PURESTREAM

BY FRIULAIR

ACT - VS

NEW - ENERGY SAVING VARIABLE SPEED DRYERS

ULTIMATE
ENERGY SAVING
TECHNOLOGY

PURESTREAM ACT VS VARIABLE SPEED DRYER

The NEW range of PURESTREAM ACT VS Energy Saving dryers are now available for the energy conscious user. This new range comes from the need to match precision compressed air drying with energy saving features. The new range uses the design characteristics of the PURESTREAM ACT series, which is already well recognized by the compressed air industry. By adding new technological components along with a modified design, the end result is reduced electrical consumption resulting in lower operating costs.

The effect of compressed air as a provider of energy for industrial processes is broadly known. What is usually neglected however, is the regard to offer quality air treatment. In reality, the air entering the system contains moisture, which when cooled, will turn into liquid water, thus causing major damage not only to the compressed air lines, but also to the finished product. However, by installing the ACT VS variable speed dryer, these costly contamination problems can be eliminated while saving energy.

The new Purestream ACT VS variable speed dryer features include:

- Low pressure drop (even with load variances)
- Low power consumption due to low pressure drop (thanks to the ALU-DRY heat exchanger)
- High efficiency compressors
- Zero loss condensate drain
- Condenser fan inverter
- Refrigerant compressor inverter
- Functional even at maximum working conditions (air inlet 70˚C and ambient 45˚C)

The new Purestream ACT VS dryer offers dependability with an efficient design while lowering your hydro bill. Purestream ACT VS dryers will give you dry air and enormous value in a compact energy saving package. All the components of the Purestream ACT VS dryers, including refrigerant and materials of assembly, have been chosen with maximum respect for the environment.

DMC 50 Electronic Controller

The complete management of the ACT VS dryer is entrusted to the innovative DMC 50 electronic control unit, which continuously monitors the pressure and operating temperature, calculates the heat load and adjusts the rotation speed of the compressor and fans. This ensures an extremely stable Dew Point in all operating conditions and power consumption proportional to the applied heat load. The large touch screen display, rich in information, provides an intuitive operator interface. The current operating parameters are constantly displayed with additional information such as data logging, scheduled maintenance, hour meter, energy saving and alarm memory are easily accessible.
The RS485 interface is already included for remote monitoring of the dryer.
Alarm contacts are included as standard for remote on-off requirements.

Bekomat Zero-loss Drain

To maximize the Energy Savings the Purestream ACT VS range is equipped with an electronic Zero Loss Drain.

HEAT EXCHANGER

CRN APPROVED NATIONALLY

ALU-DRY

HEAT EXCHANGER

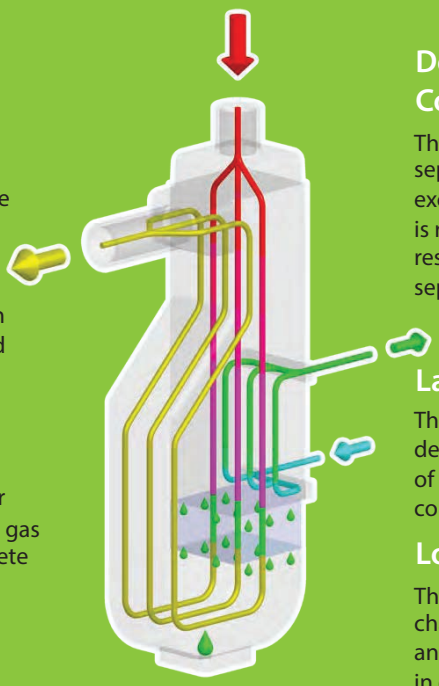
The air-to-air and the air-to-refrigerant heat exchangers plus the demister type condensate separator are housed in an unique module. The vertical arrangement ensures that moisture removed flows down to the automatic drain. The counterflow of compressed air ensures maximum heat transfer.

