



xebec

Compressed Natural Gas Dryers

for Natural Gas and Renewable Natural Gas

xebecinc.com

An aerial photograph of a lush green forest. A river flows through the center, with a waterfall on the right side. The water is a deep blue color, and the surrounding vegetation is vibrant green. The text is overlaid on the upper left portion of the image.

Xebec is committed
to responsible
and sustainable
environmental solutions



Xebec is a world leader in the drying of natural gas for refueling stations.

XEBEC DRYERS ARE ASME CODE COMPLIANT, NATIONAL BOARD CERTIFIED AND CAN BE CUSTOM-BUILT TO SPECIFICATION.

- 40 years' experience in designing and manufacturing gas dryers
- Complete dehydration and filtration solutions
- Proven engineered solutions for custom applications
- 1,800 natural gas dryers sold globally throughout the world, including in North America, China, Russia, Australia, South America, Indonesia and the Middle East
- Dedicated CNG team at every level of the process
- Worldwide support, service, replacement parts
- Partnerships with Exxon, Suncor, Sinopec and Petro China
- Can be built to specific requirements such as the Chinese and Malaysian pressure vessel codes

ISO 15403:2006 – The single most important safety requirement

The ISO 15403:2006 standard states (paragraph 5.1): “The single most important safety requirement of compressed natural gas (CNG) fuel is a very low water dew point temperature to preclude the formation of liquid water at any time. Liquid water is the precursor to the formation of corrosive compounds through combination with components in natural gas, namely carbon dioxide and hydrogen sulphide. The combination of corrosive agents, and the pressure cycling caused by fuel consumption and subsequent refilling of the fuel storage container, can result in crack growth in metals and ultimately damage and failure. Also, liquid water itself can be detrimental as it may cause blockages, both liquid and solid, in the fuel system.

Thus, the water dew point of the fuel gas at the fueling station outlet shall be sufficiently below the lowest ambient temperature in which the fueling station and vehicles will operate.”



Drying natural gas for today's NGV fueling stations

What you need to know if you think your gas is already dry:

As the effects of moisture in natural gas systems are not always immediately evident, some NGV station builders are reluctant to address the importance of installing desiccant dryer systems in CNG fueling stations. This is despite the fact that there are industry standards and recommended practices for the required dew point of compressed natural gas used for fueling stations, such as ISO 15403:2006 (see page 11 for more details).

The most common reason for not installing dryers in NGV stations is the belief that the gas is already dry. However, it is important to keep in mind that, although the gas dew point may be as low as -40°C in the pipeline at pipe pressure, the effects of compression will affect the dew point of the gas.

Physical laws dictate that the dew point of a gas increases as its pressure increases. Therefore, although the dew point of the gas in a given pipeline may be very low when it reaches the compressor, it will be significantly higher when the gas leaves the compressor. This is why natural gas desiccant dryers are required in the majority of NGV stations in order to meet the requirements of ISO 15403:2006, specifically in areas where lower temperatures are encountered during the colder winter months.

Suction-side versus high-pressure discharge drying technology

Pressure swing dryers use 10–15% of the dry gas from their outlet to regenerate the offline tower. This used gas must then be recovered on the suction side of the compressor, increasing its size and decreasing the output to the storage vessels and dispensers. This is not an economical solution as compared to the suction-side dryer, which does not utilize any purge gas.





NATURAL GAS DRYERS

Xebec STV (single-tower vessel) units are perfect for removing water vapor and contaminants from small or intermittent volumes of natural gas. Once saturated, adsorbent media must be externally regenerated through a mobile regeneration package or replaced. All units are built to meet ASME Section VIII and contain a factory-fitted pre-filter and after-filter.

NATURAL GAS DRYERS

SINGLE-TOWER - STVNGX

Features

- ✓ Low cost
- ✓ External regeneration or desiccant replacement required
- ✓ AutoDew is a highly recommended option

Applications

- ✓ Low to high flows
- ✓ Low- to high-pressure designs
- ✓ Recommended for low-throughput (water content) fueling needs



