

Dan Spohn

From: ARM, Inc. <dspohn@arminc.com>
Sent: Tuesday, May 23, 2017 10:03 AM
To: dspohn@arminc.com
Subject: Say Ticonderoga 3 times very fast!



Advanced Research Manufacturing 719-538-5959
Innovative High Purity Gas Supply System Solutions

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Dear Dan,

Here it is late May and in looking for some obscure historical tidbit that occurred in May to bring to your attention, I ran across Ethan Allen and the Green Mountain Boys attack on Fort Ticonderoga in upstate NY. Ticonderoga is probably more recognizable as a brand of pencil, so I searched on....

Seems one Joseph Dixon (general good guy and somewhat clever tinkerer) made his first pencil in 1812. I would imagine the users of quill and ink were darn tired of ink stained fingers and the cost of all that blotter paper, so the pencil really was a big deal back then. In 1827 Joseph started what would become the Joseph Dixon Crucible Company, selling graphite as heat resistant material and 'stove polish'. Sometime later he moved the company to NJ and built a new factory to manufacture the increasingly popular graphite lead pencil with a new machine that could produce 132 pencils/minute. By 1873 his company was producing 86,000 pencils/day. Today the Dixon Ticonderoga company produces a half billion (500,000,000) pencils a year.

So you figured out how the famous Ticonderoga pencil get its name? The pencil lead came from a graphite ore mine on Lead Mountain which was processed in Ticonderoga, NY.

But that's not what I wanted to talk about.....

In this issue.....

[Recirculating/Recovery Purification.](#)

[Existing PS8 Bulk N2 Purifier Available from ARM.](#)
[Dual 07KV Microbulk System in Final Test!](#)

Gas Prices Increasing: Recirculating/Recovery Purification May Be An Economical Solution

Nitrogen and Oxygen being the two main constituents of air on the planet, are readily available and produced in bulk making them economical to purchase, use, and vent back to the atmosphere. This is not always the case with other gases with widespread industrial use such as Ar, He, Ne, Xe, Kr, etc.

With the increasing cost of rare gases, equipment to capture, recover and purify these gases for reuse is becoming a more economical alternative to one time use.

Take as an example, a rare gas selling for \$50.00/100 ft3. A process running continuously at 100 ft3/hr 24/7 will cost \$438,000.00 per year. Even the most sophisticated purifiers for that flow rate cost a fraction of that annual gas cost.

Another example application would be Argon purge gas in a glove box. Argon purge from a glove box is relatively easy to capture, pass through a purifier, and be reintroduced into the glove box.

If you have a production process using a costly rare gas, a quick comparison between annual gas cost and recirculating purifier price may be an eye opener. Contact [ARM](#) to discuss the options that may be available.

Existing SAES PS8-VM600-N-2 Available from ARM

ARM has a SAES PS8-VM600-N-2 bulk gas purifier for sale. Acquired in an asset liquidation this PS8 has never been installed, and is still in the original shipping packaging. The flyer describing this asset, cost, etc is below. If interested contact [ARM](#) and we can provide a firm fixed price quote, and any additional details required. If you know of anyone interested please forward this newsletter.

Model Number: PS8-VM600-N-2

Included Options: Mass Flow Meter, Inlet/Outlet Pressure Transducer, Instrument Air management system, High Temp Hardware Interlock, Over-Pressure Safety, Particle Filter - TFE, Separate Control Power, MODBUS data communication port, Mixing Panel to provide regeneration gas mixture blending and control.

Facilities:

Maximum Flow rate: 600Nm3/hr

Main Power: 208 VAC, 3 phase, 50/60 hertz

Installed power: 18.3 kW

Gas Main connections: 1.5" tube stub

Maximum Inlet pressure: 150 psig

Separate Control power: 120 VAC, 50/60 hertz

Size: 75" x 94" x 95" tall

Available from:



New, never installed,

Inert Gas Purification System

The **PSB VM** series purifiers manufactured by SAES are enhanced, optimized designs providing sub ppb performance in very compact configurations. These purifiers remove impurities from inert gas through use of an advanced catalyst/adsorber hybrid material providing complete purification in a single column without the need for secondary adsorber vessels.