Air/Air Heat Exchanger

The air-to-air heat exchanger pre-cools the air entering into the dryer in order to reduce the cooling power required when the air subsequently passes into the evaporator. The air exiting the dryer is heated in the same way in order to prevent condensation from forming on the compressed air piping.

Evaporator

The generous dimensions of the air-to-refrigerant heat exchanger combined with the counter flow gas streams allow for full and complete evaporation of the refrigerant, therefore preventing liquid from returning to the compressor.



Demister Type Condensate Separator

The highly efficient condensate separator is located within the heat exchanger module. No maintenance is required and the coalescing effect results in a high degree of moisture separation.

Large Capacity

The large capacity separator is designed to capture large volumes of condensate in high humidity compressed air environments.

Low Pressure Drop

The large cross section of flow channels lead to low air velocities and reduced pressure drop resulting in energy savings.

COMPRESSORS

VARIABLE SPEED SCROLL COMPRESSOR WITH INVERTER

From model ACT 800 and larger, the VS scroll compressor is the standard refrigerant compressor used in the air conditioning and refrigeration market sectors due to it's reliable performance and low energy consumption. Compression of the refrigerant is achieved by way of con-tentric coils, one moving and one fixed. The scroll is wear resistant, highly reliable and guarantees a high level of noise reduction

EASY MAINTENANCE

The ACT VS series has been designed and built to allow for ease of inspection and necessary maintenance. The metal access panels are easily removed and offer immediate access to all parts of the system. The layout of the components, the simple composition of the refrigerant circuit and the numbering of the wires in the electrical system, facilitate the technician when servicing the dryer.

CONDENSER FAN WITH INVERTER

*

* Developed For Inverter Control In DC Voltage

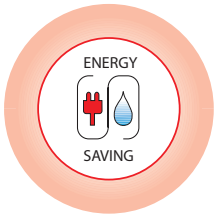
WHY CHOOSE THE ACT VS VARIABLE SPEED DRYER

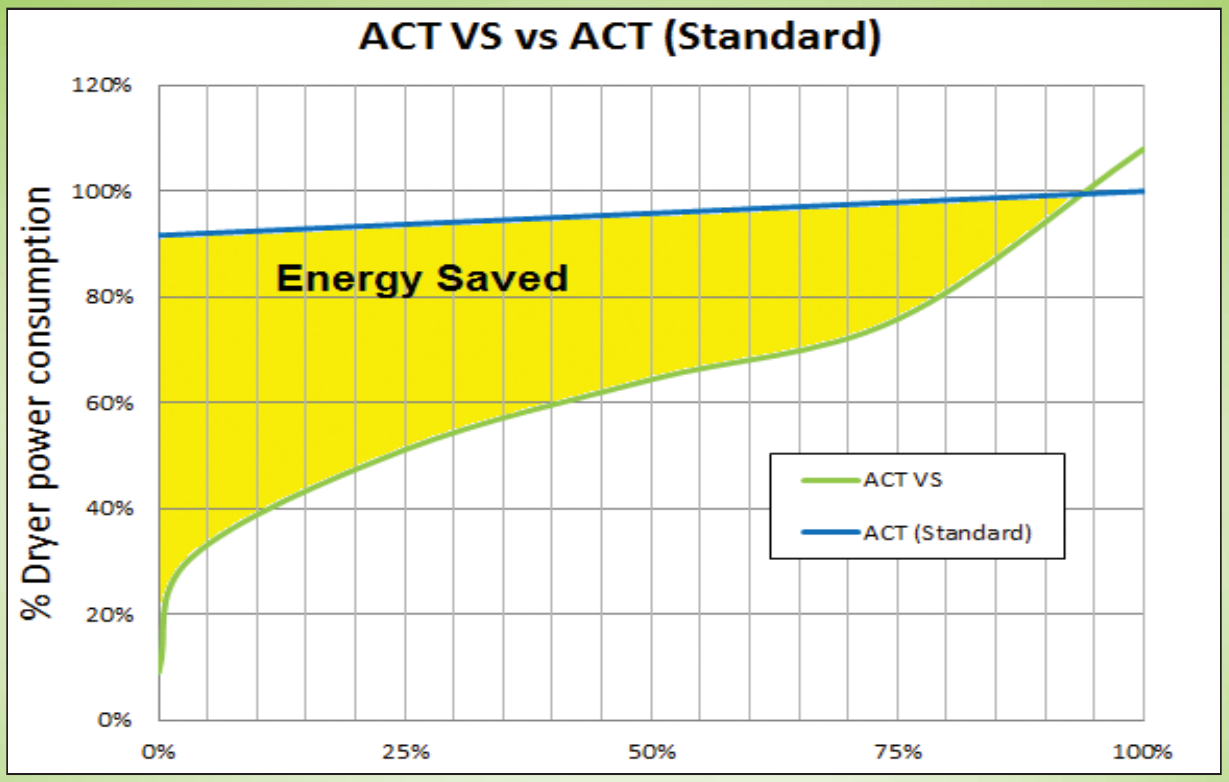
The industry standard is to size dryers based on considering the worst case working conditions of a specific installation. In cases where maximum flow rate load capacities vary along with air temperature and ambient conditions energy consumption can be a major issue. For these applications the standard ACT dryer, while ensuring optimum performance in all operating conditions has a nearly constant power consumption even in reduced load situations which results in lost energy.

