steadily consolidated by investments in machinery and equipment, personnel training as well as technical support from our Design & Development Department.

The Saint-Etienne district has traditionally been France first region for Industrial Design, and mechanical engineering due to its historical background. Today with a network of more than 150 specialized companies, represented by the high-tech centre METALINK / MECALOIRE, ANDRÉ LAURENT can revert to an excellent know-how guaranteeing high flexibility and quality. Furthermore we are active member of the following associations:

• French association of the aerospace industry GIFAS (Groupement des Industries Françaises Aéronautiques et Spatiales, www.gifas.asso.fr)

• France China Electricity Partnership (PFCE) www.pfce-online.com

Applications of our products

Expertise in Hot forging and Cold thread rolling - a must in the production of secure and high quality products, is steadily consolidated by investments in machinery and equipment, personnel training as well as technical support from our Design & Development Department.

The Saint-Etienne district has traditionally been France first region for Industrial Design, and mechanical engineering due to its historical background. Today with a network of more than 150 specialized companies, represented by the high-tech centre METALINK / MECALOIRE, ANDRÉ LAURENT can revert to an excellent know-how guaranteeing high flexibility and quality. Furthermore we are active member of the following associations:

• French association of the aerospace industry GIFAS (Groupement des Industries Françaises Aéronautiques et Spatiales, www.gifas.asso.fr)

• France China Electricity Partnership (PFCE) www.pfce-online.com

//professionally speaking//

Hot forging. This is a historical skill of the André Laurent SAS and we are now able to achieve a gross forging tolerance of 0.1 mm.

Threading. We carry out external threading, by cold rolling process after heat treatment up to 1300 Mpa and internal threading on Inconel.
Connecting, binding and fixing engineered components used in jet turbines, hydropower, diesel and gas engines, high-pressure pumps or heavy-load lifting equipment, are exposed to ever bigger loads and higher mechanical strains. They ensure the safety of these equipments’ functions.

During and after production, our products are subject to regular and numerous controls. The following quality controls can be carried out in our in-house laboratory:

**DESTRUCTIVE TESTS:**
- Tensile tests:
  - Tensile strength test at room temperature
  - Angular tensile test
  - Proof load test
  - Tensile test on entire screw
- Hardness tests HB/ HV
- Impact test at room temperature and until -120 °C
- Microscopy to check material structure, thickness measurement and grain size
- Macrography to check the material fibre course

**NON-DESTRUCTIVE TESTS:**
- Magnetic particle inspection
- Liquid penetrant inspection
- Ultrasonic test
- Material identification by optical emission spectroscopy

Additionally the approval tests take place in cooperation with our own experts and the respective classification societies as ABS, BV, CCS, DNV, GL, LRS and RINA.

Our sub-contractors and suppliers are regularly audited following a strict selection procedure. Traceability is guaranteed by a consistent marking completely documented in our system – starting from raw material to the finished product. Material and production flow are optimized through a dynamic production scheduling software (MRP-System).

**OUR CERTIFICATIONS:**
- EN 9100: 2009
- AD-2000 Merkblatt W0
- Bureau Veritas - Germanischer Lloyd
- Lloyd's Register
OUR PERFORMANCE
MANUFACTURING PROCESS
OF HOT FORGING

Video also on our Website www.andre-laurent.fr

EQUIPMENT:
• Screw presses from 100 tons to 800 tons
• Induction and conduction heating devices
  [upsetting the initial diameter up to 20 times]
• Own tooling: in-house design & manufacturing, 48h service

CAPACITIES:
Ø head: 8 - 200 mm
Ø body: 8 - 120 mm
Length: up to 1000 mm

Feasibility and processing are simulated in advance
via special software (Forge 3).
The production of tools made from special steel or
carbide using spark erosion is integrated as well.
Temperature control via infra-red camera ensures
the quality of the forging.

ADVANTAGES OF DROP FORGING:
• Increase the resistance of the products:
  The forging process creates a dense and
  homogeneous structure and a continuous fibre
  course.
• Manufacturing of one-piece components.
• Reduction of the machining time.
• Savings on raw material.

//PROFESSIONALLY SPEAKING//

Our workshop has never ceased
to evolve and is now fully
tegrated and automated with
digitized equipment. Examples
of this can be seen in our rolling
shop, which is 100% numerically
controlled, and cells which are
robotised, allowing us to achieve
significant savings.

