Production of Ultra-pure Hydrogen

A DISSOCIATED AMMONIA DIFFUSION PLANT

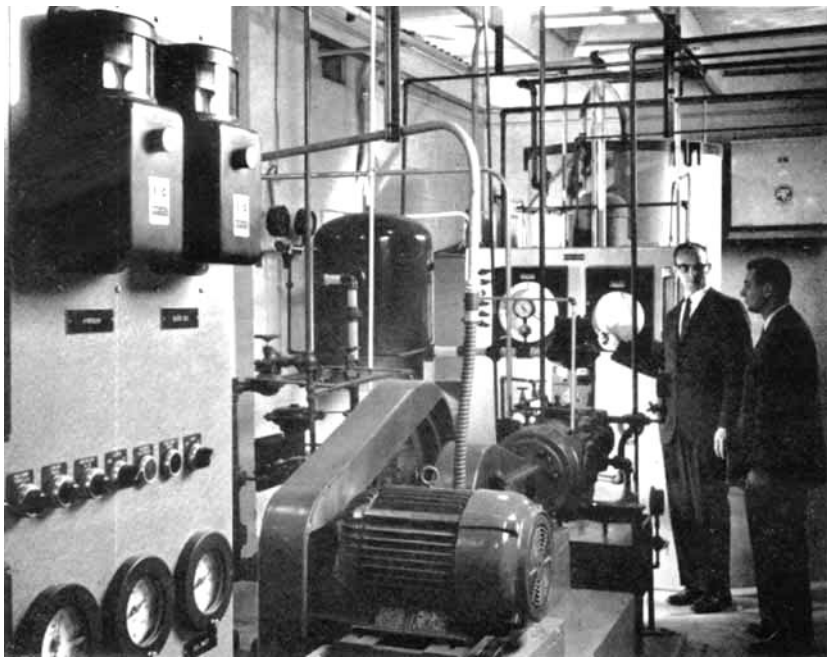
The commercial development of the palladium alloy diffusion process for the production of high purity hydrogen recently moved a stage further with the installation by the Drever Company of Bethayres, Pennsylvania, of a complete plant operating on dissociated ammonia in the works of Magnetics Inc. of Butler, Pennsylvania. This company manufactures magnetic alloys in the form of cores and laminations, and requires an economical source of pure hydrogen for its heat treatment operations.

The installation includes a 10,000 gallon anhydrous ammonia storage vessel, a 2,500 cubic feet per hour ammonia dissociator, and a 1,500 cubic feet per hour diffusion system designed around the silver-palladium alloy diffusion cell manufactured by J. Bishop & Co Platinum Works.

The anhydrous ammonia is dissociated into its constituents at high temperature and the hydrogen-nitrogen mixture then compressed into the diffusion cell system.

A minimum of 90 per cent of the hydrogen derived from ammonia is obtained as ultra-pure gas, and a substantial annual saving is achieved by comparison with the cost of the purified bottled hydrogen formerly used.

The installation has now been in continuous operation for well over a year and has led to a significant reduction in the number of rejected parts as well as to a decrease in furnace atmosphere consumption owing to the more consistent quality of the gas.



This dissociated ammonia diffusion plant, engineered by the Drever Co, produces 1500 cubic feet per hour of ultra-pure hydrogen for the heat treatment of magnetic alloys. Installed in the works of Magnetics Inc. it employs the silver-palladium alloy diffusion cells designed and produced by J. Bishop & Co Platinum Works