HOWEVER THE ACT VS VARIABLE SPEED DRYERS ARE ABLE TO ADAPT THEIR ENERGY CONSUMPTION ACCORDING TO THE LOAD, ALLOWING SUBSTANTIAL ECONOMIC SAVINGS, EVEN WHEN APPLIED TO TYPICAL INDUSTRY DRYER SIZING.

HOW MUCH CAN BE SAVED WITH AN ACT VS VARIABLE SPEED DRYER?

The graph compares the average power consumption of the ACT VS Energy Saving dryer compared to the equivalent non-cycling ACT (standard) model at different load conditions. The curves of the graph below show the ACT VS version's energy efficiency and illustrates the energy saving difference at the reduced load conditions versus our tradional non-cycling ACT dryers.

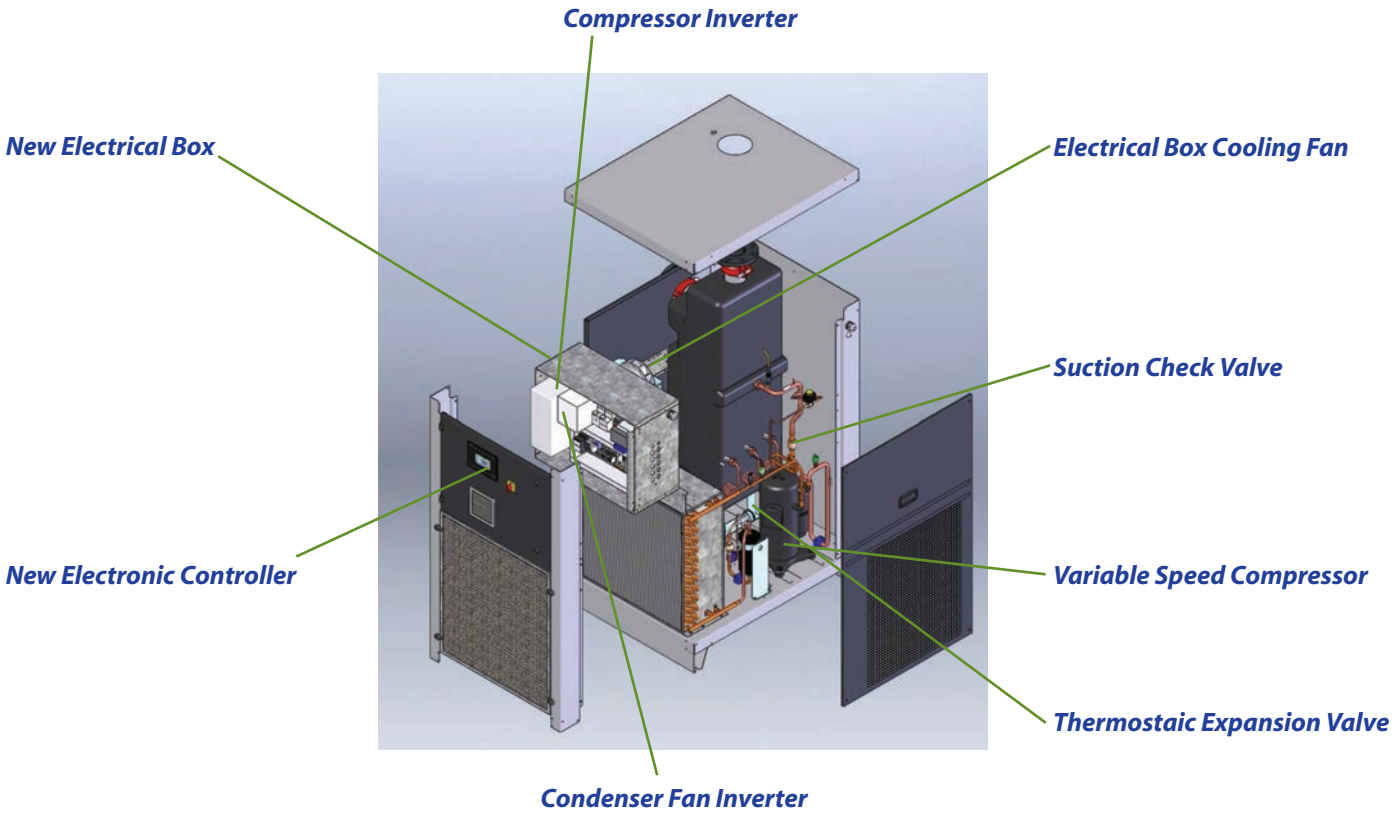




HOW DO WE ACHIEVE COST AND ENERGY SAVINGS?

Due to the characteristics of the ALU-DRY heat exchanger and the low pressure drop we initiate the ACT VS energy savings; combine this with the addition of the variable speed refrigeration compressor and condenser fan(s) with inverters this now allows the new DMC 50 electronic controller to control the