

# ELM FG SERIES

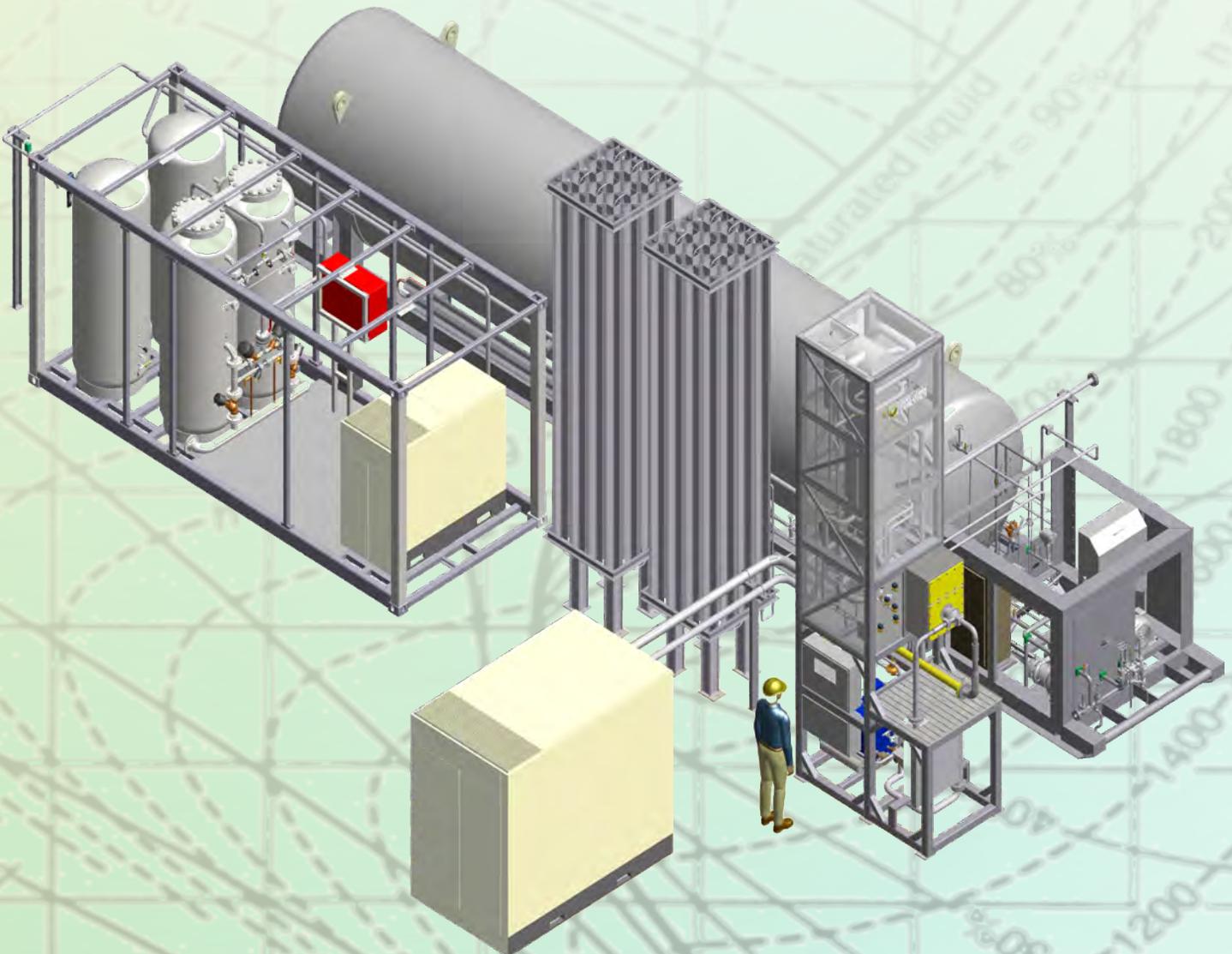
## ELM FG FOOD GRADE NITROGEN GAS AND LIQUID

The new benchmark for small **OXYGEN AND NITROGEN** air separation plants.

The ELM plants are designed specifically to meet the challenge of ever-increasing global power and fuel costs while maintaining the high reliability and mobility of a modular design that are container shipable.

This innovative plant is built to meet the highest industrial gas safety and quality standards to ensure flawless and reliable performance under the most severe operating conditions.

Structurally ideal for emerging markets and remote locations, the Spruce plants phenomenal efficiency makes it equally suitable for more long-term production applications.



