

PURESTREAM

ACT - ES

BY FRIULAIR



NEW - ENERGY SAVING CYCLING DRYERS



R513A

Phasing In
New Refrigerant

ULTIMATE
ENERGY SAVING
TECHNOLOGY



PURESTREAM ACT ES CYCLING DRYER

The NEW range of PURESTREAM ACT ES 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 ES cycling dryer, these costly contamination problems can be eliminated while saving energy.

The new Purestream ACT ES cycling 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
- Innovative hot gas by-pass valve
- Zero loss condensate drain
- TMVG: Thermal mass valve grouping designed to conserve energy
- Functional even at maximum working conditions (air inlet 70°C and ambient 50°C)



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



DMC51 Electronic Controller

All ACT ES models are fitted with a DMC51 electronic controller which measures the Dew Point temperature and controls the switching on or off of the refrigerant compressor. When the temperature approaches the minimum temperature the DMC51 switches off the compressor. When the temperature increases the compressor is turned on again. The DMC 51 also has the ability to operate the dryer in standard ACT mode as well as ES mode.



Bekomat Zero-loss Drain

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



HEAT EXCHANGER

CRN APPROVED NATIONALLY



HEAT EXCHANGER

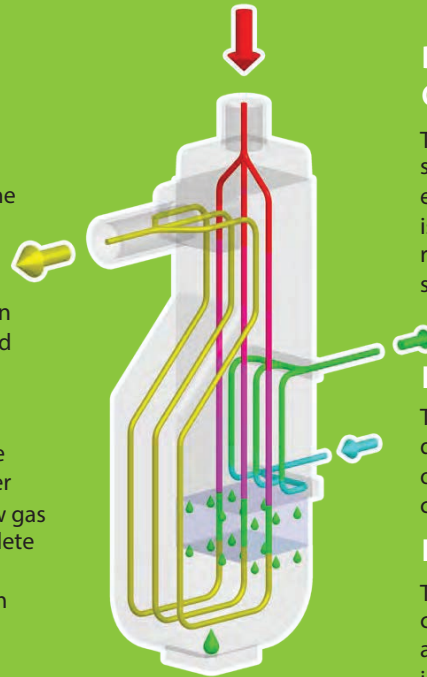
The air-to-air and the air-to-refrigerant heat exchangers plus the demister type condensate separator are housed in a unique module. The vertical arrangement ensures that moisture removed flows down to the automatic drain. The counterflow of compressed air ensures maximum heat transfer.

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

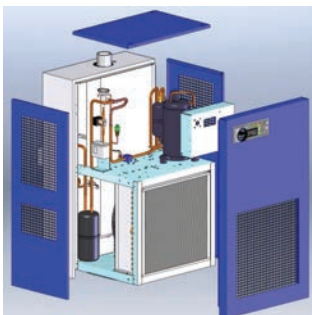
PISTON COMPRESSOR

For models ACT 20 -100 as well as three phase voltage models ACT 200-500 are fitted with high efficiency piston compressor.



ROTARY COMPRESSOR

For models ACT 125 - 500 (with single phase power supply). This new technology for compressing refrigerants is an alternative to the traditional piston compressor. Compression of refrigerant is achieved by way of interaction between a cylindrical stator and a rotating eccentric nucleus. Due to this method of operation, the parts which come into contact with one another are wear resistant and therefore more reliable.



HOT GAS BY-PASS VALVE

All model dryers are fitted with a stainless steel hot gas by-pass valve designed to prevent freezing. This diaphragm valve is controlled by both temperature and pressure, making accuracy of operation unmatched in the industry. This valve is set during final factory testing and no further adjustments are required.



EASY MAINTENANCE

The ACT 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.

