

StarlettePlus-E Refrigeration Dryers

SPE 010 - 250



Untreated compressed air is wet. 100% saturated as it leaves the compressor aftercooler, water vapor in the compressed air cools as it enters the air receiver and distribution piping, resulting in the formation of condensed liquid water and water aerosols. Wet compressed air leads to corrosion, the growth of micro-organisms and the formation of oily, acidic compressor condensate.

For a manufacturing facility reliant on compressed air for automation, these contaminants can directly impact safety, productivity and efficiency.

Compressed air treatment is therefore essential and for non-critical uses of compressed air, the refrigeration dryer is an ideal choice.

Refrigeration Dryers

Refrigeration dryers use a closed loop cooling system to lower the temperature of the compressed air to just above freezing, causing condensation of water vapor.

Most of the condensed liquid is then removed by an integral water separator and drained away. Prior to leaving the dryer, the compressed air is re-heated by the incoming compressed air to prevent condensation on the outside of the downstream distribution piping.

Refrigeration dryers should always be installed with general purpose and high efficiency coalescing filters and are an effective way to reduce water vapor, liquid water and water aerosols for general purpose compressed air applications.



Advantages

- Parker StarlettePlus-E refrigeration dryers are developed around a state-of-the-art aluminum heat exchanger (E-Pack), with a patent pending all-in-one design.
- The E-Pack heat exchanger is designed with a large air/air heat exchanger to pre-cool the incoming hot, saturated compressed air and therefore reduce energy consumption.
- The highly efficient E-Pack design results in a refrigeration circuit that uses a smaller volume of refrigerant than other comparable dryers and offers one of the lowest absorbed powers in the industry.
- The E-Pack design utilizes low pressure drop, cross flow heat exchangers to reduce operational costs.
- The E-pack heat exchanger includes a high efficiency stainless steel demister separator for liquid removal over all operating conditions.
- All models are equipped as standard with a digital controller that includes an indication of compressed air temperature, volt free alarm contact, service reminder and integral timed drain control.
- StarlettePlus-E models are listed by a NRTL for UL 1995.
- Optional Energy Saving (ES) models (SPE075 – SPE0250) saves energy by matching power consumption to compressed air demand. The ES models adjust to partial load conditions by allowing the refrigerant compressor to cycle off



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Technical Data

Dryer Models	Dewpoint	Min Operating Pressure		Max Operating Pressure		Min Operating		Max Operating		Max Ambient		Electrical Supply	Electrical Supply (Optional)	Thread	Noise Level	Refrigerant Type
		psi g	bar g	psi g	bar g	°F	°C	°F	°C	°F	°C				dB(A)	
SPE 010 - 050	ISO 8573-1 Class 5	29	2	232	16	41	5	149	65	122	50	115V 1ph 60Hz	N/A	NPT	<75	R134A
SPE 075-175													230V 1Ph 60Hz			
SPE 200 - 250				230V 1ph 60Hz	N/A											

Flow Rates

Model	Pipe Size	Inlet Flow Rate				kW
		cfm	m³/min	m³/hr	L/s	
SPE 010	1/2"	10	0.28	17.0	4.7	0.16
SPE 015	1/2"	15	0.42	25.5	7.1	0.17
SPE 025	1/2"	25	0.71	42.5	11.8	0.19
SPE 035	3/4"	35	0.99	59.5	16.5	0.18
SPE 050	3/4"	50	1.42	85.0	23.6	0.20
SPE 075	1"	75	2.12	127.4	35.4	0.36
SPE 0100	1"	100	2.83	169.9	47.2	0.37
SPE 0125	1"	125	3.54	212.4	59.0	0.38
SPE 0150	1 1/2"	150	4.25	254.9	70.8	0.56
SPE 0175	1 1/2"	175	4.96	297.3	82.6	0.69
SPE 0200	1 1/2"	200	5.66	339.8	94.4	0.90
SPE 0250	1 1/2"	250	7.08	424.8	118.0	0.91

Stated flows are for operation at the following climatic conditions: 100°F (38°C) Ambient Temperature, 100°F (38°C) Inlet Temperature and 100 psi g (7 bar g) Inlet Pressure.

For flows at other conditions, apply the correction factors shown below.

Product Selection & Correction Factors

For correct operation, compressed air dryers must be sized using for the maximum inlet temperature, maximum ambient temperature, minimum inlet pressure and maximum flow rate of the installation. To select a dryer, first calculate the MDC (Minimum Drying Capacity) using the formula below then select a dryer from the flow rate table above with a flow rate equal to or above the MDC.