For enquires please contact

General Manager  
Senior Engineer

: Bruce Van Dongen  
: Rohit Batarakhaye

| Email: [vandb@cosmodyne.com](mailto:vandb@cosmodyne.com)  
| Email: [batar@cosmodyne.com](mailto:batar@cosmodyne.com)

| Cell : (+27) 082-555-4928  
| Cell: (+91) 942-919-8210

# ELM FG FOOD GRADE NITROGEN GAS AND LIQUID



LIQUID N<sub>2</sub> AND GAS N<sub>2</sub> GENERATOR, PSA + LIQUIFIERS PRODUCING LIQUID AND GAS  
SUITABLE FOR FOOD AND MEDICAL APPLICATIONS

### Design

Barometric Press	<b>14.7</b>	psia	Liquid outlet saturated liquid at tank pressure
Dry bulb	<b>26</b>	°C	Nm <sup>3</sup> /hr defined at 0°C 1 Atms
RH, %	<b>70</b>	%	* Air cooled as standard
Wet Bulb	<b>22.72</b>	°C	
Cooling water	<b>29</b>	°C	

PLANT MODEL	Metric Ton/day			Nm <sup>3</sup> /hr			PRODUCT PRESSURE	PURITY N <sub>2</sub>	POWER KW	SPECIFIC POWER LIQUID	SPECIFIC POWER GAS	TOTAL SPECIFIC POWER
	LIQUID	GAS	TOTAL	LIQUID	GAS	TOTAL						
ELM FG 3L/ 0G *	3.21	0.0	3.2	107	0	107	6	99.9%	181.5	1.62	0.57	1.70
ELM FG 3L/ 1G *	3.21	1.0	4.2	107	33	140	6	99.9%	199.8	1.61	0.57	1.43
ELM FG 3L/6G *	3.3	6.5	9.8	110	216	326	8	99.9%	293.2	1.55	0.53	0.90
ELM FG 3L/9G *	3.2	9.5	12.8	107	317	424	6	99.9%	322.0	1.52	0.48	0.76
ELM FG 4L/0G *	4.0	0.3	4.2	132	8	140	6	99.9%	221.8	1.58	0.57	1.58
ELM FG 4L/6G *	4.1	5.8	9.8	135	192	326	8	99.9%	315.2	1.52	0.53	0.97
ELM FG 4L/9G *	4.0	8.8	12.8	132	292	424	6	99.9%	344.0	1.49	0.48	0.81
ELM FG 6L/0G *	6.4	0.0	6.4	199	0	199	7	99.9%	323.3	1.62	0.532	1.62
ELM FG 10L/0G	9.8	0.0	9.8	326	0	326	7	99.9%	506.4	1.55	0.532	1.55
ELM FG 13L/0G	12.8	0.0	12.8	424	0	424	7	99.9%	632.6	1.49	0.479	1.49

The new benchmark for liquid Nitrogen and gaseous Nitrogen on-site solutions for the Food packaging and Food freezing industry and well as the oil and gas service industry.

The ELM FG is designed to minimize the cost associated with on-site gas and liquid generation by ensuring a liquid backup supply to the low cost PSA N<sub>2</sub> gas supply. The equipment can be designed for any split of liquid and Gas capacity to suit the onsite application.

The Plant is highly packaged with a modular design that is container shipable,

This innovative plant is built to meet the highest industrial gas safety and quality standards to ensure flawless and reliable performance under the most severe operating conditions. Designed to produce up to 99.95% N<sub>2</sub>.

Ideal for emerging markets and remote locations.

### Options and Accessories

- CE compliance
- Factory cold performance Test
- Integrated cylinder filling system
- Integrated product storage, high pressure pumping and transfer system
- Pipeline back up product vaporizers and control