refrigerant compressor and condenser fan speed as the load fluctuates. As the load changes the variable speed compressor and condenser fan will operate to meet the lower or higher load as required, resulting in energy savings. With the standard no air loss Bekomat drains, additional energy savings are also accomplished. Once you add up the energy savings as well as the possibility to receive Local Power Authority Rebates, the ROI is extremely short.

WHAT HAS CHANGED FROM OUR STANDARD ACT DRYER TO THE NEW ACT VS SERIES?



ACT VS VARIABLE SPEED DRYER FEATURES AND BENEFITS:

- REFRIGERANT COMPRESSOR INVERTER
- VERTICAL HEAT EXCHANGER WITH LOW PRESSURE DROP
- ENERGY EFFICIENT VARIABLE SPEED REFRIGERANT COMPRESSOR
- NO AIR LOSS ENERGY SAVING DRAIN
- NEW DMC 50 CONTROLLER
- CONDENSER FAN INVERTER
- GENEROUSLY SIZED CONDENSER
- VARIABLE SPEED CONDENSER FAN
- ELIGIBLE FOR LOCAL POWER AUTHORITY REBATE PROGRAM
- ENERGY SAVINGS PROVIDE A QUICK ROI

COMBINE ALL OF THESE FEATURES AND BENEFITS AND IT'S ALMOST FREE!

