

# **Sullivan Palatek®**

*Above & Beyond*



## **Refrigerated Compressed Air Dryers**

- SPRF - Standard Compressed Air Dryers**
- SPTX - Thermal Exchange Cycling Dryers**
- SPHT - High Inlet Temperature Dryers**

# General Design Features

## 5 Year Warranty

Each Sullivan-Palatek Refrigerated Air Dryer is manufactured to the highest quality standard. In an effort to express this quality standard, and distinguish our products from competitors we have standardized on a 5-Year product warranty.

For the next 5-Years the Sullivan-Palatek warranty gives you the assurance that the purchase of a compressed air dryer will meet your needs without worry of equipment failure.

With continuous improvement of quality standards, along with engineering improvements that are advancing as fast as current technology, you can be assured that Sullivan-Palatek will provide you with a quality product for years of uninterrupted service.

## Low Pressure Drops

All refrigerated compressed air dryers manufactured by Sullivan Palatek are designed with pressure drops that range from 2.9 to 3.8 PSID. Competitive products can deliver pressure drops as high as 6.5 PSID. The addition of pressure drop can substantially increase system operating cost. Each (psi) increase in systems pressure raises the required compressor horsepower by 0.5%. If a facility is required to raise discharge pressure by 3 PSI to overcome component restriction, 1.5% additional HP is required.

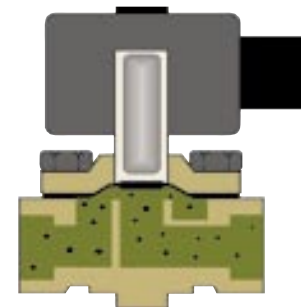
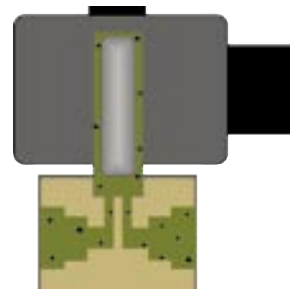
Assuming the facility operates a 100 HP compressor and has energy costs of \$0.06 kW/H annual operational cost would increase \$588.00.

Sullivan-Palatek utilizes only environmentally friendly refrigerants. These low or non-ozone depleting products; HCFC and HFC, have enabled a global transition away from environmentally destructive CFCs. Sullivan Palatek single phase refrigerated air dryers utilize HFC (R134A) refrigerant. The three phase units utilize HCFC (R22) refrigerant. Optional refrigerant types are available consult your representative for details.



Sullivan-Palatek manufacturers all of its compressed air dryers with pride in the USA. We offer our customers a steady stream of high quality products, with proven performance that are reasonably priced, and not based on fluctuating international finance. These points in conjunction with local engineering, maintenance, support, and readily available replacement components make Sullivan-Palatek an effective choice for compressed air components.

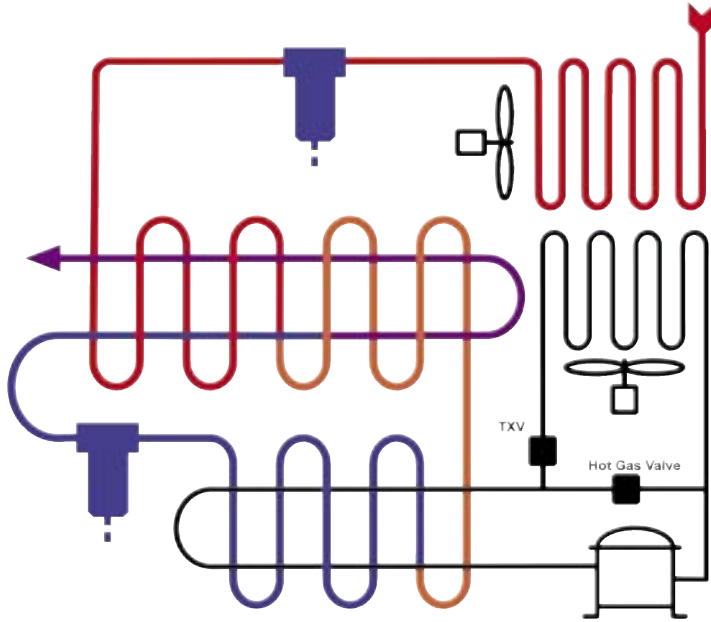
Sullivan Palatek uses only diaphragm type solenoid valves for the electronic timed condensate drains. Diaphragm valves keep the main stream of condensate away from the internal moveable piston. If particulate contaminates in the



condensate fouls and restricts movement of the piston, the valve will fail.

