heat transfer
equipment

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Index

Company profile

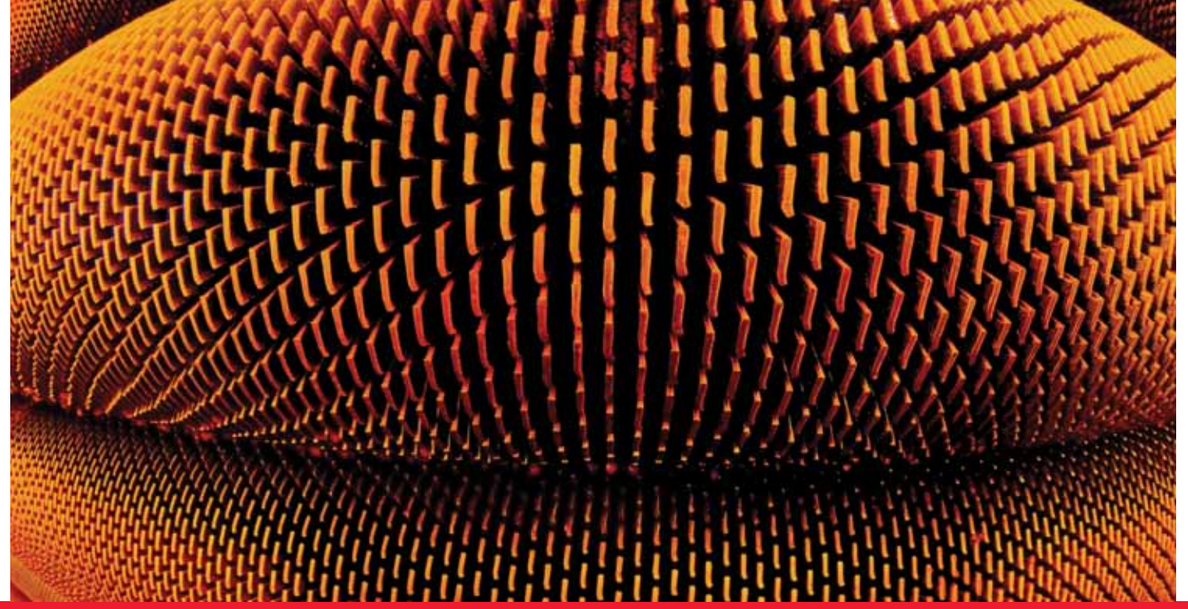
L.P. S.p.A. established in 1976 with major presence in petrochemical plants and most recently in cogeneration plants for manufacture and supply of:

- Finned Tubes
- Studded Tubes
- Headers and Manifolds
- Fired heater radiant and convection coils/modules
- Waste heat boilers, preheaters, economizers, and superheaters
- Cryogenic liquid vaporizers (LNG)
- Cold collectors and transferline
- Piping systems
- Skid Assemblies

Our proud history of more than **40 years of activity** has given us the expertise required to manufacture the finest equipment available. **L.P. S.p.A**. has a labour force of **100 people and utilizes all the most up-to-date** production devices. A policy of continuing investment in plant and equipment ensures that workshops facilities are periodically reinforced and conform to international standards. Our policy is reliability and product quality. **L.P. S.p.A**.: an ISO9001 adn ASME Certified Company.

The technical background of our company ensures that the manufacturing process and procedures meet the approval of LLOYDS, BUREU VERITAS, APAVE, T. U. E. V., D. N. V., INAIL, and other international agencies requirements. The capabilities of **L.P. S.p.A**. have been recognised by leading international engineering organisations and prestigious contracts have been secured from all major world wide engineering companies.

A combination of **innovative technology, quality assurance, and advanced manufacturing equipments** are the reasons for the impressive growth of **L.P. S.p.A**. success.



High frequency welded finned pipes

Manufacturing Process

L.P. S.p.A. Steel Fin Tubes are helically wound and continously welded to the tube by high frequency electric resistance welding of solid or serrated steel fins. This produces an homogeneous , clean and continous fin-to-tube bond with no additional weld material, for a **very efficient heat flow and resistance to corrosion**.

This manufacturing process is carried out under strict standards. We also produce finned tubes with intermediate plain portions where required.

The use of high-frequency current results in very localised heating of the tube surface and the edge of the fin. This skin effect produces higher weld speeds, hence post-weld heat treatment is not considered necessary because of the superficial nature of the changes in the microstructure.

COLD BENDING:

Of bare and finned tubes, single or multiple coil bends.