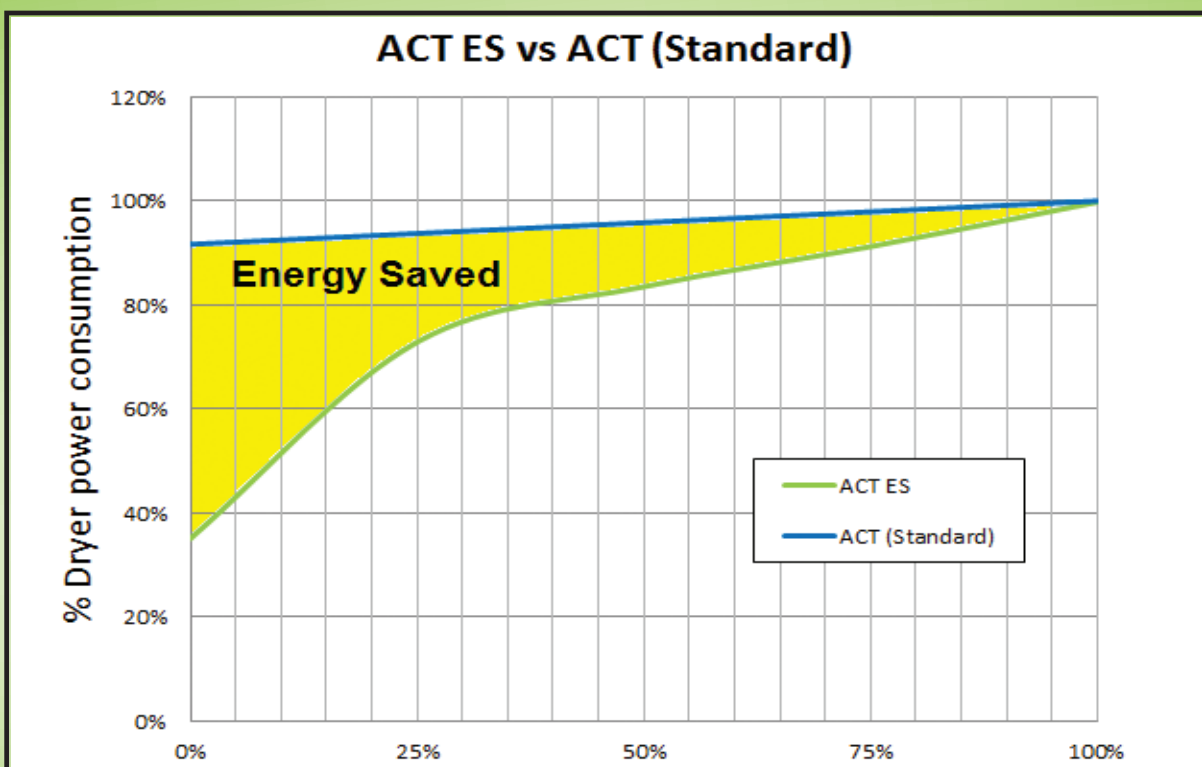
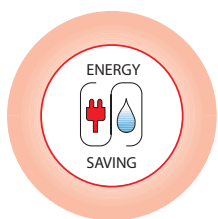
WHY CHOOSE THE ACT ES ENERGY SAVING DRYER

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 ES CYCLING 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 ES ENERGY SAVING DRYER?