Diaphragm valves have a much larger orifices and flow paths than industry standard direct acting valves. Larger orifices virtually eliminates the possibility of clogging a drain valve.

# SPHT Series High Inlet Temperature Dryer



SPHT series delivers pressure dewpoints of 39°F. Many other high inlet temperature dryers offer only a 50°F dewpoint that can prove insufficient in many manufacturing processes.

A modulating thermostatic expansion valve gives a more effective refrigeration control over a wide span of operating conditions.

A hot gas bypass valve compensates for low load conditions preventing freeze-up.

## Specifications & Dimensions

| Model Number | Capacity in SCFM @ |          |          |          | Refrigeration System |       | Available Voltage    | In / Out Ports | Max. Inlet Pressure | Dimensions |       |       |    |
|--------------|--------------------|----------|----------|----------|----------------------|-------|----------------------|----------------|---------------------|------------|-------|-------|----|
|              | 50°F PDP           |          | 39°F PDP |          | HP                   | Watts |                      |                |                     | Height     | Width | Depth |    |
|              | 120 PSIG           | 100 PSIG | 120 PSIG | 100 PSIG |                      |       |                      |                |                     |            |       |       |    |
| SPHT-A1-116  | 28                 | 24       | 23       | 20       | 1/5                  | 376   | 120-1-60<br>230-1-60 | N/A            | 230 PSIG            | 23         | 18    | 23    |    |
| SPHT-A2-116  | 36                 | 30       | 30       | 25       | 1/4                  | 451   |                      |                |                     | 3/4        | 23    | 18    | 23 |
| SPHT-B1-116  | 50                 | 43       | 42       | 36       | 1/3                  | 576   |                      |                |                     | 3/4        | 35    | 19    | 23 |
| SPHT-B2-116  | 80                 | 67       | 66       | 56       | 1/2                  | 776   |                      | 3/4            |                     | 35         | 19    | 23    |    |
| SPHT-C2-116  | 102                | 86       | 85       | 72       | 5/8                  | 1045  |                      | 1              |                     | 42         | 22    | 29    |    |
| SPHT-C2-116  | 155                | 132      | 129      | 110      | 3/4                  | 1135  |                      | 1-1/2          |                     | 42         | 22    | 29    |    |

- Notes: 1. Capacity reflects a maximum 180°F inlet temperature and 100°F Ambient  
 2. Dimensions and specifications are subject to change without notice

## Capacity Correction Table

| Capacity Correction |       | Inlet Temperature |       |       |
|---------------------|-------|-------------------|-------|-------|
|                     |       | 125°F             | 150°F | 180°F |
| Ambient °F          | 100°F | 1.18              | 1.10  | 1.00  |
|                     | 105°F | 1.07              | 1.00  | 0.91  |
|                     | 110°F | 0.97              | 0.90  | 0.82  |

To obtain flow capacities at conditions other than standard, locate the multiplier at the interception of actual operating conditions. Multiply the rated capacity of the selected dryer by the selected multiplier. The result is the corrected flow capacity. Capacity corrected flows over standard operating conditions will increase pressure drop

# SPRF Series Refrigeration Dryer

A modulating thermostatic expansion valve gives a more effective refrigeration control over a wide span of operating conditions. It prevents compressor failure due to liquid return commonly found in capillary tube designs.

An adjustable hot gas bypass valve compensates for low load conditions preventing freeze-up.

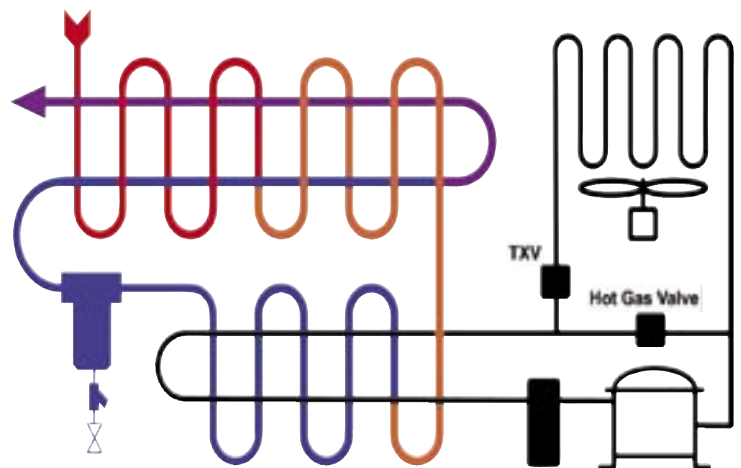
Suction accumulators prevent liquid return on cold starts and extend refrigerant compressor life.

