

# SKF® Separator Filter Dryer (SFD)

Application Guide

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## Protect compressed air lines from oil, water and particulates

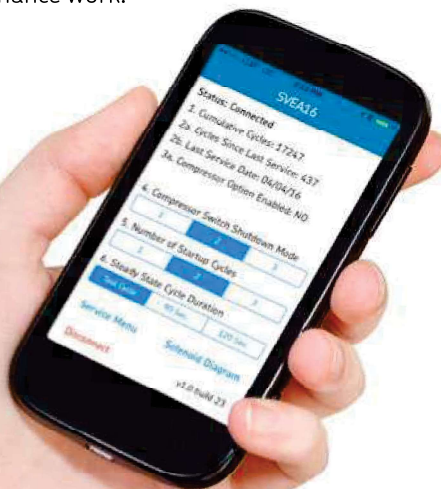
The robust and easy to maintain SFD compact heatless regenerative desiccant dryer delivers superior dew points yet is highly efficient. The SFD breaks the mold of typical regenerative desiccant dryers. You can now get high quality air without the costs and prohibitive high energy consumption, huge initial capital investment or expensive service calls.

The SFD modular design fits any situation. It is the perfect solution for point of use at highly critical applications. Or place at the compressor and provide clean, dry air to the full operation.

## Introducing, the new Smart Valve with Bluetooth LE technology model

Drive down dew points and energy consumption further with the SFD Smart Valve model that synchronizes dryer to the compressor. Use the Smart Valve app to select the operating parameters that best meet your needs.

The Smart Valve App provides the information you need to make smart maintenance choices by sending service alerts and tracking maintenance work.



## Features and benefits:

### Low dew points to -40°F (-40°C)

- Avoid expensive downtime
- Eliminate re-works/scrap

### Typically requires < 10% purge air

- Reduced operating costs

### Simple easy maintenance

- Quickly spin off desiccant cartridges
- No damaging downstream desiccant dust with the SFD cartridge design

### Robust construction is outdoor capable

- No freeze-up related work stoppages
- No frequent cleaning of debris to maintain performance
- Remote locations (no electric)

## Additional Smart Valve features and benefits:

### Match dryer to compressor cycles

- Further reduce energy use and operating costs.

