

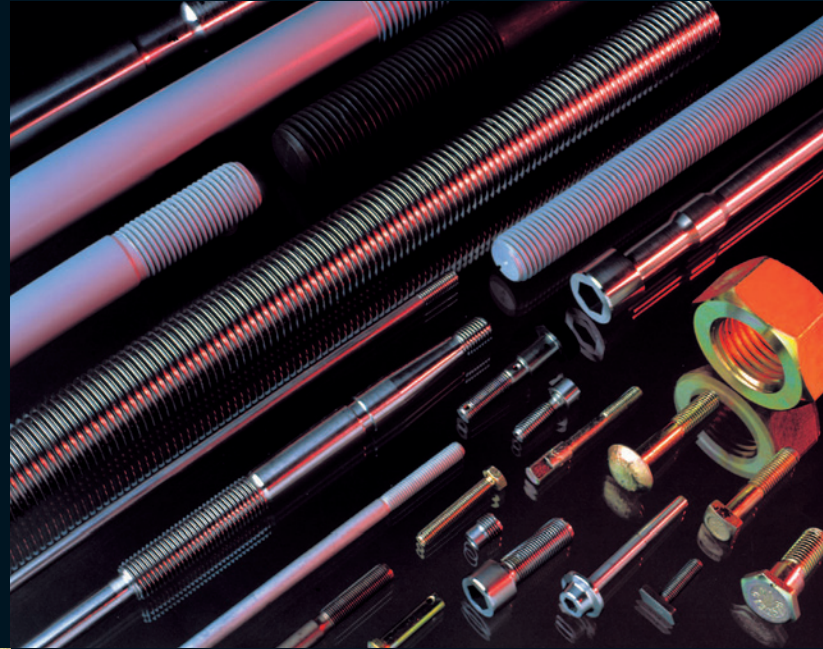
> Expertise in the field



> Founded in 1947, Delta Metal is specialized in the production of hot forged screws. In 1990, it expands its activities by taking over Preault Industry, a stud bolts maker for petrochemical industry and in 2004, it takes over the company Visserie Forcée du Bourbonnais (production of large length and diameter parts).

Today, Delta Metal has got an efficient industrial tool dedicated to the production of a large range of fasteners : from the simple stud bolt to the complex machined pin.

Its expertise in high requirement's products is acknowledged by many actors of the industrial world. Its polyvalence and proficiency converge to the development of a reliable and reactive company. An aggressive politic in term of investment and training indrease the competitiveness of the company. ■



> Some figures

More than 35 000 special fastener's references, all realized following drawings and standards.

More than 800 tons of material transformed yearly.

More than 400 000 products made each month.

Attentive to all job's evolution composing its processes, Delta Metal has settled long-term partnerships with specialized schools and works with research organization in various fields (mechanical expertise, metallurgy,...) ■

> Integration : An industrial choice

By mixing commitment and passion, Delta Metal has clearly chosen the constant improvement of knowledges as a way to industrial development.

Delta Metal's strength lies in its capacity to reach with precision the customer's expectations.

To reach this, it masters in-house :

- > Forging
- > Heat-treatment
- > Machining
- > Threading

To reach this, it integrated :

- > An engineering and desing department
- > A technical support
- > A control and test laboraroty

With integration, Delta Metal :

- > Improve permanently its productivity
- > Offer a constant and successful service in term of deadlines
- > Control and guarantee the conformity between the final product and the customer's requirements ■