OUR PERFORMANCE
MANUFACTURING PROCESS
OF MACHINING

TURNING & MILLING

EQUIPMENT:
• CNC lathes
• Robotized production units

CAPACITIES:
Ø 8 - 350 mm
Length: up to 3000 mm

APPLIED TECHNOLOGY:
• SPC (Statistical Process Control) for
  improving our manufacturing process
• SMED (Single Minute Exchange of Die)
  for optimizing our performance rate

Our software Solidworks and Mastercam
allow a fast information exchange with our
customers for a constant optimization of
our manufacturing processes.

GRINDING

EQUIPMENT:
• CNC grinding machines between-centers
• Centerless grinding machines

CAPACITIES:
Centerless: Ø 8 - 100 mm
Between-centers: Ø 8 - 250 mm
Length: 1200 mm

TOOTH CUTTING

EQUIPMENT:
• Hobbing machines

CAPACITIES:
Ø 12 to 190 x 1500 mm
with modules 0.5 to 16

//PROFESSIONALLY SPEAKING//

Our clients seek to reduce their numbers of suppliers,
which encouraged us to develop our network of foreign
partners, with a procurement bureau in China for more than
8 years, in order to offer low-cost solutions while controlling
the production of highly critical parts in our workshops.

EPR’s in Great Britain. The last complex components are
produced in our Moroccan factory (stamping, machining and
rolling), while more complex parts are made in our French
workshops (forging, machining and rolling).
THE ASSEMBLY EXPERT

FOCUSING ON OUR CUSTOMERS

Personal dedication of each employee has always been a basic principle at ANDRÉ LAURENT. Responding to questions of our business partners and considering every possible solution are taken for granted. Increasing logistic requirements like shorter lead times, just-in-time and KanBan deliveries are demanding rapidity, accuracy and innovative methods of organization. By means of a motivating management, a smooth and open communication, ANDRÉ LAURENT meets this challenge by a committed assignment of responsibilities.

In order to meet market’s requirements, we invest 5-6% of the annual turnover into our staff’s training and into machinery and equipment. After financial control and evaluation of customer-related projects, we check up the utility of investments in order to respond to special demands.

Your needs – Our answers
Meeting your deadlines
Reducing your acquisition costs
Outsourcing
Vendor Managed Inventory
Optimizing product quality
Investment capability
Sustainable development

ALSTOM CREUSOT RAIL. We succeeded in halving the cost of a part by forging a tube rather than a bar, thus eliminating the extra costs of drilling and additional machining, and avoiding the significant wastage of material.

GTT. As a response to a problem relating to the strength and watertightness of the double hulls of methane tankers, we designed a product to replace two assembled parts by a single forged part, resulting in greater strength, improved mechanical characteristics and lower cost.

OUR PERFORMANCE MANUFACTURING PROCESS OF ASSEMBLIES

EQUIPMENT: Semi-automatic setting: MIC/ MAC process
CAPACITIES: ø 400 x 2000 mm.

These techniques come in addition to our core manufacturing processes to undertake the complete management of assemblies after drawing and specification.

OUR PERFORMANCE MANUFACTURING PROCESS OF THREAD ROLLING

Video also on our Website www.andre-laurent.fr

EQUIPMENT:
• CNC-rolling machines from 20 tons up to 100 tons
• 300 sets of rolling tools to produce all kinds of thread profiles, before or after heat treatment

CAPACITIES:
ø 6 - 250 mm

ADVANTAGES OF THREAD ROLLING:
• Higher fatigue resistance: The cold thread rolling process ensures maximum compression through cold forming, consequently increasing the resistance on this thread and eliminating micro-failures being done by the conventional cutting process.
• Continuous fibre course and strain hardening of the surface
• Improvement of surface finish
• Reduction of the machining time
• Mastering of thread rolling process (no tool wear)

OUTSIDE RESOURCES

ALSTOM CREUSOT RAIL. We succeeded in halving the cost of a part by forging a tube rather than a bar, thus eliminating the extra costs of drilling and additional machining, and avoiding the significant wastage of material.

GTT. As a response to a problem relating to the strength and watertightness of the double hulls of methane tankers, we designed a product to replace two assembled parts by a single forged part, resulting in greater strength, improved mechanical characteristics and lower cost.

//PROFESSIONALLY SPEAKING//
In response to an emergency situation requiring delivery to an offshore platform in less than one month, we delivered 500 M90x410 parts within the required time limit and to the specified quality after procuring the materials, mobilising our teams, opening the factory during the holiday period and finding the appropriate surface treatments.