Trace O₂, CO, CO₂, H₂, and H₂O are removed under room temperature operation. The two adsorber columns are automatically alternated with an elevated temperature regeneration on taking place between purify and stand-by modes.

Standard Features:

- Automated Microprocessor Controller
- HMI (Human Machine Interface)
- System Alarms
- Electric Gas Preheaters
- Closed-Loop Temperature Controls
- All Metal Cabinet with Doors

Model Number: PSB-VM600-N-2

Included Options: Mass Flow Meter, Inlet/Outlet Pressure Transducer, Instrument Air Management System, High Temp Hardware Interlock, Over Pressure Safety, Particle Filter - 1µ. Separate Control Power, MODBUS data communication port, Mixing Panel to provide regeneration gas mixture blending and control.

Facilities:

Maximum flow rate: 60000Nm³/hr
 Maximum inlet pressure: 150 psig
 Main Power: 208 VAC, 3 phase, 50/60 hertz,
 4 wire with ground
 Separate Control power: 120 VAC,
 1 phase,
 50/60 hertz
 Installed power: 18.3 kW
 Size: 75" x 94" x 95" tall
 Gas Main connections: 1.5" tube stub



This unit can be purchased:

As-Is Immediate Delivery \$95,000.00

With ARM Tech Refresh 6-8 weeks ARO \$145,000.00

Buyer is responsible for all import and shipping costs.
 Terms are cash with order.
 Details of Tech Refresh are on our website: http://www.arminc.com/assets/tech_refresh.pdf
 See page 2 for OEM PSB datasheet information.

Original marketing information from SAES

PSB Series Catalytic Nitrogen Gas Purifiers



The **PSB VM** series purifiers are enhanced, optimized designs providing sub ppb performance in very compact configurations. These purifiers remove impurities from inert gas through use of an advanced catalyst/adsorber hybrid material providing complete purification in a single column without the need for secondary adsorber vessels.

Trace O₂, CO, CO₂, H₂, and H₂O are removed under room temperature operation. The two adsorber columns are automatically alternated with an elevated temperature regeneration taking place between purify and stand-by modes.

Flow rates from 15 Nm³/hr to 9000 Nm³/hr are available in this platform. The PSB Nitrogen Regifier includes fully automatic, unattended operation using the multi-point microprocessor based controller and full instrumentation. Operator input is accomplished via the unique HMI (Human Machine Interface) allowing password protected access to all purifier functions. All purifier operations, such as adsorber regeneration, are automatic. Closed loop control of all process variables gives confidence that each operation is executed and correct. There is no need for operator input on any process operations.

Standard Features:

- Automated Microprocessor Controller
- HMI (Human Machine Interface)
- System Alarms
- Electric Gas Preheaters
- Closed-Loop Temperature Controls
- All Metal Cabinet with Doors
- Hydrogen Blending Station

Customer Interface Connections:

- Inlet Safety - fail safe relay systems allow remote detection of down condition
- Remote Contact Shutdown - allows remoteshutdown of the purifier.