> Forging

> Machining

> Threading



> Heat
Treatment

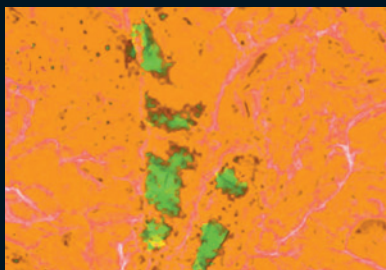
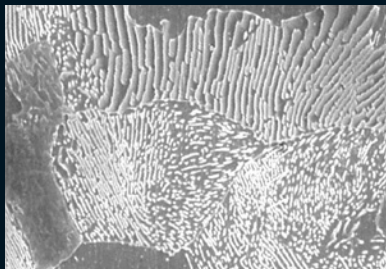
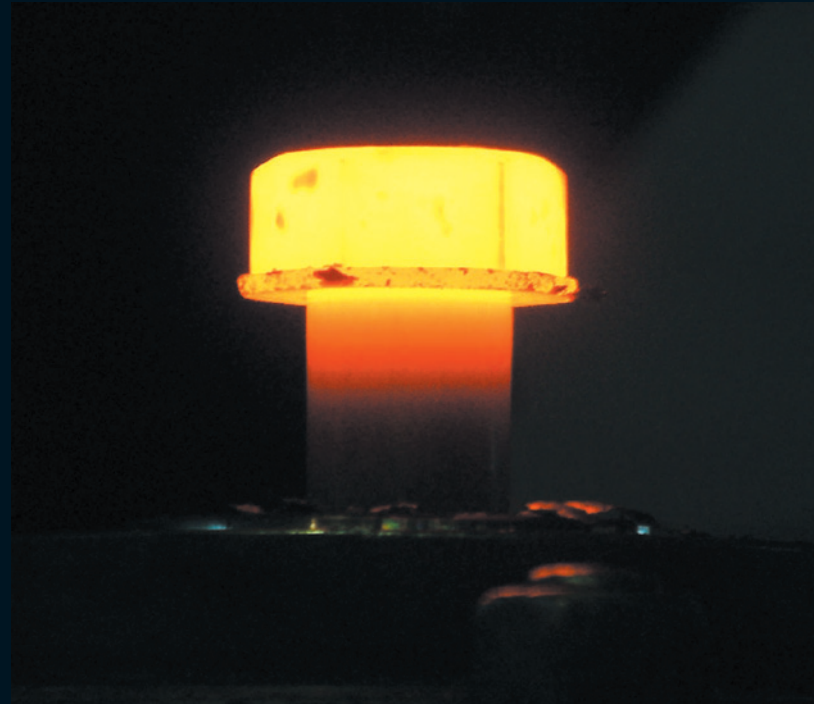
> Forging

Strong of its hot forge experience, Delta Metal has developed its tools and material's formatting especially by using simulation.

By using rheological and tribological approaches it increases regularly its productivity. Applied directly on conception and integrated making of special tools, the experience feedback benefits the customer.

Economical, the hot forging offers the flexibility of an efficient entry in production, from prototype to middle series. It generates a saving of raw material and decreases the machining times. At last, it optimizes the mechanical characteristics.

DELTA METAL staff masters all the forging processes on press from 30 to 600 Tons ■■■



> Heat Treatment

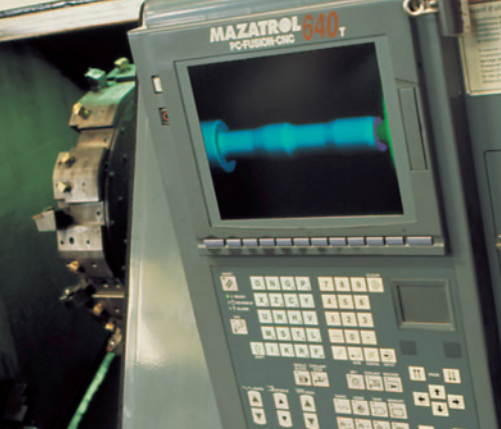
Competitiveness comes through masters of material, and from master comes security.

Delta Metal realizes in-house and in a homogeneous way, under controlled atmosphere regulated by computing, the following operations :

- > Quenching
- > Tempering
- > Cementing
- > Normalizing
- > Structural refinement
- > Annealing
- > Stress relieving
- > Aging

Two systems are treating this small or large length of products, horizontally as well as vertically.

The traceability process-product is insured before and after transformations.



> Machining

The machining (cutting, milling, drilling,...) is a technologic field in perpetual alteration.

DELTA METAL invests in specific training programs and upgrades its equipment by purchasing last generation's engines.

Delta Metal so adapts the machining parameters to the constraints due to material.