Refrigeration Suction and Discharge service valves.

Models SPRF-470A and larger have fan cycle controls as a standard feature.

All condensate drains are electronic timed solenoid type with isolation valve and cleanable Y-Strainer.

Industrial duty all steel ergonomic cabinets with high quality power coat finish.



## Model Number Breakdown

| Series  | Capacity | Cooling |       | Design Change |               | Voltage |              |
|---|----------|---------|-------|---------------|---------------|---------|--------------|
| SPRF  | XXXX     | X       |       | XX            |               | XXX     |              |
| SCFM @ 120 PSIG<br>100°F Inlet<br>100°F Ambient |          | A       | Air   | Blank         | NEMA 1        | 116     | 120-1-60     |
|   |          | W       | Water | N4            | NEMA 4        | 216     | 208/230-1-60 |
|   |          |         |       | N7            | NEMA 7        | 236     | 208/230/3-60 |
|   |          |         |       | P3            | 300 PSIG      | 436     | 460-3-60     |
|   |          |         |       | P5            | 500 PSIG      | 536     | 575-3-60     |
|   |          |         |       | SW            | SS All Wetted | 235     | 200/240-3-50 |
|   |          |         |       | RC            | Remote Cond   | 335     | 380/420-3-50 |
|   |          |         |       |               |               |         |              |
|   |          |         |       |               |               | 215     | 200-1-50     |

### Specifications & Dimensions

| Model Number | Capacity In SCFM @ |          | Available Voltages | Refrigeration System |        | Inlet / Outlet Connections | Maximum Pressure | Dimensions |       |       |    |
|--------------|--------------------|----------|--------------------|----------------------|--------|----------------------------|------------------|------------|-------|-------|----|
|              | 120 PSIG           | 100 PSIG |                    | HP                   | Watts  |                            |                  | Height     | Width | Depth |    |
| SPRF23A-116  | 23                 | 20       | 120-1-60           | Not Available        | 1/6    | 255                        | 3/4              | 230 PSIG   | 23    | 18    | 23 |
| SPRF29A-116  | 29                 | 25       |                    |                      | 1/5    | 360                        | 3/4              |            | 23    | 18    | 23 |
| SPRF47A-116  | 47                 | 40       |                    |                      | 1/4    | 435                        | 3/4              |            | 23    | 18    | 23 |
| SPRF58A-116  | 58                 | 50       |                    |                      | 1/3    | 560                        | 3/4              |            | 23    | 18    | 23 |
| SPRF88A-116  | 88                 | 75       |                    |                      | 1/2    | 760                        | 3/4              |            | 23    | 18    | 23 |
| SPRF115A-□   | 115                | 100      |                    |                      | 5/8    | 1010                       | 1                |            | 42    | 22    | 29 |
| SPRF145A-□   | 145                | 125      | 230-1-60           | Not Available        | 3/4    | 1100                       | 1                | 230 PSIG   | 42    | 22    | 29 |
| SPRF175A-□   | 175                | 150      |                    |                      | 3/4    | 1100                       | 1-1/2            |            | 42    | 22    | 29 |
| SPRF235A-□   | 235                | 200      |                    |                      | 1      | 1360                       | 1-1/2            |            | 42    | 22    | 29 |
| SPRF295A-□   | 295                | 250      |                    |                      | 1-1/2  | 1850                       | 1-1/2            |            | 46    | 32    | 29 |
| SPRF350A-□   | 350                | 300      |                    |                      | 1-1/2  | 1850                       | 1-1/2            |            | 46    | 32    | 29 |
| SPRF470A-□   | 470                | 400      |                    |                      | 2      | 2457                       | 2                |            | 46    | 32    | 45 |
| SPRF580A-□   | 580                | 500      | 230/460/575-3-60   | Not Available        | 3      | 4028                       | 2                | 150 PSIG   | 46    | 32    | 45 |
| SPRF760A-□   | 760                | 650      |                    |                      | 3      | 4028                       | 2                |            | 46    | 32    | 45 |
| SPRF940A-□   | 940                | 800      |                    |                      | 4      | 5000                       | 2-1/2            |            | 60    | 35    | 56 |
| SPRF1175A-□  | 1175               | 1000     |                    |                      | 6      | 6720                       | 3                |            | 60    | 35    | 56 |
| SPRF1400A-□  | 1400               | 1200     |                    |                      | 6      | 6720                       | 3                |            | 60    | 35    | 56 |
| SPRF1760A-□  | 1760               | 1500     |                    |                      | 9      | 9601                       | 4" Flg           |            | 80    | 57    | 62 |
| SPRF2055A-□  | 2055               | 1750     | 10-1/2             | 12183                | 4" Flg | 80                         | 57               | 62         |       |       |    |
| SPRF2350A-□  | 2350               | 2000     | 12                 | 13839                | 4" Flg | 80                         | 57               | 62         |       |       |    |
| SPRF2650A-□  | 2650               | 2250     | 13.5               | 15770                | 4" Flg | 80                         | 57               | 62         |       |       |    |