### Applied Materials

#### Stainless Steel

<table>
<thead>
<tr>
<th>Material nr.</th>
<th>EN</th>
<th>UNS</th>
<th>ASTM</th>
<th>AISI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4005</td>
<td>X12Cr13</td>
<td>S 410</td>
<td>A194 Gr 6</td>
<td>416</td>
</tr>
<tr>
<td>1.4006</td>
<td>X12Cr13</td>
<td>S 410</td>
<td>A194 Gr 6</td>
<td>410</td>
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<tr>
<td>1.4021</td>
<td>X20Cr13</td>
<td>S 420</td>
<td>-</td>
<td>420A</td>
</tr>
<tr>
<td>1.4028</td>
<td>X30Cr13</td>
<td>S 420</td>
<td>-</td>
<td>420B</td>
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<tr>
<td>1.4057</td>
<td>X17CrNi16-2</td>
<td>S 4310</td>
<td>-</td>
<td>431</td>
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<tr>
<td>1.4313</td>
<td>X4CrNi17-6</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4416</td>
<td>X4CrNiMo17-7-1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4731</td>
<td>X4CrNiMo17-12-2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.4913</td>
<td>X19CrMoNBV11-1</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</table>

#### Precipitation hardened steel:

<table>
<thead>
<tr>
<th>Material nr.</th>
<th>EN</th>
<th>UNS</th>
<th>ASTM</th>
<th>AISI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4542</td>
<td>X5CrNiCuNb18-16-4</td>
<td>S 1740</td>
<td>A564 Gr 630</td>
<td>-</td>
</tr>
<tr>
<td>1.4780</td>
<td>X5NiCr11MoV25-15-2</td>
<td>S 425</td>
<td>A563 Gr 630</td>
<td>660</td>
</tr>
</tbody>
</table>

#### Austenitc – ferritic steel / Duplex:

<table>
<thead>
<tr>
<th>Material nr.</th>
<th>EN</th>
<th>UNS</th>
<th>ASTM</th>
<th>AISI</th>
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</thead>
<tbody>
<tr>
<td>1.4362</td>
<td>X2CrNiMo22-5-3</td>
<td>S 329</td>
<td>-</td>
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<tr>
<td>1.4462</td>
<td>X2CrNiMo22-5-3</td>
<td>S 329</td>
<td>-</td>
<td>329</td>
</tr>
<tr>
<td>1.4507</td>
<td>X2CrNiMoCu25-6-3</td>
<td>S 329</td>
<td>-</td>
<td>329</td>
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</tbody>
</table>

#### Austenitic steel:

<table>
<thead>
<tr>
<th>Material nr.</th>
<th>EN</th>
<th>UNS</th>
<th>ASTM</th>
<th>AISI</th>
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</thead>
<tbody>
<tr>
<td>1.4059</td>
<td>X8CrNiMo18-9</td>
<td>S 303</td>
<td>A194 Gr 8</td>
<td>303</td>
</tr>
<tr>
<td>1.4007</td>
<td>X2CrNiTi18-9</td>
<td>S 304</td>
<td>-</td>
<td>304L</td>
</tr>
<tr>
<td>1.4004</td>
<td>X2CrNiMo17-12-2</td>
<td>S 310</td>
<td>-</td>
<td>310L</td>
</tr>
<tr>
<td>1.4339</td>
<td>X10NiCrMoCu32-20-5</td>
<td>S 089</td>
<td>-</td>
<td>205L</td>
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<tr>
<td>1.4451</td>
<td>X2CrNiTi18-10</td>
<td>S 321</td>
<td>A194 Gr 8</td>
<td>321</td>
</tr>
<tr>
<td>1.4571</td>
<td>X2CrNiMo17-12-2</td>
<td>S 316</td>
<td>-</td>
<td>316L</td>
</tr>
<tr>
<td>1.4465</td>
<td>X8CrNi29-21</td>
<td>S 318</td>
<td>-</td>
<td>318</td>
</tr>
</tbody>
</table>

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### Our Performance

#### HEAT & SURFACE TREATMENT

- **Surface Treatment**: Electroplating, Zinc coating, Lamellar zinc coating, Phosphating, Anodizing, PVD-coating (chromium nitride), Carburization, Sandblasting, Shot-peening, GEOMET coating, Xylan-Xylar, Delta-Seal-Delta-Tone.
- **Heat Treatment**: Normalisation, Annealing, Relieving, Quenching and tempering, Over-hardening, Ageing, Nitrizing, Case hardening, Surface hardening.
- **Thread Profiles**: 250 metre threads, UNC / UNS threads, Trapezoidal threads, Round threads, Special profiles.
- **Standards**: ISO (NP & DIN), ASTM & ASME BS, RCC – M & RCC – EV.

