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TNSC Launches Low-Energy PSA-Type Nitrogen Gas Generator

Taiyo Nippon Sanso Corporation (TNSC) has developed a new low-energy pressure swing absorption (PSA) type nitrogen gas generator. The product uses TSNC's proprietary control system, in which electricity consumption varies in tandem with gas generation volumes.

1. Background regarding product development

Targets for reducing CO_2, set in line with the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and recent amendments to energy conservation laws have put pressure on manufacturers and managers of other types of businesses to adopt energy conservation measures. Such measures include the installation of power consumption control systems in plants and business offices.

In response to these various developments and user requests, TNSC has designed energy-saving systems for gas production and supply equipment, including the recent development of a new energy-saving PSA-type nitrogen gas generator that coordinates electricity consumption with gas generation volumes.

2. Overview of low-energy pressure swing adsorption (PSA) type nitrogen gas generator

TNSC's low-energy PSA-type nitrogen gas generator starts and stops in response to gas usage levels. Electricity consumption declines when the air compressor is operating in "unload" mode, thus reducing energy consumption. Conventional generators employ energy-saving systems in which power consumption is controlled through a series of phased reductions. Our new device, however, utilizes an in-house developed small process controller (ExMPICS) employing an anticipatory control method linked to gas usage levels for controlling the generator. In this way, the new gas generator enables more efficient control of the air compressor when in "unload" mode operations.

This system also renders unnecessary the use of air compressors employing expensive inverters. The energy conservation rate is particularly high when used in the operation of reflow ovens and similar facilities which experience extreme fluctuations in gas-usage volumes. Compared to our previous model, the new low-energy PSA-type nitrogen gas generator enables power savings of up to 40%.

3. Future Plans

Since launching the low-energy PSA-type nitrogen gas generator in October, we have received many inquiries from users, and hope to sell about 100 units per year.

Caption

Exterior view of the PSA-type nitrogen gas generator