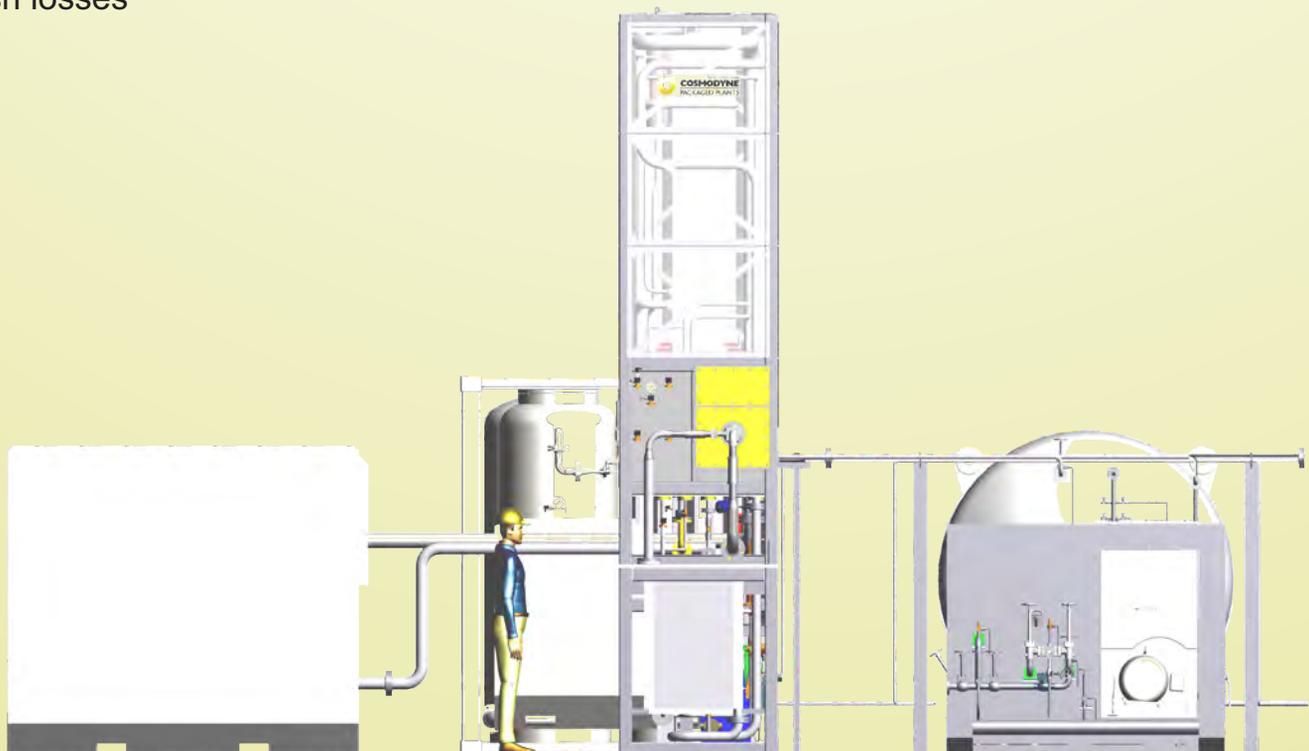
### Services

- On-site or in-factory operator training
- Installation and commissioning assistance
- Extended warranty package
- Service package

Cosmodyne Packaged Plants offers a liquid storage, pumping and cylinder filling solutions. The innovative, skid-mounted system is engineered for the safe and efficient storage of liquid Oxygen and liquid Nitrogen in low pressure horizontal tanks. The package facilitates remote process monitoring, automatic pump cool-down and loss of prime protection, inventory control, liquid pump transfer to road tankers, high pressure pumping and vaporization for cylinder filling, as well as off specification liquid disposal.

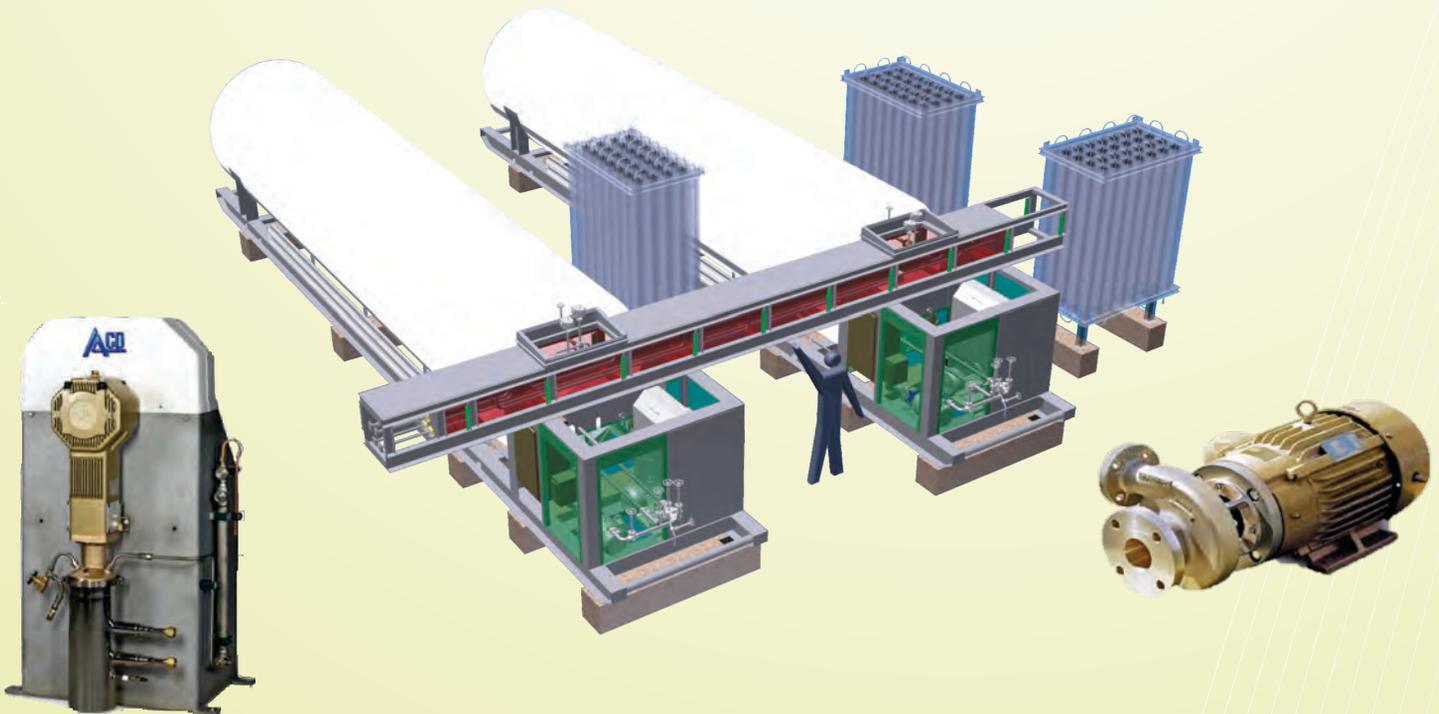
## Efficient, versatile, moveable, safe, cost-effective