Model No.	Connection	Capacity (approx.) MMSCF @ 7#H2O/MMSCF (E3Nm ³ @ 112 mg H2O/m ³) ¹	Inlet Gas Flow (approx.) scfm (Nm ³ /hr) @ 100 psig (7 bar g) ¹	Approximate Weight & Dimensions			
				Width inches (mm)	Length inches (mm)	Height inches (mm)	Weight lbs (kg)
STV6NGX-0.5	0.5" NPT	0.52 (14)	66 (105)	20 (508)	22 (559)	60 (1524)	515 (232)
STV10NGX-1.0	1" NPT	1.60 (43)	193 (310)	48 (1219)	48 (1219)	92 (2337)	725 (326)
STV14NGX-1.5	1-1/2" NPT	3.40 (90)	454 (730)	26 (660)	30 (762)	86 (2184)	1000 (450)
STV18NGX-1.5	1-1/2" NPT	5.60 (151)	454 (730)	36 (914)	43 (1092)	91 (2311)	1500 (675)
STV20NGX-2	2" NPT	7.00 (189)	748 (1203)	35 (889)	44 (1118)	89 (2261)	1540 (693)
STV24NGX-2	2" NPT	10.30 (276)	748 (1203)	53 (1353)	63 (1600)	93 (2362)	1970 (887)
STV24NGX-3	3" FLG	10.30 (276)	1369 (2204)	53 (1353)	63 (1600)	93 (2362)	2240 (1008)
STV30NGX-3	3" FLG	16.70 (447)	1647 (2651)	56 (1422)	63 (1600)	101 (2565)	2865 (1289)
STV30NGX-4	4" FLG	16.70 (447)	2205 (3550)	66 (1676)	96 (2438)	107 (2718)	4400 (1980)
STV36NGX-3	3" FLG	23.20 (621)	1647 (2651)	72 (1829)	110 (2794)	126 (3200)	5000 (2250)
STV36NGX-4	4" FLG	23.20 (621)	2836 (4566)	72 (1829)	110 (2794)	126 (3200)	5600 (2520)
STV42NGX-6	6" FLG	36.80 (985)	5211 (8390)	73 (1854)	115 (2921)	126 (3200)	6000 (2700)

Standard pressure models (150 psig). Contact our experts for higher pressure or flow requirements.

¹ Flow conditions given for reference only. Please contact factory for sizing at different flow pressure conditions. Standard conditions are 1 ATM at 60°F. Normal conditions are 1 ATM at 0°C.

AUTODEW: AVAILABLE ON ALL OUR DRYERS

AutoDew is a precision dew point monitor with digital dew point indication (in °C or °F) installed at the dryer control panel.

THE AUTODEW HYGROMETER DISPLAYS THE DEW POINT DATA ON A MONITOR INSIDE A NEMA 4 ENCLOSURE.

The moisture sensor is installed at the dryer outlet to continuously verify the dew point. Two AutoDew hygrometer set points are factory adjusted: the first to signal deteriorating dew point performance, and the second when regeneration is required. A set of form "C" dry contacts are provided for remote signal monitoring. Alarm settings typically conform to SAE J1616 for each installation.





REGENERATIVE GAS DRYERS

Xebec regenerative dryers contain an internal regeneration system and are available in manually initiated single-tower (STR-S) or dual-tower (STR-D) designs, well as a fully automated dual-tower (DTRA) design. Each model has an optimized footprint for ease of service, is built to meet ASME Section VIII and contains a factory-fitted pre-filter and after-filter.

REGENERATIVE NATURAL GAS DRYERS

SINGLE-TOWER - STRNGX-S

Features

- ✓ Closed-loop, operator-initiated, heat-reactivated regenerated cycles for reliable dryer regeneration control and shutdown
- ✓ AutoDew is a standard feature and will signal when regeneration is required