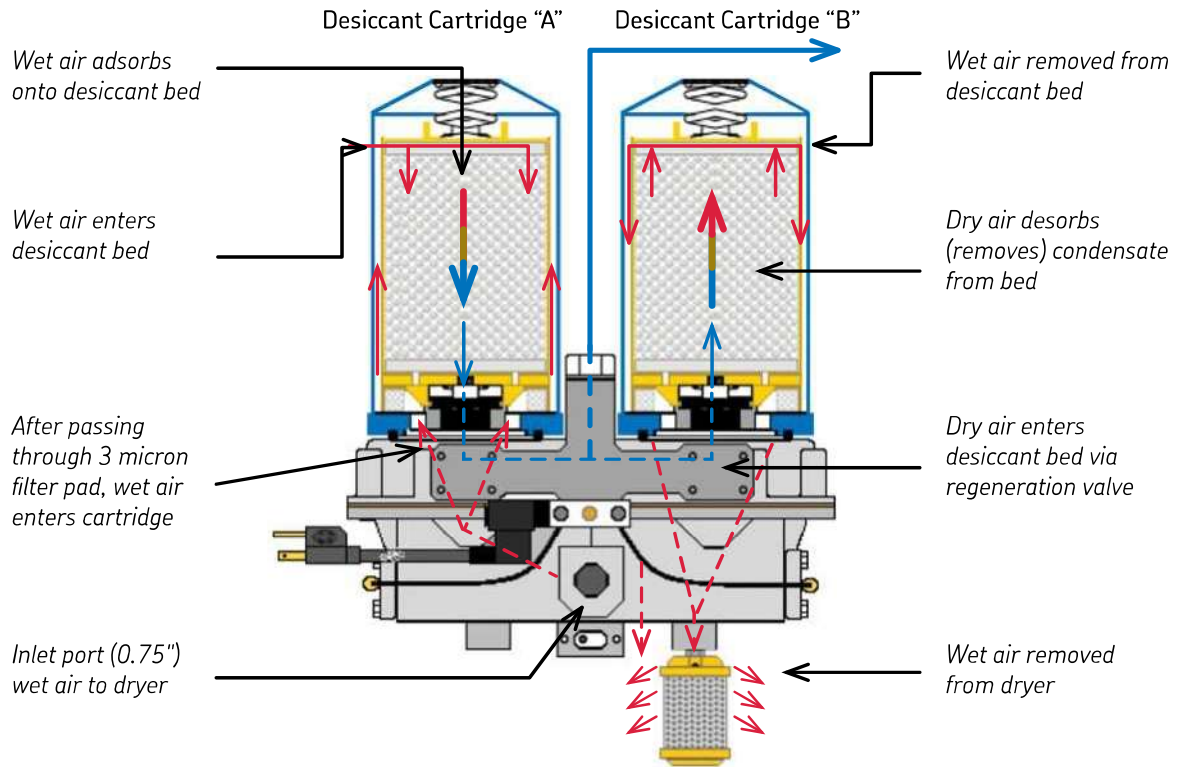
### Smart cycling

- Via Bluetooth, select the smart cycle that reduces dew points and energy consumption further.

### Bluetooth App sends service alerts

- Maximize service life without risk of exposing equipment to damaging contaminants.

# SFD air drying system process



## Compressed air applications

- Paint/foam spraying
- Sand/shot blasting
- Air tools
- Vehicle wash stations
- Packing equipment
- Lab measurement equipment
- Drilling equipment
- Railcar and loci braking systems
- Mining car dump stations
- Dust collection systems
- Baghouse equipment
- Bottling equipment
- Plasma cutting
- Drag line shovels
- Batch mixing
- Rail maintenance equipment





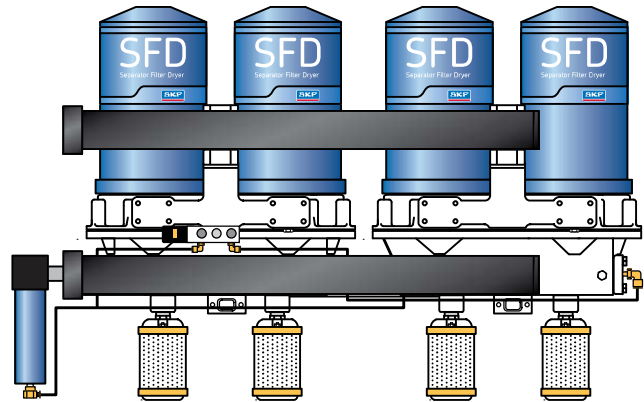
# Dryer Control Types

## MLT: Micro Logic Timer

(110Vac /.090 amps) alternates compressed air flow and regenerates cartridges at 2-minute intervals (rated NEMA 4).

## SV: Smart Valve with Bluetooth LE Technology

(24Vac to 480Vac /3.125 amps) operates similar to MLT but with additional cycle control features that help reduce purge air and optimize performance. Available with either a 3-pronged U.S. grounded plug OR mounted 4-wire (SOOW) cord in order to hard-wire SV to air compressor's pressure switch to deliver Synchronous Compressor Control.



