Operating, technical and administrative headquarter:
Via Silvio Pellico, 69 - 20834 Nova Milanese (MB)

Registered office: Viale Piave, 28 - 20129 Milano (MI)

Telephone: +39 0362 40817

E-mail: trater@trater.it

TRATER
TRATTAMENTI TERMICI

COMPANY **PROFILE**

HEAT TREATMENTS FOR CHEMICAL, PETROCHEMICAL AND NUCLEAR INDUSTRY

Since 1969 TRATER has been the company in Italy specialized in the heat treatment in oven of pressure vessels and heat exchangers for the energy, chemical, petrochemical and nuclear industry.

OUR ACTIVITIES

Trater preforms PWHT, solution annealing, and normalizing heat treatments to obtain the following results:

The items built in Italy, Austria, France and Germany are installed all over the world after the heat treatment in TRATER. Through our 12 ovens with big dimensions (up to 30 meters long, 6 meters high and 8 meters wide) we perform about 1600 heat treatments every year on about 30.000 tons of steel, with an increasing trend.

Trater stands out for results always conforming to the requests. There are no compromises between quality and costs. The result must be free of defects. The failure of an item in operation would mean invaluable costs. “If one has the feeling that a professional costs too much, it is because they don’t have an idea of how much an incompetent supplier will cost in the end”. The Italian manufacturers use the quality of our service to win against international competitors, who do not offer sufficient guarantees.

We are always availble to receive audits; all heat treatments can be supervised by inspectors or final clients. We are qualified supplier of countless companies among which General Electric (Nuovo Pignone Firenze), Ansaldo, Fmc, Cameron, Valvitalia, Giva Group (Forge Vienna), Gruppo Presezzi/Francotosi, UhdeThissenkrupp, Flowserve, Weir, Alfa Laval, Knm-Fbm, Linde.

PWHT

The PWHT on carbon steels, on low-alloy and alloy steels takes place in three steps.

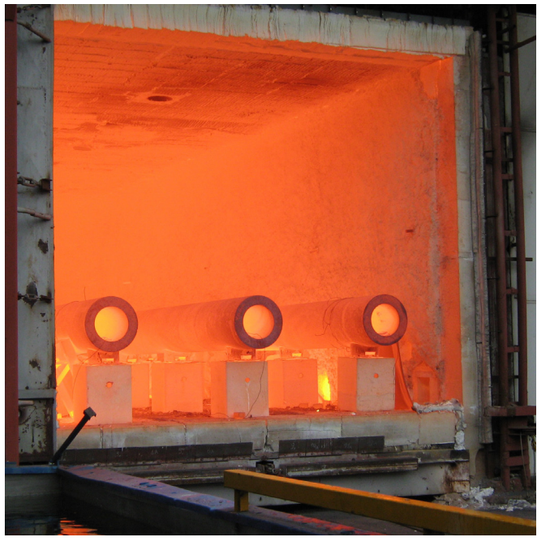
1) solution annealing of martensite in the welds and in the heat affected zones. Melting martensite results in a reduction of free carbon, greater resilience of the material, greater uniformity of hardness (absence of corridors of concentration of the stresses).

2) stabilizing of carbon with carborigenous elements. Then it is important to bond the carbon which is freed from the the martensite with molybdenum, chromium, etc ... depending on the material, so that it does not recombine with the hydrogen present in the treated fluids (hydrocarbons, ammonia, etc.), causing embrittlement of the material (hic-hydrogen-induced cracking).

3) stress relieving of the geometry. The filler metal, which cools after the welding, contracts, due to the physical principle of thermal expansion of metals. The filler metal, being constrained and unable to contract freely, remains in a tensile state. The edges of material of every non-ideality of the welded surface, which can be seen as initiations of a crack, subjected to tensile force, separate and move away, propagating real cracks, often promoted by the corrosivity of the fluid that continues to remove material due to the electrolytic effect (scc - stress corrosion cracking).

SOLUTION ANNEALING

On austenitic steels and nickel alloys, it is important to restore crystalline grains that are ruined during work processes



that involve plastic deformation (bending, swaging, calendering, etc...). In this way the material will acquire again the ability to resist corrosion. The treatments include quenching in water, because the material must remain for the shortest time possible in certain temperature ranges, in which undesired precipitates may form. Trater is able to perform water quenching in less than 60 seconds.

NORMALIZING AND TEMPERING

Normalizing heat treatment process is heating a steel above the critical temperature, holding for a period of time long enough for transformation to occur, and air cooling. The normalizing heat treatment establishes a more uniform carbide size and distribution which facilitates later heat treatment operations and produces a more uniform final product. The tempering aims instead to melt unstable metallurgical structures formed during normalizing.

TEMPERATURE MEASUREMENT SERVICE IN THE PLANT OF MANUFATURERS

When, due to transport difficulties, treatments are carried out directly in the plant of the manufacturer, specialized in welding but with less experience in heat treatments, we offer our competence so that in any case the process is successful: perfectly tempered welds, absence of material annealed by local overheatings, absence of deformations due to disuniform temperatures (different thermal expansions involve plastic deformations, upsettings, stretchings), etc... Heat treatments managed by us are monitored also through hundreds of thermocouples placed in the most critical points, controlled 24 hours by specialized operators.

MEASUREMENT OF RESIDUAL STRESSES

Before and after the heat treatments, it is possible to perform residual stress measurements directly on the items through diffractometric (X-ray) techniques, through the extensimetric method and through the noise system of Barkhausen noise. Knowing the residual stress value on the surface of an item before it is put into service is of particular interest:

- for designers, for a correct sizing of the items,
- for those who are responsible for monitoring structures particularly subjected to fatigue and/or corrosion phenomena.

OUR OFFER

For 50 years close to our customers, Trater has been available to Italian excellence to deal with ambitious challanges aimed to international markets. Over the years, Trater has been recognized as a supplier of high-quality services and we also provide value for our customers. This value is summarized in our mission: we are a customer-focused company that supplies services and solutions that help our customers to offer better products and processes, more and more reliable and performing.