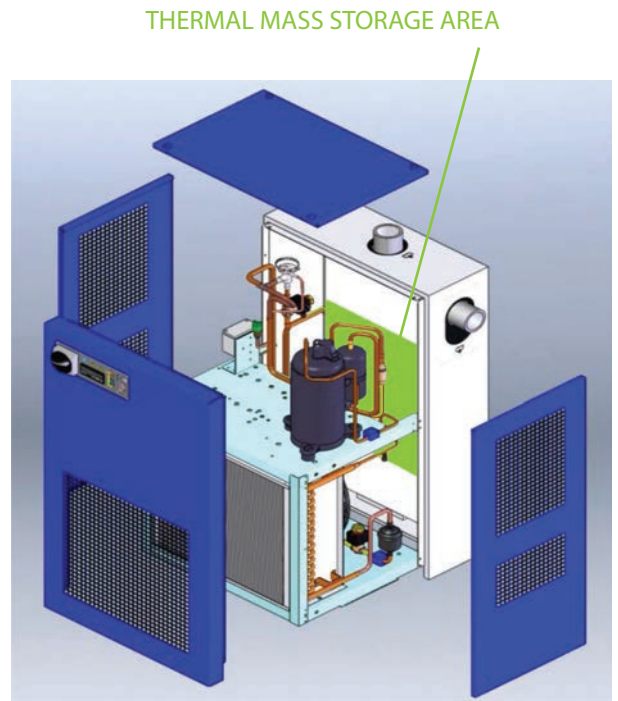
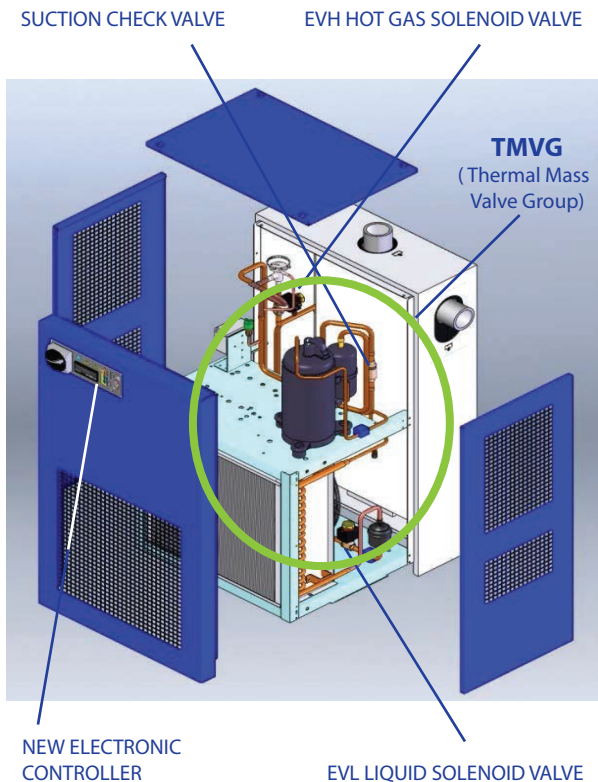
The graph compares the average power consumption of the ACT ES Energy Saving dryer compared to the equivalent non-cycling ACT (standard) model at different load conditions. The curves of the graph below show the ACT ES version's energy efficiency and illustrates the energy saving difference at the reduced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



HOW DO WE ACHIEVE ENERGY SAVINGS?

With the added components shown in the lower left illustration, we are now able to create substantial energy savings with our ES CYCLING Dryers. Due to the characteristics of the ALU-DRY heat exchanger and the operation of the TMVG (Thermal Mass Valve Group), the refrigeration circuit now creates a thermal mass storage area when the valves are activated. This is achieved by isolating a portion of the heat exchanger and inter-connecting piping, as shown in the lower right illustration.

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



ACT ES CYCLING DRYER BENEFITS:

- VERTICAL HEAT EXCHANGER WITH LOW PRESSURE DROP
- REFRIGERATION COMPRESSOR CYCLES ON AND OFF
- NO AIR LOSS ENERGY SAVING DRAIN
- TMVG: **THERMAL MASS VALVE GROUP** CREATES A THERMAL MASS COMPARTMENT
- GENEROUSLY SIZED CONDENSER
- ENERGY EFFICIENT REFRIGERANT COMPRESSOR
- ELIGIBLE FOR LOCAL POWER AUTHORITY REBATE PROGRAM
- ENERGY SAVINGS PROVIDE A QUICK ROI

COMBINE ALL THESE BENEFITS AND IT'S ALMOST FREE!