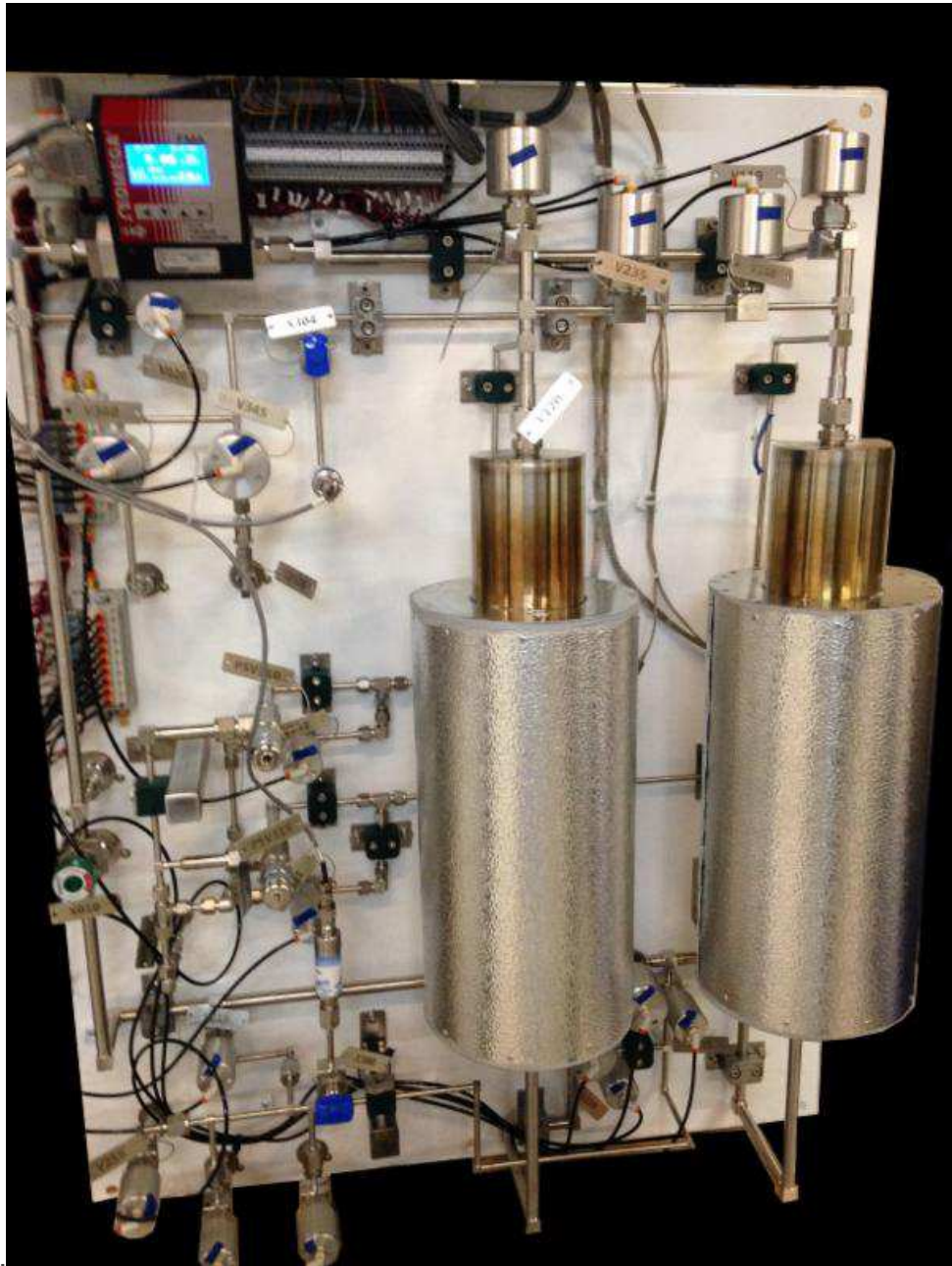
Optional Equipment:

- Inlet & Outlet Isolation Valves
- Mass Flow Meter with 4-20mA Output
- Inlet & Outlet Pressure Transducers
- Instrument Air Management System
- Air Cooled Heat Exchanger
- High Temperature Hardware Interlock
- Over Pressure/Safety Relief System
- Auto or Manual Bypass
- Particle Filter
- Separate Control Power
- MODBUS Data Communication Port

Latest System In Test!

Fully automated dual vessel 07KV system for Neon purification.