- Notes: 1. Capacity reflects a maximum 100°F inlet temperature and 100°F ambient  
 2. "□" Symbol reflects missing voltage designation  
 2. Dimensions and specifications are subject to change without notice

### Model Capacity Correction Multiplier

| Inlet Temperature °F   |     | 90   |      |      | 100  |      |      | 110  |      |      | 120  |      |      |
|------------------------|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| Ambient Temperature °F |     | 90   | 100  | 110  | 90   | 100  | 110  | 90   | 100  | 110  | 90   | 100  | 110  |
| Inlet Air Pressure     | 70  | 0.86 | 0.79 | 0.72 | 0.69 | 0.63 | 0.57 | 0.46 | 0.42 | 0.38 | 0.17 | 0.16 | 0.15 |
|                        | 80  | 0.96 | 0.88 | 0.80 | 0.76 | 0.70 | 0.64 | 0.52 | 0.48 | 0.44 | 0.20 | 0.18 | 0.16 |
|                        | 90  | 1.07 | 0.98 | 0.89 | 0.85 | 0.78 | 0.71 | 0.58 | 0.53 | 0.48 | 0.22 | 0.20 | 0.18 |
|                        | 100 | 1.16 | 1.06 | 0.96 | 0.93 | 0.85 | 0.77 | 0.63 | 0.58 | 0.53 | 0.23 | 0.21 | 0.19 |
|                        | 110 | 1.25 | 1.15 | 1.05 | 1.00 | 0.92 | 0.84 | 0.96 | 0.63 | 0.57 | 0.25 | 0.23 | 0.21 |
|                        | 120 | 1.36 | 1.25 | 1.14 | 1.09 | 1    | 0.91 | 0.74 | 0.68 | 0.62 | 0.27 | 0.25 | 0.23 |
|                        | 130 | 1.46 | 1.34 | 1.22 | 1.17 | 1.07 | 0.97 | 0.80 | 0.73 | 0.66 | 0.29 | 0.27 | 0.25 |
|                        | 140 | 1.57 | 1.44 | 1.31 | 1.25 | 1.15 | 1.05 | 0.85 | 0.78 | 0.71 | 0.32 | 0.29 | 0.26 |
|                        | 150 | 1.67 | 1.53 | 1.39 | 1.33 | 1.22 | 1.11 | 0.90 | 0.83 | 0.76 | 0.33 | 0.30 | 0.27 |

To obtain flow capacities at conditions other than standard (SCFM @ 120 PSIG, 100°F Inlet & 100°F Ambient), locate the multiplier at the interception of actual operating conditions. Multiply the rated capacity of the selected dryer by the selected multiplier. The result is the corrected flow capacity. Flow rates in excess of specified due to capacity correction can result in increasing pressure drop.

# SPTX Series Thermal Exchange Cycling Air Dryer

Rising energy costs have forced equipment efficiency and operating costs to become a significant factor in the purchase of new equipment. A basic non-cycling refrigerated air dryer matches the BTU capacity of the dryer refrigeration system, with the BTU requirement of the compressed air load. This design is very efficient when the loads are balanced. In many applications, compressed air loads experience wide fluctuations that range from 0 to 100%. If the compressed air load falls, the refrigeration system must dump or waste energy to balance the system. The Sullivan-Palatek SPTX cycling refrigerated air dryer uses a fully loaded refrigeration system to store energy in the TRANS-TEMP ENERGY CELL. By operating the refrigeration system fully loaded, you maximize the operating efficiency, reducing your operational energy costs. When the ENERGY CELL reaches maximum charge, the refrigeration compressor CYCLES OFF, allowing the energy cell to continue providing the energy required for cooling and drying the compressed air system.