- Bending range: **3 / 4 " (25 mm.) to 3 " (88.9 mm.)**
- Bending radius: **max. 16 " (406.4 mm.), min. 1 x D**

PROTECTIVE COATING:

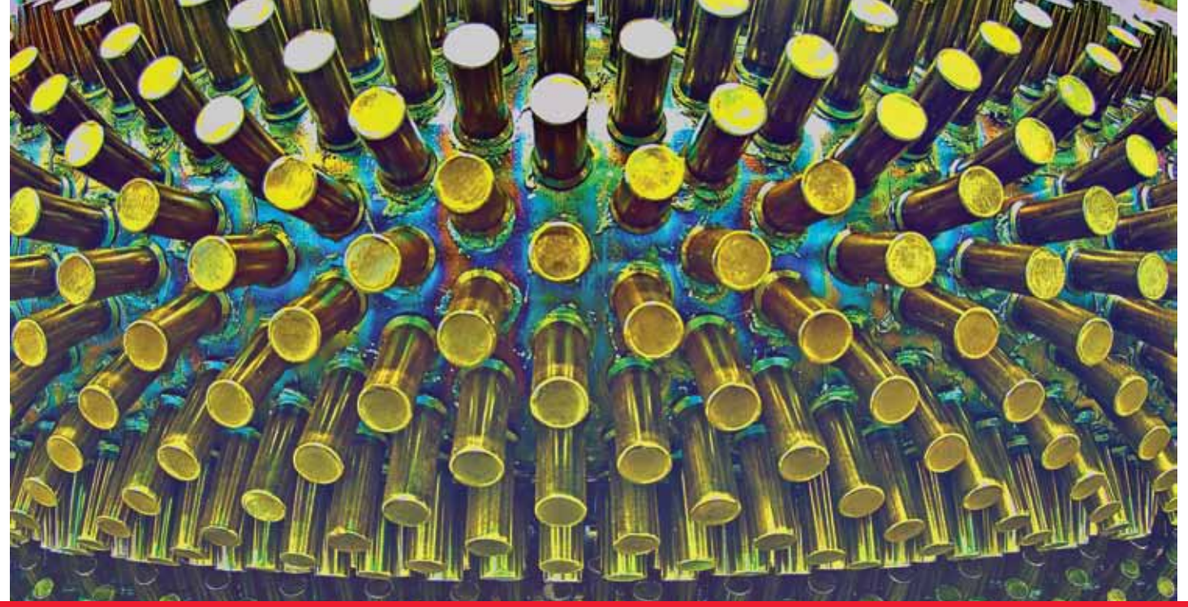
Where external corrosion of finned tube is expected, suitable protective coatings can be applied.

Uses of welded finned tubes

The main uses for high frequency welded finned tubes are in the heat recovery associated with boilers for power generation and in furnace applications for the petrochemical industry.

Sizes and materials

Our high frequency welding finning machines are capable of handling tube diameters from 25 mm o/d to 273 mm o/d and tube lengths of up to 26 meters. Fin sizes range from 6 mm to 38 mm high and from 0.8 mm to 3 mm thick.



Studded pipes

Welding process

The steel studs are automatically resistance welded to the tube, producing high quality forge welds. Our automatic studding machines are capable of handling tube diameters from 60 mm o/d to 219 mm o/d and standard stud diameter of 12.7 mm.

The welding process enables the combination of **any grades for studs and tube**: carbon, alloy, stainless steels and high nickel alloys. Alloy steel pipes are stress-relieved after studding, according to the relevant specifications for the class and grade of steel used.

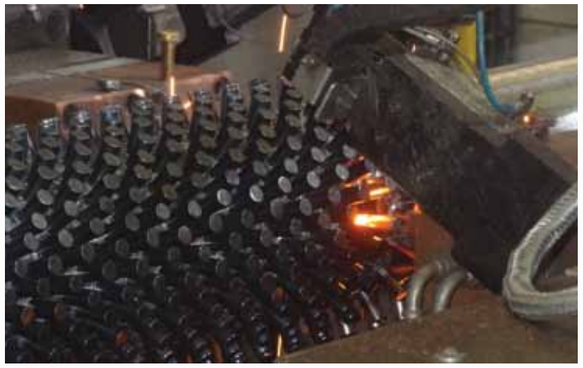
CORROSION PROTECTION:

If required, the external surfaces of studded tubes **can be treated with a protective coating**.

Our engineers are always ready to assist you with design considerations to meet your specific product needs.