Applications

- ✓ Medium to high flows
- ✓ Low- to high-pressure designs
- ✓ Minimum downtime



Model No.	Connection	Capacity (approx.) MMSCF @ 7#H ₂ O/MMSCF (E3Nm ³ @ 112 mg H ₂ O/m ³) ¹	Inlet Gas Flow (approx.) scfm (Nm ³ /hr) @ 100 psig (7 bar g) ¹	Approximate Weight & Dimensions			
				Width inches (mm)	Length inches (mm)	Height inches (mm)	Weight lbs (kg)
STR18NGX-1.5S	1-1/2" NPT	5.60 (151)	454 (730)	68 (1724)	85 (2159)	95 (2413)	3195 (675)
STR20NGX-2S	2" NPT	7.00 (189)	748 (1203)	68 (1727)	85 (2159)	95 (2413)	3650 (693)
STR24NGX-2S	2" NPT	10.30 (276)	748 (1203)	68 (1727)	86 (2184)	95 (2413)	4310 (887)
STR24NGX-3S	3" FLG	10.30 (276)	1369 (2204)	68 (1727)	85 (2159)	95 (2413)	4819 (1008)
STR30NGX-3S	3" FLG	16.70 (447)	1647 (2651)	71 (1803)	84 (2134)	101 (2565)	4815 (1289)
STR30NGX-4S	4" FLG	16.70 (447)	2205 (3550)	71 (1803)	84 (2134)	101 (2565)	5315 (1331)
STR36NGX-3S	3" FLG	23.20 (621)	1647 (2651)	99 (2515)	108 (2743)	126 (3200)	8235 (3330)
STR36NGX-4S	4" FLG	23.20 (621)	2836 (4566)	99 (2515)	108 (2743)	126 (3200)	8735 (3541)
STR42NGX-4S	4" FLG	36.80 (985)	2836 (4566)	106 (2692)	149 (3784)	135 (3429)	8600 (3870)
STR42NGX-6S	6" FLG	36.80 (985)	5211 (8390)	106 (2692)	149 (3784)	135 (3429)	8950 (5770)

Standard pressure models (150 psig). Contact our experts for higher pressure or flow requirements.

¹ Flow conditions given for reference only. Please contact factory for sizing at different flow pressure conditions. Standard conditions are 1 ATM at 60°F. Normal conditions are 1 ATM at 0°C.

REGENERATIVE NATURAL GAS DRYERS

DUAL-TOWER - STRNGX-D

Features

- ✓ Closed-loop, operator-initiated, heat-reactivated regenerated cycles for reliable control and shutdown
- ✓ AutoDew is standard and will signal when regeneration is required
- ✓ Manual valve switching between towers
- ✓ No downtime

Applications

- ✓ Medium to high flows
- ✓ Low- to high-pressure designs
- ✓ Recommended for medium-throughput fueling needs



Model No.	Connection	Capacity (approx.) MMSCF @ 7#H ₂ O/MMSCF (E3Nm ³ @ 112 mg H ₂ O/m ³) ¹	Inlet Gas Flow (approx.) scfm (Nm ³ /hr) @ 100 psig (7 barg) ¹	Approximate Weight & Dimensions			
				Width inches (mm)	Length inches (mm)	Height inches (mm)	Weight lbs (kg)
STR18NGX-1.5D	1-1/2" NPT	5.60 (151)	454 (730)	68 (1724)	85 (2159)	95 (2413)	3195 (675)
STR24NGX-2D	2" NPT	2 X 10.30 (276)	748 (1203)	80 (2032)	108 (2743)	94 (2388)	5400 (2430)
STR24NGX-3D	3" FLG	2 X 10.30 (276)	1369 (2204)	89 (2261)	124 (3150)	94 (2388)	5933 (2670)
STR30NGX-3D	3" FLG	2 X 16.70 (447)	1647 (2651)	99 (2515)	103 (2616)	102 (2591)	9601 (4321)
STR30NGX-4D	4" FLG	2 X 16.70 (447)	2205 (3550)	90 (2286)	160 (4064)	110 (2794)	8732 (3929)
STR36NGX-4D	4" FLG	2 X 23.20 (621)	2836 (4566)	102 (2591)	156 (3962)	126 (3200)	11500 (5175)
STR42NGX-4D	4" FLG	2 x 36.80 (985)	2836 (4566)	149 (3785)	158 (4015)	135 (3430)	11600 (5220)
STR42NGX-6D	6" FLG	2 x 36.80 (985)	5211 (8390)	149 (3785)	158 (4015)	135 (3430)	12100 (5445)

Standard pressure models (150 psig). Contact our experts for higher pressure or flow requirements.

¹ Flow conditions given for reference only. Please contact factory for sizing at different flow pressure conditions. Standard conditions are 1 ATM at 60°F. Normal conditions are 1 ATM at 0°C.

