
gForce
ULTRA
by dataaire
A NEW ERA OF VARIABLE CAPACITY PERFORMANCE
dataaire
Precise by Design

INTRODUCING gForce ULTRA: A NEW STANDARD OF PRECISION, SCALABILITY AND ENERGY SAVINGS

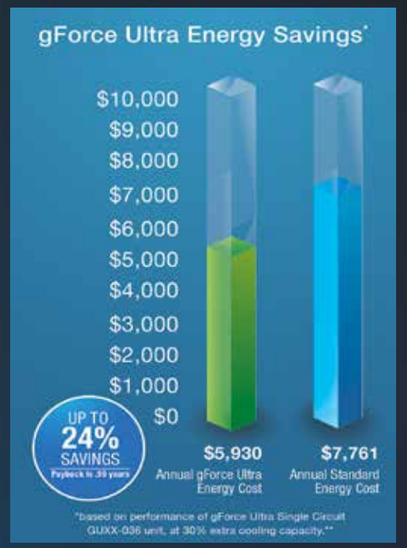
Cooling data centers and other mission critical environments is an ever-changing challenge. Meeting this challenge while optimizing energy savings and dependability is the focus of Data Aire's recent product innovation. Data Aire is proud to introduce the latest in its line of gForce precision cooling units – gForce Ultra.

In addition to the impressive features found in Data Aire's gForce line, gForce Ultra also effectively manages fluctuating cooling demands, guarantees accurate cooling and achieves unsurpassed energy savings. All this is made possible by combining the advanced variable capacity technology with a Variable Frequency Drive Controller (VFD), Variable Speed Compressor (VSC), Electronic Expansion Valve (EEV) and Venturi-Flo Refrigerant Distributor (VRD) components.

gForce Ultra Benefits:

Redefined Efficiency and Energy Savings

- Variable speed operation increases efficiency because when running at lower capacities, units use less energy and save money
- Achieves greater turndown while saving energy when compared to standard unit capacity measures. Turn down ratio is 4:1
- Slowly ramps up inrush to avoid surges



Scalability

- Customizable for flexible capacity ranges from 2 to 35 tons (7-125 kW) – depending on the gForce Ultra model selected
- Units can scale up or down in capacity to meet demand
- Energy savings at part load by ramping down to the exact needed capacity and power needed to run at a given capacity

Increased Precision

- Variable capacity technology quickly adapts to required cooling demands and retains a precise set point
- Effectively manages humidity and regulates temperature to ensure protection of mission critical data and potentially extends the lifetime of your cooling equipment
- Precise operation and control of fluctuating loads

gForce ULTRA NEW ENERGY SAVING FEATURES:

More Control - (VFD)

An ultra-precise **Variable Frequency Drive Controller (VFD)** matches temperature set points almost perfectly, eliminating swings in temperature ranges – resulting in increased energy efficiency. It allows the compressor to hone in on the required load, meet that load and hold steady – only fluctuating capacity when the load increases or decreases.

Pinpoint Temperatures - (VSC)

A **Variable Speed Compressor (VSC)** provides substantial variable capacity modulation to accurately match the varying temperature demands of an infrastructure. Instead of just simply turning on or off at preset temperatures, it adjusts and fluctuates as needed to help maintain a much tighter, optimal temperature range – often within one degree or less. This technology helps reduce power consumption, resulting in substantial energy savings.

gForce ULTRA NEW ENERGY SAVING FEATURES:

Strict Regulation - (EEV)

An **Electronic Expansion Valve (EEV)** regulates the flow of refrigerant to the coil for maximum energy efficiency - allowing for superior superheat control and the ability to maintain a lower, energy-saving superheat.

Ultra-Efficient Flow - (VRD)

The **Venturi-Flo Refrigerant Distributor (VRD**) has an orifice designed to allow for maximum distribution efficiency with minimum pressure drop. The Venturi-style distributor equally dispenses refrigerant at half the pressure drop than fixed distributors.

All four of these exciting new features work in concert with the original Data Aire innovations that set the gForce Series far ahead of the competition.

ADDITIONAL ENERGY EFFICIENT FEATURES:

Optimized Coils

gForce Ultra's coils feature **Rifled Tubing** – yet another element that increases energy efficiency. Very similar to a bullet spinning down the bore of a rifle as it exits the barrel, the refrigerant in a gForce Ultra unit spins as it travels through the coil. This spinning forces the refrigerant against the inside surface of the coil – resulting in a higher heat transfer and therefore higher efficiency.

The Right Fan

gForce Ultra's **Backward-Curved Plenum Fans** with electronically commutated (EC) motors operate without shafts, external bearings, belts or pulleys, which can break, slip and release dust – making them cleaner and more reliable than traditional fans – resulting in reduced maintenance and fewer premature fan and motor failures. Plenum fans also disperse air radially and at a lower speed, allowing for consistent static pressure and distribution of cool air closer to the unit to help maintain uniform room temperatures.