STANDARD FEATURES & OPTIONAL ACCESSORIES

Description	ACT VS MODELS 800-6000
ALU-DRY ALUMINIUM HEAT EXCHANGER	•
HIGH EFFICIENCY REFRIGERANT COMPRESSORS	•
TROPICALISED AIR CONDENSER	•
AIR-COOLED CONDENSER PROTECTION FILTER	•
HIGH EFFICIENCY FAN(S)	•
WATER-COOLED CONDENSER	‡
ENVIRONMENTALLY FRIENDLY REFRIGERANT	•
AUTOMATIC CONDENSING PRESSURE CONTROL	•
HIGH AND LOW REFRIGERANT SAFETY PRESSURE SWITCH	•
HIGH REFRIGERANT TEMPERATURE SWITCH PROTECTION	•
ZERO LOSS DRAIN	•
DMC 50 CONTROLLER	•
	• Standard ‡ Optional

CORRECTION FACTORS

Correction factor for operating pressure changes:									
Inlet air pressure	psig	60	80	100	120	140	160	180	203
	barg	4	5.5	7	8	10	11	12	14
	Factor (F1)	0.79	0.91	1	1.07	1.13	1.18	1.23	1.27

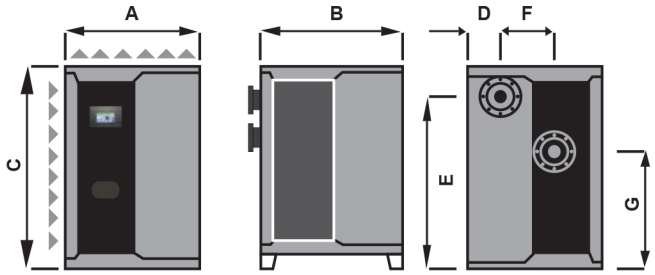
Correction factor for ambient temperature changes (Air-Cooled):									
Ambient temperature	°F	80	90	95	100	105	110	115	
	°C	27	32	35	38	40	43	45	
	Factor (F1)	1.11	1.09	1.06	1	0.94	0.87	0.78	

Correction factor for inlet air temperature changes:									
Inlet air temperature	°F	90	100	110	120	130	140	150	158
	°C	32	38	43	50	55	60	65	70
	Factor (F1)	1.16	1	0.82	0.68	0.61	0.52	0.45	0.40

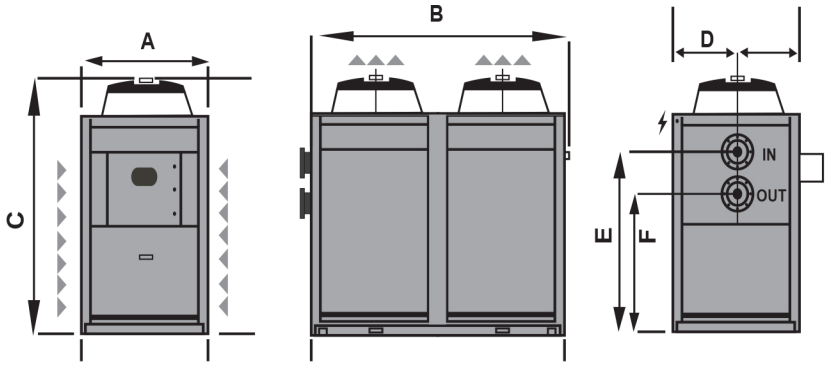
Correction factor for Dew Point changes:									
Dew Point	°F	38	41	45	50				
	°C	3	5	7	10				
	Factor (F1)	1.00	1.08	1.20	1.36				