Uses of welded studded tubes

Steel studded tubes are used instead of finned tubes for heat transfer in the petrochemical industry, generally in furnaces and boilers where the surface is exposed to a very corrosive environment and where very dirty gas streams require frequent or aggressive cleaning.



Cryogenic liquid vaporizers and hairpins

Vaporizers are heat exchangers used for regasifying liquefied gases which are stored as a liquid under cryogenic temperatures.

L.P. S.p.A., with its inhouse bending machines, possess several years of experience in the supply, fabrication and assembly of submerged tube bundles.

The bending technology adopted by **L.P. S.p.A**. is also ideal for the fabrication of inlet and outlet hairpins with different bending radius and several combinations of pipe diameters and thicknesses.

Heaters and boilers fabrication

In addition to manufacturing extended surface tubing, **L.P. S.p.A**. can incorporate it into heat recovery systems and supply it as complete unit. If required, we can also include the supply of the steel structure, refractory lining, accessories and assembly.

L.P. S.p. A. has a wide experience in the manufacture of:

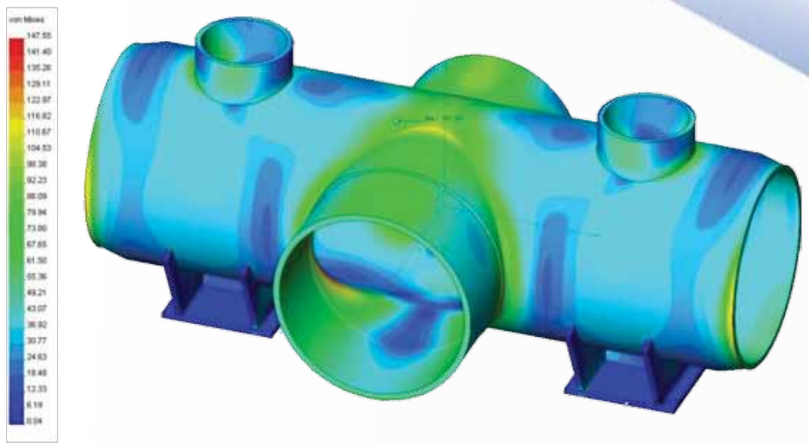
- Headers and Manifolds.
- Fired Heater Radiant and Convection Coils.
- Fired Heater Modules.
- Waste Heat Boilers, Preheaters, Economizers and Superheaters.
- Piping Systems.
- Skid assemblies.

Our services cover also:

- Supply of structural steel
- Sandblasting and painting
- Refractory lining
- Refractory thermal dry-out
- Modularization
- Trial assembly
- Corrosion protection works

L.P. S.p.A. has always been concerned about Quality Assurance and has a very well equipped Materials Inspection Department to assure a constant follow up during all fabrication stages. Its high technological level in manufacturing gives **L.P. S.p.A**. a **prominent position in its field** of activity having also obtained **qualifications within several national and international official institutions**.

During its **40 years of activity** our company has succesfully carried out large supplies to all major internation engineering companies. **L.P. S.p.A**. products are used in refineries, petrochemical and power generating plants all over the world.



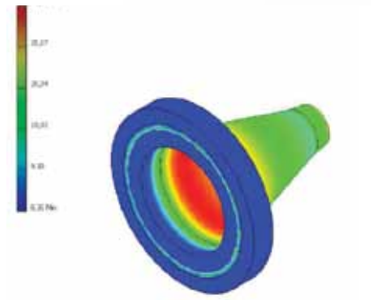
Cold collectors and transferlines

In the cold collector system, the reformed gas is introduced directly from the individual tubes to the transfer line which is located outside the furnace. In this system, special devices are required for connecting the hot parts to the cold collectors. Different versions of this concept are used by Linde Engineering, Haldor Topsoe, Lurgi, Uhde and other engineering companies.

LP S.p.A. during several years of activity has successfully supplied and fabricated cold collectors based on all design concepts.
Modern fabrication technologies joined with gained experience and knowledge have led cold collectors to be LP S.p.A. flagship product.

Recently, investments have been made in our workshop in order to allow the most efficient fabrication process which leads to the highest quality of refractory lined cold collectors.