Minimum Drying Capacity = System Flow x CFIT x CFAT x CFMIP

CFIT - Correction Factor Minimum Inlet Temperature

Minimum Inlet Temperature	°F	90	95	100	110	120	130	140	149
	°C	32	35	38	43	49	54	60	65
Correction Factor		0.74	0.82	1	1.33	1.76	2.38	2.60	2.67

CFAT - Correction Factor Maximum Ambient Temperature

Maximum Ambient Temperature	°F	60	70	80	90	95	100	110	120	122
	°C	16	21	27	32	35	38	43	49	50
Correction Factor		0.93	0.93	0.93	0.93	0.96	1	1.08	1.16	1.18

CFMIP - Correction Factor Minimum Inlet Pressure

Minimum Inlet Pressure	psi g	45	60	80	100	125	150	160	175	203	232
	bar g	3	4	5.5	7	8.5	10	11	12	14	16
Correction Factor		1.40	1.17	1.09	1	0.88	0.82	0.81	0.79	0.75	0.71

Controller Functions

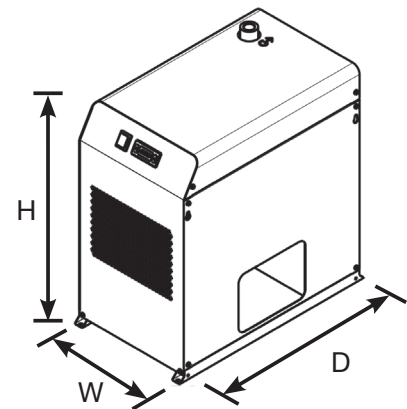
Dryer Model	Power On Indication	Visual Fault Indication	Compressed Air Temperature	EST - Energy Saving Technology	Dryer Service Indicator	Fault Relay: Power Loss	4-20mA for Dewpoint Retransmission
SPE 010 - 250	X	X	X		X	X	
SPE 075 - 250 w/ EST Option	X	X	X	X	X	X	X

Recommended Filtration

Model	Pipe Size	Dryer Inlet	Dryer Outlet	Filtration Performance	General Purpose Pre-filter	High Efficiency After Filter
		General Purpose Pre Filter	High Efficiency After Filter			
SPE 010	½"	AOP010CNFI	AAP010CNFI	Filtration Grade	Grade AO	Grade AA
SPE 015	½"	AOP015CNFI	AAP015CNFI	Filtration Type	Coalescing	Coalescing
SPE 025	½"	AOP015CNFI	AAP015CNFI	Particle Reduction (inc water & oil aerosols)	Down to 1 micron	Down to 0.01 micron
SPE 035	¾"	AOP020DNFI	AAP020DNFI	Maximum Remaining Oil Aerosol Content at 70°F (21°C)	≤0.5 mg/m³ (≤0.5 ppm(w))	≤0.01 mg/m³ (≤0.01 ppm(w))
SPE 050	¾"	AOP020DNFI	AAP020DNFI			
SPE 075	1"	AOP025ENFI	AAP025ENFI			
SPE 0100	1"	AOP025ENFI	AAP025ENFI			
SPE 0125	1"	AOP025ENFI	AAP025ENFI			
SPE 0150	1 ½"	AOP030GNFI	AAP030GNFI			
SPE 0175	1 ½"	AOP030GNFI	AAP030GNFI			
SPE 0200	1 ½"	AOP035GNFI	AAP035GNFI			
SPE 0250	1 ½"	AOP035GNFI	AAP035GNFI			

Weights & Dimensions

Model	Pipe Size	Dimensions						Weight	
		Height (H)		Width (W)		Depth (D)		lbs	kg
		ins	mm	ins	mm	ins	mm		
SPE 010	½"	20.5	520	11.8	300	15.7	400	53	24
SPE 015	½"	20.5	520	11.8	300	15.7	400	53	24
SPE 025	½"	20.5	520	11.8	300	15.7	400	55	25
SPE 035	¾"	22.8	580	13.0	330	21.7	550	77	35
SPE 050	¾"	22.8	580	13.0	330	21.7	550	79	36
SPE 075	1"	25.6	650	15.7	400	24.8	630	101	46
SPE 0100	1"	25.6	650	15.7	400	24.8	630	101	46
SPE 0125	1"	25.6	650	15.7	400	24.8	630	104	47
SPE 0150	1 ½"	25.6	650	15.7	400	24.8	630	117	53
SPE 0175	1 ½"	25.6	650	15.7	400	24.8	630	121	55
SPE 0200	1 ½"	33.1	840	17.7	450	30.7	780	176	80
SPE 0250	1 ½"	33.1	840	17.7	450	30.7	780	176	80



Quality Assurance / IP Rating / Pressure Vessel Approvals

Development / Manufacture ISO 9001 / ISO 14001

Ingress Protection Rating IP22 Indoor Use Only

For use with compressed air only

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Greensboro, North Carolina
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Bioscience Filtration
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Carson, California
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Engine Mobile Aftermarket Division
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