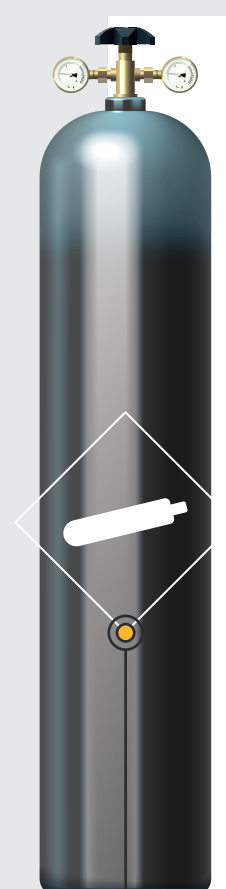

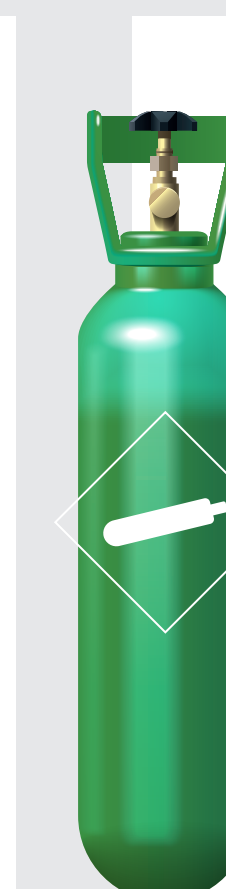



What are the gasses used for plasma nitriding?

Choice of gasses, and their specific proportion, is one key factor for controlling the nitriding process, tailor the nitrided layer's properties, and achieve the desired results for different materials and applications.

 <p>N₂ Nitrogen PRIMARY GAS</p> <p>When subjected to an electric discharge in a vacuum chamber, the nitrogen molecule is dissociated and atomic nitrogen is ionized to create a plasma, that contains active nitrogen species (N₂⁺), N₂⁻, N₄⁺ and N₂[*], which form nitrides on the surface of the part, improving its hardness and wear resistance, among others.</p>	 <p>H₂ Hydrogen CARRIER & DILUTING</p> <p>The hydrogen acts as a reducing gas, and when ionized, it helps to activate the nitrogen gas by providing free electrons. It helps dilute the nitrogen to the correct nitriding potential and helps reduce oxides present at the surface, thus activating the surface for further nitriding.</p>	 <p>Ar Argon CARRIER & SPUTTERING</p> <p>Provides a medium for the transport of reactive species, helps stabilize the electrical discharge and ensure that the plasma remains consistent during the process. Ar is a heavier atom, thus increasing the kinetic energy with which it hits the surface creating a stronger sputtering effect.</p>	 <p>CH₄ Methane PROCESS GAS</p> <p>It is a carbon donor gas for plasma FNC or ferritic nitro-carburizing. The atoms of Carbon and Nitrogen form hard compounds in the surface layer of the material, making steel harder and more wear-resistant. Methane is used in low quantities, therefore a single bottle will probably last for a couple years.</p>
<p>PROCESS GASES</p>			

Non-corrosive gases, extend equipment life, reduce maintenance costs and ensure an efficient and clean process.