- Safe shipping and rapid deployment / relocation
- Ships in standard 45 foot high-cube containers
- Eliminates expensive on-site engineering and labor
- Interface skid provides product piping insulation
- Flexible product connections to all the skids
- Single point electrical connection
- Single point control connection
- Lighting included
- Remote dial in for: problem solving, quality control, production trending
- IP55 dual door waterproof enclosures
- PLC automatic cool down and loss of prime detection for all pumps
- VFD control for the transfer pumps
- Rigorous testing at the point of manufacture
- Flawless and rapid commissioning in challenging or remote locations
- Independent control from main ASU plant PLC HMI
- Each Tank has a Touch screen HMI
- Safety as a priority, the system includes safety and vent valves
- Easy access for equipment maintenance
- The oxygen pumps are fitted with Stainless Steel 6mm blast shields
- The tanks utilize gravity filling with vapor return lines to the plant to minimize transfer and flash losses



## CUSTOMIZABLE SCOPE:

- A interface skid to tie all components together, for one or two tanks , transfer pumping skid, high pressure pump, HP vaporizer for cylinder filling and a dump vaporizer
- 25 /50 /75/ 100 m3 vacuum + perlite insulated horizontal type storage tank designed to ASME sec. VIII div. I Ed.2010 with “U” stamp certification. PED as a option
- ACD transfer pumps with VFD controls for road tanker or VIE filling
- ACD P2K cylinder-filling pump for cylinder filling features a vertical pump with a dual wrist-pin bearing design, allowing higher rod loading and greater drive-end life. Vacuum jacket at cold end minimizes the losses
- Customizable Vaporisers for Customer pipeline backup or HP Cylinder filling requirements
- A state of the art Siemens PLC Control System with HMI touch-screen Electrical and PLC panels
- Tank has a pressure build-up coil to allow for pressure decants from the tank if necessary
- A VFD transport pumps
- Insulated Pump suction lines with aluminum weather-proof jacketing
- Independent liquid feed lines are provided to all pumps, facilitating separate operation of the Transfer pump and Cylinder Filling pump
- Interface between the plant PLC and the tank PLC system so that both systems can be viewed from either location
- The PLC includes the automatic cool down protection, loss of prime on both pumps as well as the tank level and pressure indication
- HMI screen incorporate a sun shield for easy viewing in bright environments
- The design includes safe disposal of liquid from safety and vent valves
- Easy access for equipment maintenance





**C**osmodyne is a world leader in the design and manufacture of air-separation plants SINCE 1958, Each Cosmodyne system is designed and built to rigorous standards of quality and workmanship developed from nearly a half century of experience. From proposal to installation, our sales, engineering, manufacturing and field service personnel continually demonstrate our commitment to customer satisfaction.

This commitment does not end with delivery – our field service staff are ready to serve you **24 hours a day**, wherever you are. With over 400 functioning plants around the world we continue to set the industry standard for design, manufacture, sales and field-service.

Cosmodyne offers a wide range of plants under 300 metric ton/day. This brochure covers the smaller plants under 31 metric ton per day. Please contact us for any requirement over 31 Metric ton/day



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[www.cosmodynepackagedplants.com](http://www.cosmodynepackagedplants.com)