gForce ULTRA MODELS AND CAPACITIES

GUXX-022XX @ 2500 CFM (Single Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/60	67,900	52,600	65,500	51,900	73,700	55,500	2-6 (7-22)
75/61	68,600	57,700	66,600	57,100	74,400	60,800	
75/62.5	71,400	53,700	69,100	53,000	77,400	56,600	
80/62.9	70,700	65,400	69,100	64,800	76,300	68,900	
80/67	77,300	55,500	75,000	54,900	83,600	58,600	
85/64.5	73,800	72,100	72,300	71,300	79,200	75,900	
90/66.2	78,000	77,300	76,500	76,300	83,400	81,600	
95/67.8	82,300	82,600	80,700	81,300	87,600	87,300	
100/69.3	86,800	87,900	84,900	86,200	91,900	93,100	
105/70.8	92,400	91,600	90,200	89,400	97,400	97,200	

GUXX-036XX @ 5000 CFM (Single Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/58.6	136,800	122,400	132,100	119,700	149,100	129,300	6-11 (20-40)
72/60	143,300	116,300	138,600	112,800	155,900	123,100	
75/61	143,900	124,000	139,100	121,300	156,700	131,100	
75/62.5	150,200	117,600	145,400	114,400	163,500	124,500	
80/67	161,700	119,900	156,700	116,900	176,100	127,000	
85/64.5	157,300	155,500	152,800	152,500	170,400	165,300	
90/66.2	166,500	165,600	162,100	161,700	179,200	176,800	
95/67.8	176,200	176,400	171,900	171,300	188,400	189,200	
100/69.3	186,600	187,900	182,500	181,200	197,900	202,600	
105/70.8	199,100	196,600	195,100	188,200	209,900	212,900	

GUXX-045XX @ 5500 CFM (Single Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/58.6	176,200	133,300	170,400	130,600	191,000	140,300	7-15 (24-53)
72/60	176,600	146,800	171,300	143,500	194,800	151,500	
75/61	185,200	135,400	179,400	132,700	201,100	142,500	
75/62.5	180,600	166,000	174,900	161,700	201,200	172,100	
80/67	200,100	138,800	194,400	136,200	217,900	146,200	
85/64.5	186,100	183,200	181,500	178,600	209,200	187,900	
90/66.2	195,800	195,700	191,200	190,700	218,500	203,400	
95/67.8	206,300	206,300	200,800	200,800	227,400	227,400	
100/69.3	217,100	217,100	211,300	211,300	236,700	236,700	
105/70.8	231,000	231,000	224,800	224,800	249,100	249,100	

*Averages based on Entering Air Temperatures of 75/61 across entire product line all cooling configurations

gForce ULTRA MODELS AND CAPACITIES

GUXX-070XX @ 8000 CFM (Dual Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/58.6	218,100	172,900	211,500	169,700	237,700	183,400	4-19 (13-70)
72/60	222,500	187,100	216,500	184,400	243,500	198,000	
75/61	230,000	175,200	223,200	172,200	250,400	185,700	
75/62.5	223,700	215,800	220,200	214,300	248,200	228,200	
80/67	249,800	179,000	242,800	176,200	271,700	189,500	
85/64.5	242,700	231,100	228,700	210,800	262,300	244,000	

GUXX-091XX @ 10000 CFM (Dual Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/60	283,500	229,600	271,900	224,000	308,700	242,000	5-27 (18-95)
75/61	289,100	248,600	278,700	243,700	316,300	261,600	
75/62.5	299,200	232,900	287,000	227,300	325,600	245,300	
80/62.9	292,400	287,900	284,300	286,600	322,000	301,800	
80/67	325,400	238,500	312,200	232,900	353,900	250,700	
85/64.5	293,400	293,400	298,700	278,300	334,400	301,700	

GUXX-125XX @ 14000 CFM (Dual Circuit)							
	Air Cooled		Glycol Cooled		Water Cooled		Capacity Range*
Entering Air Temp DB/WB	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Net Total BTUh	Net Sensible BTUh	Tons (kW)
72/60	401,400	317,600	384,800	312,000	412,500	332,500	6-35 (20-125)
75/61	410,500	343,800	393,800	338,200	441,900	357,600	
75/62.5	424,200	322,200	406,700	316,700	446,100	336,700	
80/62.9	412,600	393,400	399,300	391,800	430,000	406,000	
80/67	462,000	330,000	443,300	324,500	502,100	343,600	
85/64.5	429,700	429,700	415,000	379,000	459,600	409,400	

ABOUT DATA AIRE

Over 50 years ago, Data Aire recognized the need to protect critical data and joined forces with leading computer designers to develop their first precision air system for this emerging market.

Today, Data Aire provides an integrated approach for the precise control of sensitive computer room environments. Data Aire is an industry leader and manufacturer of floor-mounted units, ceiling-mounted units, specialty units, heat exchangers and system controls.

Known for products that are designed utilizing high levels of technology, Data Aire engineers are experienced visionaries who adapt processes and design proprietary unit enhancements which reflect the constant needs of today's mission critical spaces for either standard or custom applications. Data Aire is respected as the industry's most innovative and reliable source for the manufacture of products which protect mission critical information for companies worldwide.

Data Aire is part of the C/S Group of Companies.

**Assumptions: Energy savings calculated at entering air temperatures of 75/61 and a utility rate of $0.10 per kWh. Reduction of inrush was not used in calculation, which will lead to additional savings based on specific region and utility rates. Variable speed compressors will see a 70% reduction in inrush during start and stop compared to fixed speed compressors.

**Disclaimer: All calculations are based on estimates and the assumptions above to provide a general idea of potential energy savings by incorporating variable speed technology. Potential energy savings may vary depending on unit model selected and regional electricity rates. Data Aire, Inc. assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

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