



Strong duo

Neutrotherm and Hydrotherm inert gas mixtures – perfect oxidation protection for all types of alloys

It is in the nature of things that when certain metals are heated until they glow, they react with oxygen and oxidise. On the alloys, unwanted oxide layers can form that vary in colour depending on their thickness and composition. They are a blemish and can diminish the quality of the finished products. To ensure that atmospheric oxygen does not reach the material to be treated, the heat treatment is carried out under a protective gas atmosphere. In some cases it may be adequate to use nitrogen (N_2) as a protective shield and prevent oxidation of the surface of the metal. Depending on the alloy and the task in hand, however, a reactive gas is usually also needed.

Perfect oxidation protection thanks to hydrogen

Hydrogen (H_2) is the reducing agent of choice in metallurgy – for oxide-free annealing of non-corroding steels, recrystallisation of heat-resistant special steels, cleaning of metal surfaces or for imparting the required properties of non-ferrous alloys such as copper, bronze or brass. Nitrogen/hydrogen gas mixtures possess similar reducing properties at very favourable prices. The size of the H_2 part depends on the material in question and the purpose of the heat treatment.

Messer offers N_2/H_2 gas mixtures in two fundamentally different ranges of concentration: the Neutrotherm trademark covers “hydrogen-poor” mixtures, with an H_2 content of up to four per cent by volume, which are suitable as protective gases in the heat treatment of iron, copper or aluminium alloys. The mixtures can be used safely at temperatures below $750\text{ }^\circ\text{C}$ and are also not explosive at room temperature.



Sintered moulded part



The optimal hydrogen content for any part

The Hydrotherm trademark covers gas mixtures that contain up to 100 per cent of H₂ and are suitable as protective and reactive gases for chromium-rich alloys (heat treatment up to 1150 °C), thereby preventing a blemishing oxide layer on the surface of the material even at extremely high temperatures.

Your benefits at a glance

The Neurotherm and Hydrotherm gas mixtures from Messer

- can be used individually and enable you to react quickly and flexibly to the most diverse range of requirements and tasks.
- will increase the efficiency of your furnace installation by virtue of their high heat capacity and thermal conductivity.
- will make you more productive and guarantee you workpieces of the highest quality.
- can be stored in a space-saving way and used in the established manner.



Soft annealed copper wire in a bell-type furnace

What the experts think

If you want to react to the demands of the market in a smooth, quick and flexible way, be highly productive and expand your product range in line with demand and without high investment costs, then Neurotherm and Hydrotherm from Messer are the ideal choice: both groups of gas mixtures guarantee you first-class results combined with a favourable cost/benefit ratio.

Please do not hesitate to contact us if you have any questions regarding Neurotherm and Hydrotherm gas mixtures or would like to arrange a personal consultation with our application experts.

Contacts in your country can be found at:

www.messergroup.com/de/Standorte

This and many other brochures can also be downloaded from the Internet in PDF format:
www.messergroup.com



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