STANDARD FEATURES & OPTIONAL ACCESSORIES

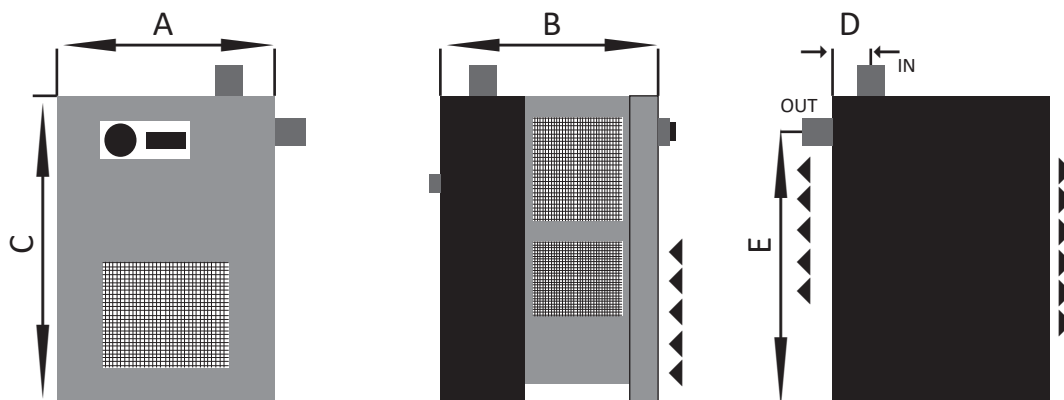
Description	ACT ES MODELS			
	20-75	100-150	200-250	300-500
ALU-DRY ALUMINIUM HEAT EXCHANGER	•	•	•	•
HIGH EFFICIENCY REFRIGERANT COMPRESSORS	•	•	•	•
TROPICALISED AIR CONDENSER	•	•	•	•
HIGH EFFICIENCY FAN(S)	•	•	•	•
WATER-COOLED CONDENSER			‡	‡
ENVIRONMENTALLY FRIENDLY REFRIGERANT	•	•	•	•
HOT-GAS BY-PASS VALVE	•	•	•	•
AUTOMATIC CONDENSING PRESSURE CONTROL	•	•	•	•
HIGH AND LOW REFRIGERANT SAFETY PRESSURE SWITCH				•
HIGH REFRIGERANT TEMPERATURE SWITCH PROTECTION	‡	‡	•	•
ZERO LOSS DRAIN	•	•	•	•
TMVG: THERMAL MASS VALVE GROUP	•	•	•	•
DMC 51 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	122
	°C	27	32	35	38	40	43	45	50
	Factor (F1)	1.11	1.09	1.06	1	0.94	0.87	0.78	0.69
Correction factor for inlet air temperature changes:									
Inlet air temperature	°F	90	100	110	122	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				

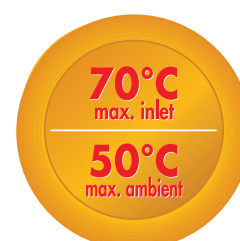
TECHNICAL DATA - ACT ES SERIES

ACT ES 20-500



MODEL	FLOW RATE SCFM	VOLTAGE							DIMENSIONS IN INCHES						
		115/1/60	230/1/60	460/3/60	575/3/60	REFRIG.	PIPE SIZE	WEIGHT (lbs)	A	B	C	D	E	F	G
ACT20ES	20	115/1/60	230/1/60	-	-	R513A	1/2"NPT	64	13.58	16.54	29.13	6.22	27.56	-	-
ACT30ES	30	115/1/60	230/1/60	-	-	R513A	1/2"NPT	68	13.58	16.54	29.13	6.22	27.56	-	-
ACT50ES	50	115/1/60	230/1/60	-	-	R513A	1/2"NPT	71	13.58	16.54	29.13	6.22	27.56	-	-
ACT75ES	75	115/1/60	230/1/60	-	-	R513A	1"NPT	79	13.58	16.54	29.13	5.12	25.87	-	-
ACT100ES	100	115/1/60	230/1/60	-	-	R513A	1 1/4"NPT	101	19.09	17.91	32.48	5.12	29.33	-	-
ACT125ES	125	115/1/60	230/1/60	-	-	R407C	1 1/4"NPT	106	19.09	17.91	32.48	5.12	29.33	-	-
ACT150ES	150	115/1/60	230/1/60	-	-	R407C	1 1/4"NPT	110	19.09	17.91	32.48	5.12	29.33	-	-
ACT200ES	200	115/1/60	230/1/60	460/3/60	575/3/60	R407C	1 1/2"NPT	121	21.85	22.83	34.84	5.31	31.50	-	-
ACT250ES	250	-	230/1/60	460/3/60	575/3/60	R407C	1 1/2"NPT	139	21.85	22.83	34.84	5.31	31.50	-	-
ACT300ES	300	-	230/1/60	460/3/60	575/3/60	R407C	2"NPT	227	21.85	24.61	38.39	9.45	34.06	-	-
ACT350ES	350	-	230/1/60	460/3/60	575/3/60	R407C	2"NPT	236	21.85	24.61	38.39	9.45	34.06	-	-
ACT400ES	400	-	230/1/60	460/3/60	575/3/60	R407C	2 1/2"NPT	331	26.18	28.54	43.50	14.76	36.61	-	-
ACT500ES	500	-	230/1/60	460/3/60	575/3/60	R407C	2 1/2"NPT	375	26.18	28.54	43.50	14.76	36.61	-	-

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 50°C, inlet air temperature 70°C and inlet air pressure 14 barg (16 barg for ACT 20 to ACT 50)



Other Refrigerated Dryers Available From The ACT Series.

ACT VS Series

ACT Standard Series



For more information, contact CAG Technologies

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