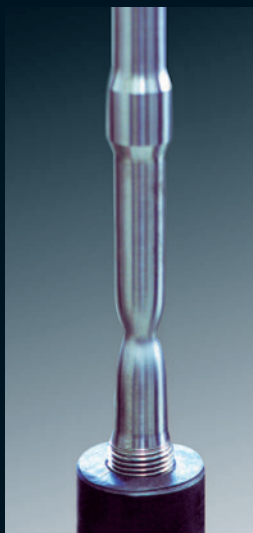
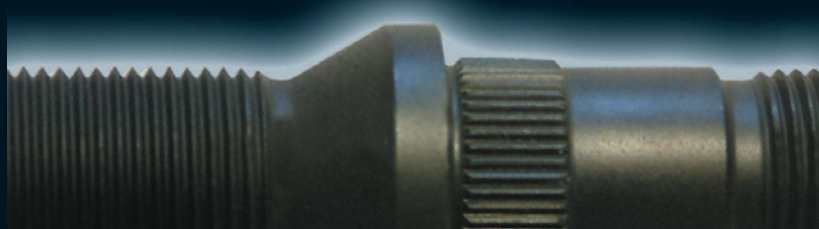
The taking into consideration of machinability improves the speed of cutting, the precision and reliability of the operations ■

> Threading by cold-rolling

Also called hammering, the threading by rolling offers to products an optimization of their long-term stress resistance, a better resistance to corrosion, a decrease of seing and incipient failure.

Equipped with 350 tool's sets with different rolling's profiles, Delta Metal proposes a large range of threading ISO, Sellers (UNC-UNF), withworth (BSW, BSF).

Apart of its impact on mechanical performances, this method offers an increased productivity :
Rapidity of operations without losses of material ■



> Control and Tests

Delta Metal's integration strategy, fully customer's oriented, allows it to have its own control and test laboratory, able to welcome customer's inspectors during production process receptions. Associated to the self-control inherent to each production's process, it carries out the last control before dispath (product + quality file) and realized prototype test as well as adjustment.

The politic of investment participates to the constant evolution of the laboratory ; this evolution concerns the staff's skills as well as the technological means.

With a technical level COFREND II, its services include magnaflux testing method, micrographic analysis, hot and cold traction-compression test and the associates certificates (for example 3.1) ■

Beyond common requirements, each activity and each customer have their particularity, their proper needs. Since the beginning, Delta Metal puts its expertise to the service of various applications.

Its motto : «A good knowledge of our partner's work to guarantee excellence» ■



> Energies

Petroleum, offshore, chemistry, gas, nuclear, pressure vessel, valves, turbines, pumps, stations, windmill, Solar.

- Production following norms ASTM, ANSI, AISI, ASME, RCCM,...
- Treated steels low and high temperature (cryogenic and resistant environment)
B7, L7, B7M, B8M, B9G, Gr660,...
- Super duplex 904L, 309, 310, 314
- Certificates (3.1, 3.2,....)
- Special process agreements ADWO-TÜV
- Customer's agreement : EDF, AREVA, ALSTOM
- COATING : PTFE, Zinc-plated, galvanization, Geomet, etc...
- Dedicated breakdown service ■



> Railway Industry

- Part following Norms NF F, CF
- Security parts following drawings : fitted parts, special parts for bogie, transmission, braking and pins.
- Traceability and security
- Calculation, screwing torque, tightening torque ■





> Vehicles

Automobile's sports, trucks, rope transport, civil engineering's equipment, agricultural machinery, handling, lifting, offroad vehicles

- Parts following norms and drawings : wheel stud, pins,
- Coating : Geomet, Phosphatation, zinc-plated,...
- Treatment without Chrome VI
- Analysis of the friction coefficients ■



> Other applications

Aeronautical, armament, diesel engines, naval industry, sport's prototypes, braking systems, industrial brakes, civil engineering

- Special steel grades
- Rod screw, breech screw, special nuts,...
- Optimized grain flow
- Single control ; magnetoscopy, ultrasound
- Test of stress resistance
- Test programs following norms and specifications
- Embrittlement analysis ■



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