Design and calculation

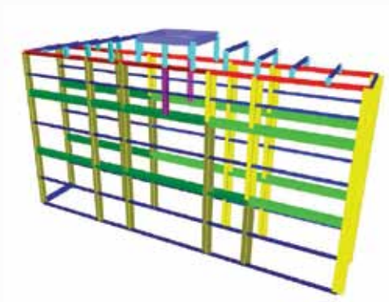


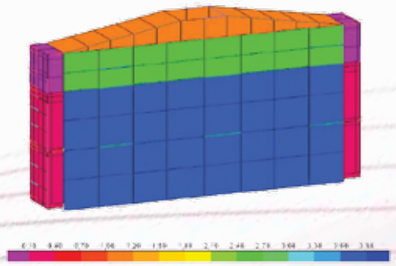
With the experience gained in recent years, LP S.p.A. can also provide technical assistance during the engineering process.

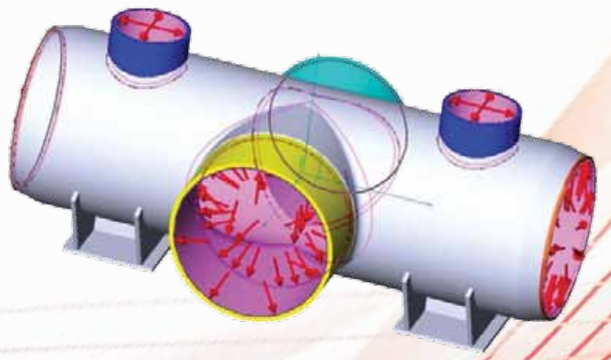
LP S.p.A. can support its clients by offering the following services:

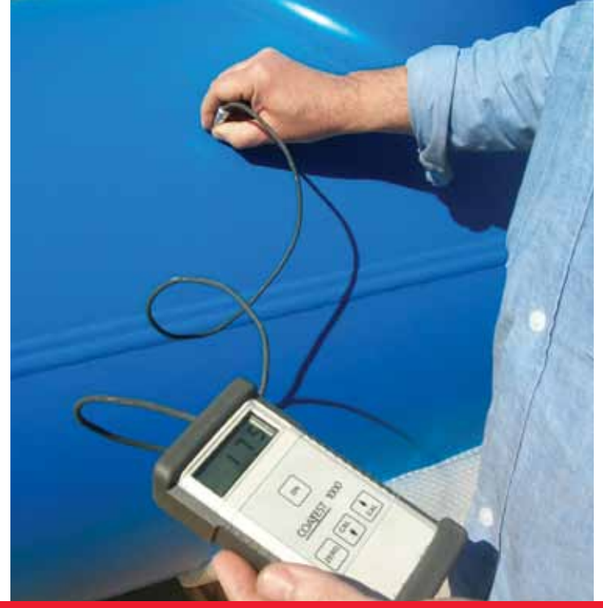
- pressure parts
- concrete calculations
- structural steel calculation
- stress analysis
- finite element method calculations

LP S.p.A. is able to work both independently or in collaboration with an engineering company.









Quality assurance

Welding / welders procedure qualifications:

Our welding procedures and welding personnel are qualified by the following institutions:

- Italian welding institute
- Apave Italia CPM
- TÜV
- INAIL
- Bureau Veritas
- Lloyd's register

Design office:

We calculate, design and verify mechanical projects for pressure parts in accordance with INAIL, ASME, AQUAP, T. U. E. V., Codes.

Quality assurance / quality control:

Headed by qualified welding technologists & inspectors with quality control system qualified level two in accordance with ASNT - SNT TC-1 A and EN ISO 9712 codes provides both the technical and quality control system essential for manufacturing operation and in accordance with the applicable codes.

Certificate - homologations:

- THE NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS Certificate of Authorization NB for items Manufactured in accordance with: ASME Stamps: S, U, PP
- ISO 9001: 2008 released by Det Norske Veritas
- AD 2000 - MERKBLATT HP 0 / TRD 201 / EN ISO 3834 released by Tüv Süd (NB) for the manufacture of Boilers and Pressure Vessels
- MANUFACTURE LICENCE OF SPECIAL EQUIPMENT PEOPLE'S REPUBLIC OF CHINA for Boilers and Pressure Vessels
- QUALITY ASSURANCE SYSTEM CERTIFICATES in accordance with Pressure Equipment Directive 97 / 23 / EC (PED) Annex I, Paragraph 4. 3 – thru TÜV ITALIA NB as manufacturer of Steel Finned & Studded Tubes
- ARAMCO QUALITY SYSTEM APPROVED as manufacturer of finned and studded tubes, header pipes and spools.