TECHNICAL DATA - ACT VS SERIES

ACT VS 800-5000



ACT-6000



MODEL	FLOW RATE SCFM	460/3/60	575/3/60	REFRIG.	PIPE SIZE	WEIGHT (lbs)	DIMENSIONS IN INCHES						
							A	B	C	D	E	F	G
ACT800VS	800	460/3/60	575/3/60	R134A	3"150#FL	546	31.10	39.37	57.68	19.88	48.92	-	-
ACT1000VS	1000	460/3/60	575/3/60	R407C	3"150#FL	620	31.10	39.37	57.68	19.88	48.92	-	-
ACT1250VS	1250	460/3/60	575/3/60	R407C	3"150#FL	671	31.10	39.37	57.68	19.88	48.92	-	-
ACT1500VS	1500	460/3/60	575/3/60	R407C	4"150#FL	1036	44.68	47.44	68.70	8.27	63.78	16.14	48.43
ACT1750VS	1750	460/3/60	575/3/60	R407C	4"150#FL	1133	44.68	47.44	68.70	8.27	63.78	16.14	48.43
ACT2000VS	2000	460/3/60	575/3/60	R407C	4"150#FL	1208	44.68	47.44	68.70	8.27	63.78	16.14	48.43
ACT2500VS	2500	460/3/60	575/3/60	R407C	4"150#FL	1366	44.68	47.44	68.70	8.27	63.78	16.14	48.43
ACT3000VS	3000	460/3/60	575/3/60	R407C	6"150#FL	1855	51.2	68.9	71.3	10.2	64.6	17.1	48.2
ACT3750VS	3750	460/3/60	575/3/60	R407C	6"150#FL	2099	51.2	68.9	71.3	10.2	64.6	17.1	48.2
ACT4000VS	4000	460/3/60	575/3/60	R407C	8"150#FL	2356	55.1	86.6	73.6	10.2	65.7	18.3	48.2
ACT5000VS	5000	460/3/60	575/3/60	R407C	8"150#FL	2680	55.1	86.6	73.6	10.2	65.7	18.3	48.2
ACT6000VS	6000	460/3/60	575/3/60	R407C	8"150#FL	3212	57.1	85.3	96.1	28.6	65.5	48.1	

Flow rates are based on the following nominal conditions. Ambient temperature of 37.8˚C, 7 barg inlet air pressure entering air temperature of 37.8˚C and 3˚C pressure Dew Point. Maximum working conditions: Ambient temperature 45˚C, inlet air temperature 70˚C and inlet air pressure 14 barg.

ACT VS Energy Savings? Find out with our VS-E-CALCULATOR

The ACT VS dryers can offer impressive energy savings and in order to give the customer and the local Power Authority personnel an accurate energy usage in real dollars, using real numbers, we have developed our **VS-E-CALCULATOR.** We designed the calculator to provide you with model selection details and display energy savings versus our standard non cycling ACT dryers. By simply inputting just a few numbers that relate to your application, the **VS-E-CALCULATOR** within seconds will provide you with a detailed calculation of energy usage based on actual variable loads over a 24 hour period and then display the energy savings verses our standard non-cycling dryers. The capital cost ROI can be impressive on most models allowing the end user to present the savings to management and the local power authorities for potential eligibility for their energy saving rebate programs that are commonly offered provincially across Canada.

CONTACT US FOR ACCESS TO OUR VS-E CALCULTAOR

Economic Comparison: Variable Speed Dryer vs Standard Dryers

General Data

Total working hours per day:	24	**h/day**
Total Pressure Drop cost:	2.68	**$/day**

VS Dryer Data

	ACT 2000	
VS Dryer model:	VS	
VS Dryer electrical energy required:	35.8	**kWh/day**
VS Dryer electrical energy cost:	4.92	**$/day**
Total (Power Supply + Pressure Drop) VS Dryer energy cost :	7.60	**$/day**

Standard Dryer Data

Standard Dryer Model:	ACT 2000	
Standard Dryer nominal power:	8.60	**kW**
Standard Dryer electrical energy required:	206.4	**kWh/day**
Standard Dryer electrical energy cost:	29.41	**$/day**
- Condition #1:	10.32	**$**
- Condition #2:	11.35	**$**
- Condition #3:	7.74	**$**
Total (Power Supply + Pressure Drop) Standard Dryer energy cost :	32.09	**$/day**

Economic Benefit

Money saved in 24 hours using VS Dryer:	***(EXAMPLE ONLY)**	24.49	**$/day**

**** All model dryers energy savings will vary.***

ACT ES Series

CAG Purification Inc.
3770B Laird Road, unit 2, Mississauga ON. L5L 0A7
Tel: 800-951-0777 Fax: 905-820-3490
www.cagpurification.com

ACT Standard Series