##nickel alloys & Non-ferrous metals

<table>
<thead>
<tr>
<th>Material nr.</th>
<th>EN</th>
<th>Description</th>
<th>UNS</th>
<th>ASTM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4856</td>
<td>NiCr2Mn15</td>
<td>Inconel 625</td>
<td>N06625</td>
<td>644-446</td>
</tr>
<tr>
<td>2.4848</td>
<td>NiCr19MnMo</td>
<td>Inconel 718</td>
<td>N07718</td>
<td>-</td>
</tr>
<tr>
<td>2.4340/2.4366</td>
<td>NiCu30Fe</td>
<td>Monel 400</td>
<td>N04400</td>
<td>-</td>
</tr>
<tr>
<td>2.4631/2.4752</td>
<td>NiCr20Ti</td>
<td>Nimonic 80A</td>
<td>N07080</td>
<td>6637</td>
</tr>
<tr>
<td>2.4819</td>
<td>NiMo16Cr15W</td>
<td>Hastelloy C276</td>
<td>N10276</td>
<td>-</td>
</tr>
</tbody>
</table>

### Our Performance

- **Applied Materials**: Nickel alloys, Non-ferrous metals.
- **Construction steel**
  - Material nr.: 1.1221, X46CrMoV12, S35S J2
  - Material nr.: 1.2397, X4NiCrMoV12, S325XJ2
  - Material nr.: 1.2842, Y0MoV8

### Steel for quenching and tempering

- Material nr.: 1.4360, 30CrNiMo8, 823 M 30
- Material nr.: 1.6582, 34CrNiMo8, 816 M 40
- Material nr.: 1.6747, 30CrNiMo16-6-4, 835 M 30
- Material nr.: 1.6793, 36CrNiMo16, -

### Surface Treatment

- Electroplating, Zinc coating, Lamellar zinc coating, Phosphating, Anodizing, PVD-coating (chromium nitride), Carburization, Sandblasting, Shot-peening, GEOMET coating, Xylan-Xylar, Delta-Seal-Delta-Tone.
- Heat treatment: Normalisation, Annealing, Relieving, Quenching and tempering, Over-hardening, Ageing, Nitrizing, Case hardening, Surface hardening.
- Thread profiles: 250 metre threads, UNC / UNS threads, Trapezoidal threads, Round threads, Special profiles.
- Standards: ISO (NP & DIN), ASTM & ASME BS, RCC – M & RCC – EV.

### Applied Materials

- **Nickel alloys**
  - Material nr.: 2.4856, NiCr2Mn15, Inconel 625
  - Material nr.: 2.4848, NiCr19MnMo, Inconel 718

- **Non-ferrous metals**
  - Material nr.: 2.4340/2.4366, NiCu30Fe, Monel 400
  - Material nr.: 2.4631/2.4752, NiCr20Ti, Nimonic 80A
  - Material nr.: 2.4819, NiMo16Cr15W, Hastelloy C276

---

**In order to supply in short-term, we keep a permanent stock of raw materials on a surface of 900m²:**

- 1.500 tons raw material
- 500 different diameters in more than 100 grades and alloys.

**Hereafter our mainly used materials which are constantly kept on stock. Depending on products and inquiries, unlisted materials are procured as well.**
7 good reasons for choosing «André Laurent»

1. EXPERTISE – SKILL
   TO MATCH YOUR REQUIREMENTS
   Our expertise results from a constantly-evolving rigour.

2. QUALITY – SAFETY
   FOR YOUR CONFIDENCE
   We have served clients since the company was founded almost 50 years ago.

3. REACTIVITY – PROVIDING SOLUTIONS
   CUSTOMER RELATIONSHIPS AT THE CORE OF THE BUSINESS
   The customer relationship starts from the first contact.

4. DURABILITY – REPUTATION
   THE ROBUSTNESS OF A STORY ALMOST 50 YEARS OLD
   Our reputation has been built on customer satisfaction.

5. BREADTH OF OFFER
   PUSHING BACK THE LIMITS ON YOUR BEHALF
   Our facilities, skill and sense of service support the broad scope of our offer.

6. PRICE – QUALITY
   WORKING TOGETHER TO FIND THE BEST SOLUTIONS
   We prefer to talk about cost of ownership.

7. STRATEGY – INTERNATIONAL
   CLOSER TOGETHER TO GO FURTHER
   Our strategy is built on 3 fundamental principles: internationalism, innovation and performance.

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