Non destructive inspection and testing equipment:

- Spectro Port metal analyzer
- X - Ray, Gilardoni 250 / G
- Gamma Ray Iridium 192 (to 30 Curie).
- Selenio Se75
- Electronic universal tensile testing machine
- Ultrasonic control direct digital reading thickness meters
- Magnaflux type Silver Yoke
- Portable electronic hardness testers
- Boroscope / Endoscope
- Ruscope 1000 "Rothenberger"
- Hydrostatic test pumps to 600 Bar
- Dye - penetrant crack detection

LP S.p.A. welding procedures and welding personnel are qualified by the following institutions:

- Italian welding institute
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- TÜV
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- Bureau Veritas
- Lloyd's register

Transports and logistics

Our products are normally **delivered ex our works in Venegono Superiore**, packed and properly loaded on turcks or railway wagon.

We can also load ship containers and deliver the goods to any European port and, of course, on request, also to **the customers' site**.

Packaging formats:

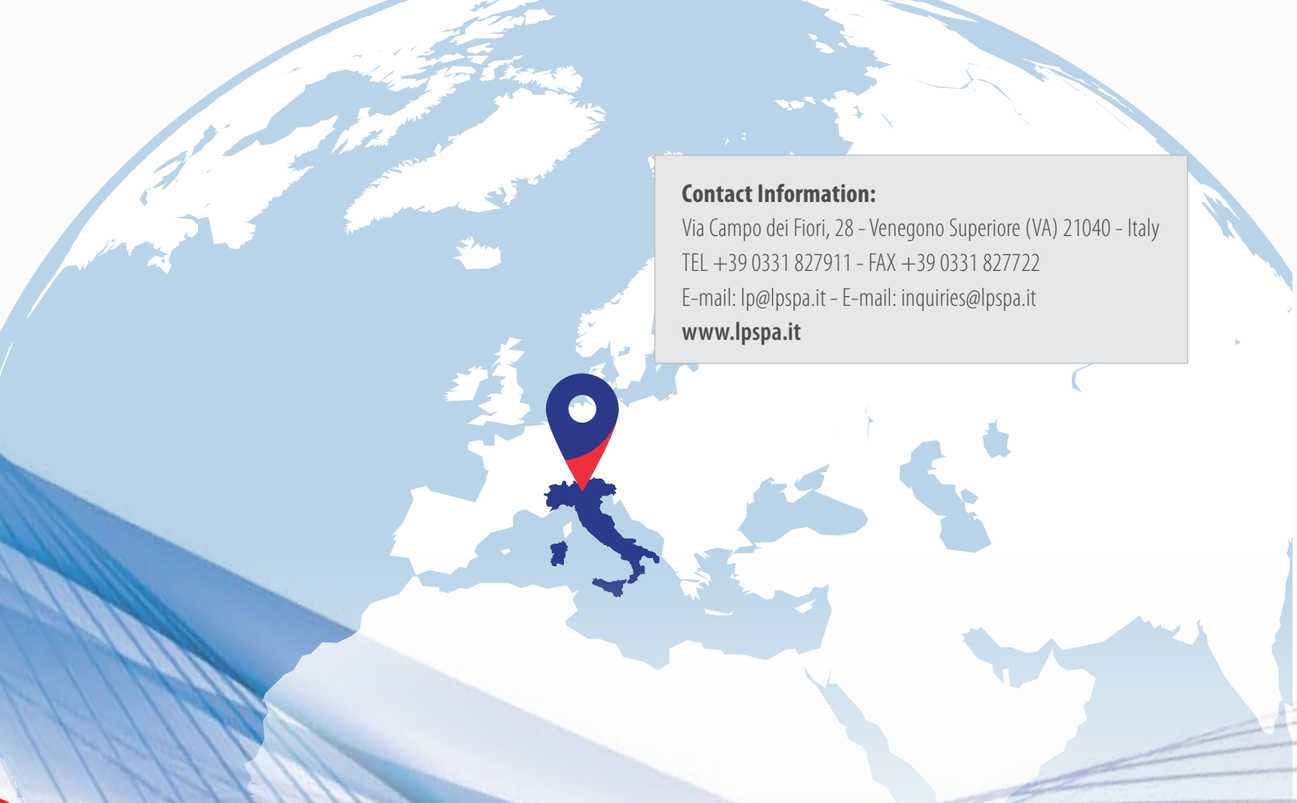
When required our finned or studded tubes can be packed in the following formats:

- Wooden crates
- Steel crates
- Wooden boxes
- Shipping Containers

Contact and position

L.P. S.p.A. is located in Venegono Superiore at 40 Kms north of Milan, our privileged position grants a good connection with two of the most important Italian Ports , Genova and Marghera Port.

In case of airfreight, we are at only 40 Kms. from Malpensa International Airport



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