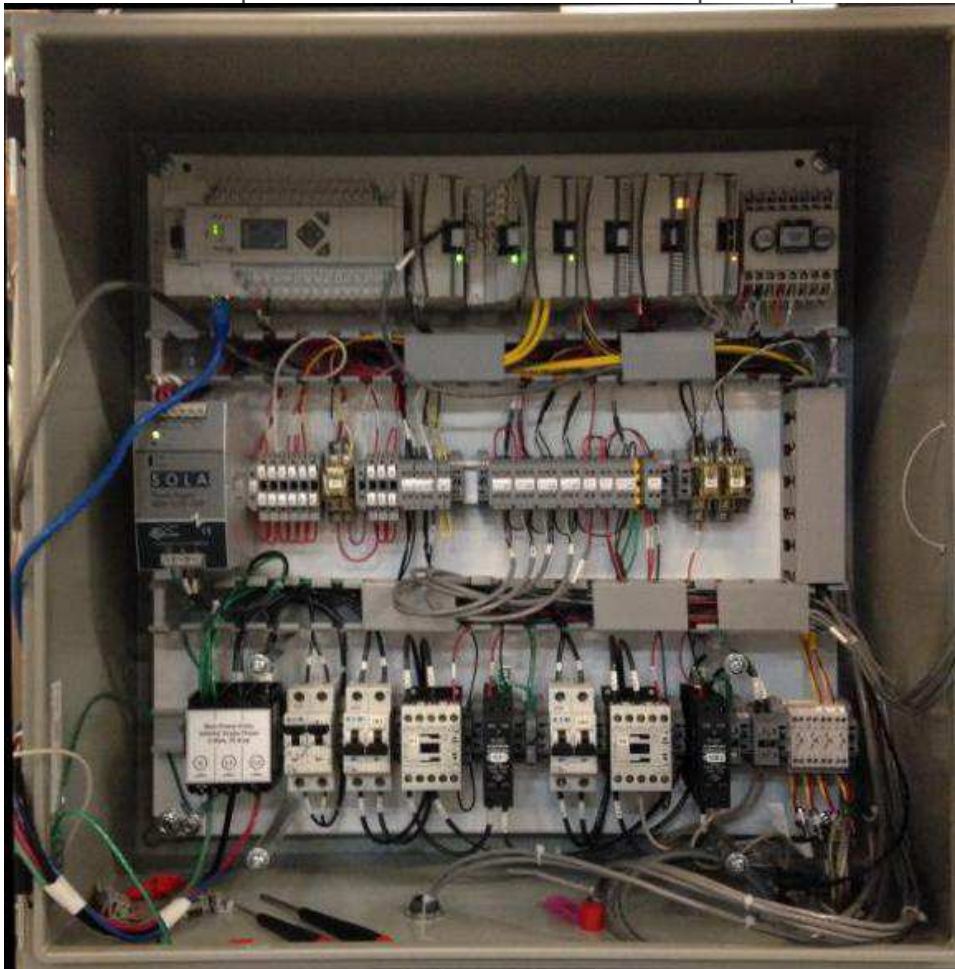
Another ARM Micro-Bulk purifier is currently in final test prior to shipment. This system has a dual parallel vessel arrangement for 24/7 operation, similar to the system featured last month. What is different is this system incorporates a PLC and touchscreen HMI for fully automated vessel switching and



regeneration.

Designed for OEM applications, this configuration has a panel mounted gas system and the

electronic controls/power distribution mounted on a separate panel for ease of integration.



ARM worked with the customer on this application to tailor the system interface to meet the OEM's requirements. If interested send us an [e-mail](#) or call 719-538-5959 for additional information on this or any of ARM's UHP solutions.

Thanks for reading this far!

We understand that there is very little time in the day to read all the newsletters that make it to your inbox. We will strive to not be 'that company' spamming the world with useless information seemingly every other day for no better reason than some webinar told them that is what they should do.

As noted above if you opt out we will honor your request. If you do tho, you may want to like us on Facebook or follow us on LinkedIn so you can keep your inbox clear, but still keep in touch with what is going on with ARM Inc. in the gas world.

Sincerely,

Dan Spohn
ARM, Inc.



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