## Adjustable Temperature Control

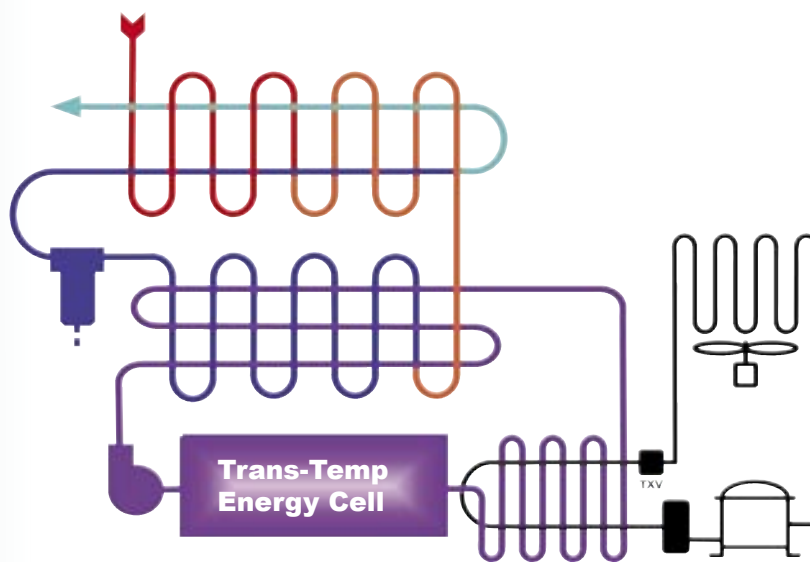
This feature allows the user to adjust the temperature of the Trans-Temp Energy Cell affecting the dryer dewpoint. Increasing dewpoint in applications that do not require optimum dewpoint suppression will further increase energy savings. The controller has a bright LED display, alarm text messaging, and a display that will read in °F or °C.

## Trans-Temp Energy Cell

The Trans-Temp Energy Cell integrates non-hazardous, completely biodegradable fluids with Nano Particle Technology. This combination attains an ideal balance of thermal storage and thermal conductivity. The energy cell is encased in high-density polyethylene plastic and is insulated to maintain energy efficiency.

## Refrigeration System w/ Liquid Isolation System

This system isolates refrigerant liquid that has condensed and accumulated from the cold mass of the energy cell. It prevents the liquid from returning to the compressor, causing oil washout and premature compressor failure. This is a common problem with cycling dryers that do not have liquid isolation.



## Operational Sequence

Saturated compressed air enters the dryer and is initially cooled in the air to air heat exchanger by the cold outgoing air. The TRANS-TEMP Fluid from the energy storage cell further cools the compressed air in the air to fluid heat exchanger. Liquid that has been condensed by the reduced air temperature is removed in the high efficiency separator. The cold air is then reheated as it pre-cools the inlet air in the air to air heat exchanger. The refrigeration system maintains the temperature in the energy storage cell with a microprocessor based controller and operates only as required. The energy cell is capable of maintaining Dewpoint, allowing the refrigeration compressor to be cycled off, reducing required energy of operation.

### Specifications & Dimensions

| Dryer Model Number | Capacity in SCFM @ |          | Available Voltages |               |                     | Refrigeration System |       | Inlet/Outlet Ports | Maximum Pressure | Dimensions                                       |       |       |
|--------------------|--------------------|----------|--------------------|---------------|---------------------|----------------------|-------|--------------------|------------------|--|-------|-------|
|                    | 120 PSIG           | 100 PSIG |                    |               |                     | HP                   | Watts |                    |                  | Height   | Width | Depth |
| SPTX-95A-□         | 95                 | 80       | 120-1-60           | 230-1-60      | Not Available       | 1/2                  | 710   | 1                  | 230 PSIG         | 34   | 25    | 33    |
| SPTX-120A-□        | 120                | 100      |                    |               |                     | 5/8                  | 930   | 1                  |                  | 34   | 25    | 33    |
| SPTX-150A-□        | 150                | 125      |                    |               |                     | 3/4                  | 1030  | 1                  |                  | 34   | 25    | 33    |
| SPTX-215A-□        | 215                | 180      | Not Available      | Not Available | 230/460/575-3-50/60 | 1                    | 1280  | 1-1/2              | 150 PSIG         | 34   | 25    | 33    |
| SPTX-300A-□        | 300                | 250      |                    |               |                     | 1-1/2                | 1727  | 2                  |                  | 46   | 32    | 45    |
| SPTX-380A-□        | 380                | 325      |                    |               |                     | 2                    | 2313  | 2                  |                  | 46   | 32    | 45    |
| SPTX-670A-□        | 670                | 570      |                    |               |                     | 3                    | 3780  | 2                  |                  | 46   | 32    | 45    |
| SPTX-940A-□        | 940                | 800      |                    |               |                     | 4                    | 4625  | 2-1/2              |                  | 60   | 35    | 56    |
| SPTX-1175A-□       | 1175               | 1000     |                    |               |                     | 6                    | 6370  | 3                  |                  | 60   | 35    | 56    |
| SPTX-1590A-□       | 1590               | 1350     |                    |               |                     | 9                    | 9601  | 3                  |                  | Open Frame Design<br>Consult Factory for drawing |       |       |
| SPTX-2120A-□       | 2120               | 1800     |                    |               |                     | 10-1/2               | 12183 | 4" Flg             |                  |  |       |       |
| SPTX-2350A-□       | 2350               | 2000     |                    |               |                     | 12                   | 13839 | 4" Flg             |                  |  |       |       |
| SPTX-2590A-□       | 2590               | 2200     |                    |               |                     | 13-1/2               | 15770 | 4" Flg             |                  |  |       |       |