REGENERATIVE NATURAL GAS DRYERS

DUAL-TOWER AUTOMATED - DTRNGX

Features

- ✓ Simplified operation - fully automatic regeneration package maximizes desiccant performance
- ✓ All models complete with regeneration package
- ✓ AutoDew is standard
- ✓ No downtime

Applications

- ✓ Low to high flows
- ✓ Low- to medium-pressure designs
- ✓ Recommended for medium- to high-throughput fueling needs



Model No.	Connection	Capacity (approx.) MMSCF @ 7#H2O/MMSCF (E3Nm ³ @ 112 mg H2O/m ³) ¹	Inlet Gas Flow (approx.) scfm (Nm ³ /hr) @ 100 psig (7 barg) ¹	Approximate Weight & Dimensions			
				Width inches (mm)	Length inches (mm)	Height inches (mm)	Weight lbs (kg)
DTRA14NGX-1.5	1-1/2" NPT	2 X 3.40 (90)	454 (730)	55 (1397)	83 (2108)	94 (2388)	3376 (1519)
DTRA20NGX-2	2" NPT	2 X 7.00 (189)	748 (1203)	88 (2235)	103 (2616)	94 (2388)	5524 (2486)
DTRA24NGX-3	3" FLG	2 X 10.30 (276)	1369 (2204)	95 (2413)	124 (3150)	94 (2388)	7164 (3224)
DTRA30NGX-3	3" FLG	2 X 16.70 (447)	1647 (2651)	118 (2997)	130 (3302)	106 (2692)	11594
DTRA30NGX-4	4" FLG	2 X 16.70 (447)	2205 (3550)	89 (2248)	124 (3150)	115 (2921)	10544
DTRA36NGX-4	4" FLG	2 X 23.20 (621)	2836 (4566)	97 (2464)	141 (3581)	131 (3327)	13886
DTRA42NGX-6	6" FLG	2 x 36.80 (985)	5211 (8390)	149 (3785)	158 (4015)	135 (3430)	12100

Standard pressure models (150 psig). Contact our experts for higher pressure or flow requirements.

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OTHER DESIGNS AVAILABLE

PORTABLE REGENERATION SYSTEM - RGNNGX

Xebec offers two models of regeneration skids for mobile use. These portable units are specially designed for ease of transport and frequent relocation.

Includes

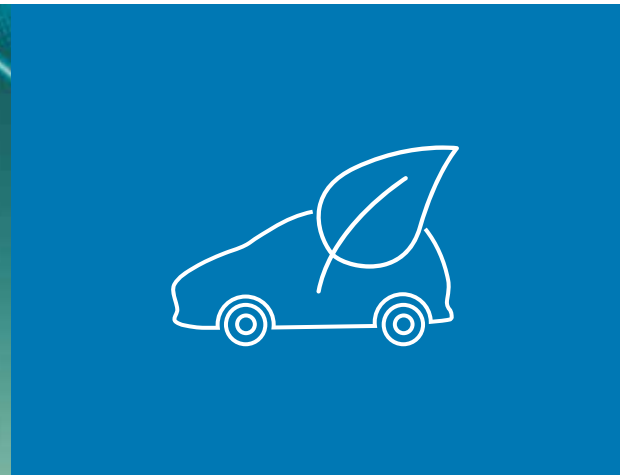
- ✓ Two regeneration hoses with stainless steel flanges and firesleeve (10')
- ✓ Two regeneration hoses with stainless steel flanges and firesleeve (20')
- ✓ One power cable with connector (20')



Model No.	Connection	Approximate Weight & Dimensions			
		Width inches (mm)	Length inches (mm)	Height inches (mm)	Weight lbs (kg)
RGN18-30NGX-1.5	1-1/2"	69 (1753)	74 (1880)	101 (2565)	2100 (950)
RGN36-48NGX-2	2"	75 (1905)	99 (2515)	126 (3200)	2500 (1135)

CUSTOM DUAL-TOWER AUTOMATED - HRBNGX

Xebec also offers custom, high-pressure, high-flow units for industrial applications. Please contact us for more details.



FILTERS, SERVICE AND PARTS

Industrial Air & Gas Filtration

Xebec provides best-in-class filtration solutions for compressed air and natural gas.

- Practical solutions developed from over 50 years of experience
- Full range of products for one-stop shopping
- Proven quality on a global scale

Service and Parts

We support you with all your equipment needs! Xebec is committed to providing you with top-quality services and a complete range of replacement parts and spares for your compressed air and gas equipment of all makes and models.

- Fully certified technicians on call
- Onsite commissioning
- Preventative maintenance
- Servicing and upgrading
- Replacements and spares for all makes and models



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