

ATD-1002 “Nitrogen requirements”

Questions constantly arise regarding the need and cost of the Nitrogen required to operate the Selective Soldering Module. Nitrogen is a required and necessary consumable with all selective soldering and lead tinning machines for the following reasons.

- 1) Without nitrogen the solder tends to bridge and form icicles. Nitrogen reduces the surface tension allowing the molten solder to readily break away from the solder site.
- 2) In open atmosphere dross formation will overwhelm the solder pump and nozzle causing undo cleaning and pump maintenance. Nitrogen displaces the air minimizing the oxidation effects.
- 3) The solder nozzle will not remain “tinned” causing the solder wave to deteriorate. The process simply will not be satisfactory without it.

The most economical way to purchase nitrogen for a “part time” single shift operation is in liquid form.

(Pressurized gas tanks like welding tank size do not have much capacity and will last only hours). All

industrial gas suppliers will be able to provide a liquid tank called a Dewar. The vendor can set a routine exchange schedule, often with same day delivery. When ordering the gas ...**Specify 99.999% purity**. The provider should have documentation to validate the purity. Praxair and Air-Liquid are only two of several manufacturers. The tanks are delivered and positioned by the local vendor. These tanks are safe for open floor use. The costs per tank will be approximately \$200 US per tank. You will need to purchase a pressure regulator with a ¼” female NPT fitting to our machine. This should cost of about \$125.00. We need 60 to 70 psi fed to the machine.





The tank will supply approximately 3600 cubic feet of nitrogen. The average Selective Soldering Module consumes about 15/50 so the Dewar tank will supply about 2-4 weeks of nitrogen for a single shift operation.

If the Wave nozzles or the “dual nozzle” setup are used, or a higher duty than 30 hours a week is expected, it is more economical to purchase a nitrogen generator. Nordson SELECT recommends (and uses in the demo lab at Nordson SELECT’s facility) Parker nitrogen generators. These are manufactured for Nordson SELECT to our specifications and are the best overall choice for unlimited, pure nitrogen. The generators have an output flow regulator to set gas purity and flow rate in SCFH along with a digital readout of the exact purity. These units complement the Selective Soldering Module and enhance the overall performance and process.

Cost....

We are often asked “what are the comparative costs between the Dewar and the Generator”. Use the formula that a Dewar tank costs about \$200 USD and holds about 3500 SCFH. The bottle will last about 100 running hours at a set rate of 35 SCFH (actually it is less as the gas will vent off some causing lost capacity). Add to the cost the inconvenience of the change out, the possibility of running out of gas during a run and the inconsistent quality from tank to tank. The cost for a 160 hour run month approaches \$400 for nitrogen from the Dewar while the cost (on the lease plan) for a ACEPSAOD69 is under \$400. Every Customer that has a generator is very pleased with their purchase.





Sizing a Generator....

A single Selective Soldering Module uses between 30 and 60 SCFH of 99.999% pure nitrogen (depending on the nozzle size). An ACEPSAOD69, which allows for options like dual nozzles and the W-75 nozzle both consume additional nitrogen, incrementally is sized correctly for up to two machines. For up to four Selective Soldering Modules Nordson SELECT recommends an ACEPSAOD140, for up to six machines Nordson SELECT recommends an ACEPSAOD232.

Both the ACEPSAOD69 and the ACEPSAOD140 are expandable up to the ACEPSAOD232 by adding sieve bed tanks to support future growth without having to replace the whole generator.

Principal Specifications:

Model Number	ACEPSAOD-69	ACEPSAOD-140	ACEPSAOD-232
Recommended Inlet Pressure	110 psig (7.58 barg)	110 psig (7.58 barg)	110 psig (7.58 barg)
Min / Max Inlet Pressure	80 / 140 psig (5.5 / 9.7 barg)	80 / 140 psig (5.5 / 9.7 barg)	80 / 140 psig (5.5 / 9.7 barg)
Air Quality	Clean Air w/o Contaminants	Clean Air w/o Contaminants	Clean Air w/o Contaminants
Pressure Drop	30 psig (2 barg)	30 psig (2 barg)	30 psig (2 barg)
Min / Max Ambient Temp	40°F / 95°F (4°C / 35°C)	40°F / 95°F (4°C / 35°C)	40°F / 95°F (4°C / 35°C)
Electrical Requirements	120 VAC / 60Hz., 180 W	120 VAC / 60Hz., 180 W	120 VAC / 60Hz., 180 W
Generator Cabinet Dimensions	32" L x 50" D x 78" H 72 cm x 86 cm x 198 cm	32" L x 50" D x 78" H 72 cm x 86 cm x 198 cm	32" L x 50" D x 78" H 72 cm x 86 cm x 198 cm
N2 Storage Tank Capacity	60 Gal. (227 L)	60 Gal. (227 L)	60 Gal. (227 L)
N2 Storage Tank Dimensions	24" D x 53" H 61 cm x 135 cm	24" D x 53" H 61 cm x 135 cm	24" D x 53" H 61 cm x 135 cm
Weight (w/ N2 Tank)	1,065 lbs.	1,265 lbs.	1,553 lbs.
Inlet Port Size	¾" NPT	¾" NPT	¾" NPT
Outlet Port Size	¾" NPT	¾" NPT	¾" NPT
Outlet Pressure *	70 psig (4.8 barg)	70 psig (4.8 barg)	70 psig (4.8 barg)
N2 Output @ 99.999 (SCFH)	102	204	306
N2 Output @ 99.99 (SCFH)	199	399	598
Avg. Air Demand @ 99.999 (SCFM)	18	42	61
Avg. Air Demand @ 99.99 (SCFM)	21	46	69

*Outlet Pressure @ 99.999% N2 (based on nominal conditions and 60 gal N2 tank)



If you have any questions please contact us

Thank you,

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