- Notes: 1. Capacity reflects a maximum 100°F inlet temperature and 100°F ambient  
 2. "□" Symbol reflects missing voltage designation  
 2. Dimensions and specifications are subject to change without notice

### Model Capacity Correction Multiplier

| Inlet Temperature °F   |      | 90   |      |      | 100  |      |      | 110  |      |      | 120  |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Ambient Temperature °F |      | 90   | 100  | 110  | 90   | 100  | 110  | 90   | 100  | 110  | 90   | 100  | 110  |
| Inlet Air Pressure     | 60   | 0.75 | 0.69 | 0.63 | 0.60 | 0.55 | 0.50 | 0.40 | 0.37 | 0.34 | 0.15 | 0.14 | 0.13 |
|                        | 70   | 0.86 | 0.79 | 0.72 | 0.69 | 0.63 | 0.57 | 0.46 | 0.42 | 0.38 | 0.17 | 0.16 | 0.15 |
|                        | 80   | 0.96 | 0.88 | 0.80 | 0.76 | 0.70 | 0.64 | 0.52 | 0.48 | 0.44 | 0.20 | 0.18 | 0.16 |
|                        | 90   | 1.07 | 0.98 | 0.89 | 0.85 | 0.78 | 0.71 | 0.58 | 0.53 | 0.48 | 0.22 | 0.20 | 0.18 |
|                        | 100  | 1.16 | 1.06 | 0.96 | 0.93 | 0.85 | 0.77 | 0.63 | 0.58 | 0.53 | 0.23 | 0.21 | 0.19 |
|                        | 110  | 1.25 | 1.15 | 1.05 | 1.00 | 0.92 | 0.84 | 0.96 | 0.63 | 0.57 | 0.25 | 0.23 | 0.21 |
|                        | 120  | 1.36 | 1.25 | 1.14 | 1.09 | 1    | 0.91 | 0.74 | 0.68 | 0.62 | 0.27 | 0.25 | 0.23 |
|                        | 130  | 1.46 | 1.34 | 1.22 | 1.17 | 1.07 | 0.97 | 0.80 | 0.73 | 0.66 | 0.29 | 0.27 | 0.25 |
|                        | 140  | 1.57 | 1.44 | 1.31 | 1.25 | 1.15 | 1.05 | 0.85 | 0.78 | 0.71 | 0.32 | 0.29 | 0.26 |
|                        | 150  | 1.67 | 1.53 | 1.39 | 1.33 | 1.22 | 1.11 | 0.90 | 0.83 | 0.76 | 0.33 | 0.30 | 0.27 |
| 200                    | 2.18 | 2.00 | 1.82 | 1.74 | 1.60 | 1.46 | 1.19 | 1.09 | 0.99 | 0.44 | 0.40 | 0.36 |      |

To obtain flow capacities at conditions other than standard (SCFM @ 120 PSIG, 100°F Inlet & 100°F Ambient), locate the multiplier at the intersection of actual operating conditions. Multiply the rated capacity of the selected dryer by the selected multiplier. The result is the corrected flow capacity. Flow rates in excess of specified due to capacity correction can result in increasing pressure drop.

# Other Products From Sullivan-Palatek



**5, 7½, & 10 HP Compressor**



**15 - 40 HP Compressor**



**50 - 100 HP Compressor**



**125 - 400 HP Compressor**



**Regenerative Air Dryers**



**Compressed Air Filtration**

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