**SV Independent Control**  
(equipped with 3 prong plug)

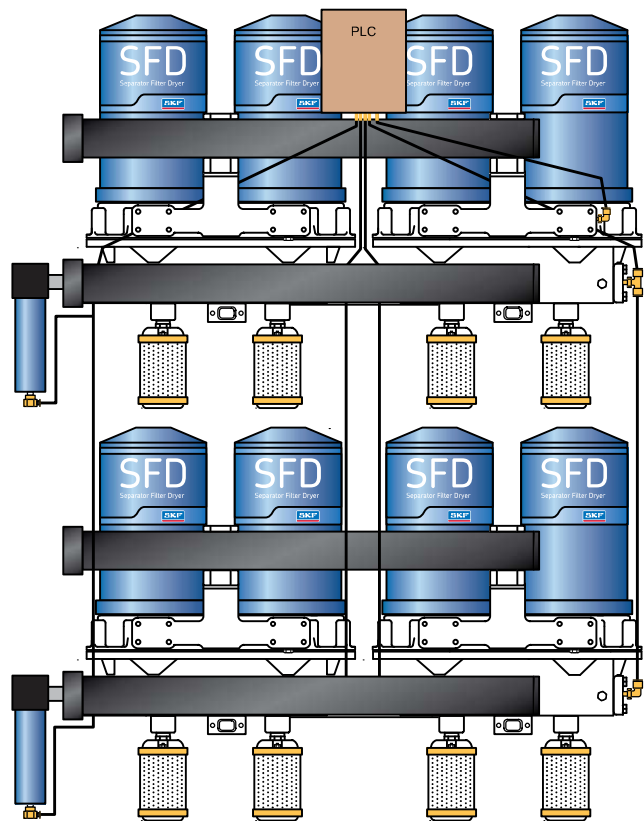
**SV Synchronous Compressor Control**  
(SOOW cord)

### Smart Valve Features

✓	✓	Energy efficient - zero purge loss when dryer is not on
✓	✓	Service just when needed - with dryer usage tracking
✓	✓	Optimized dryer performance with smart cycling features
✓	✓	Service alert via Bluetooth LE technology helps keep dryer performance stable
	✓	Synchronous compressor control reduces energy consumption by the dryer only running when the compressor is on

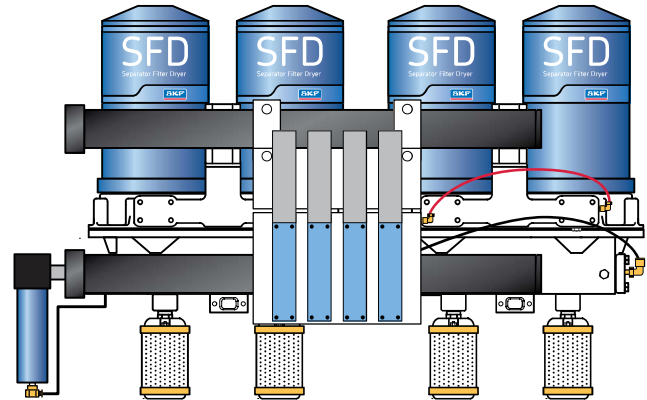
## PLC: Programmed Logic Control

(110Vac/.090 amps) sequentially regenerates one cartridge per row every 45 second interval while the remaining desiccant cartridges receive/dry compressed air. PLC box and power cord is connection-ready for optional synchronous compressor-dryer control (rated NEMA 4).



## PC: Pneumatic Control / NEMA 7

(Explosion-proof/Class 1 Div 2 rated) is used wherever electricity is *not* available. Compressed airflow and regeneration of cartridges pneumatically alternates every 60 seconds.



## SFD Air Dryer Reference Chart

**Note:** It is recommended to move up 1 size air dryer if the dryer inlet flow is 70% or more of the maximum stated dryer capacity of if a lower pressure dew point is required.

SFD Air Dryer Models

Max Capacity (scfm)	HP	Smart Valve		MLT	PLC	PC (no electric)	Inlet/Outlet NPT	Dimensions (inch) per row			# of rows	Dryers per row	Weight per row (lbs.)	(optional) .01 Micron Coalescer Prefilter
		Independent control (plug into wall)	Synchronous Compressor Control (SOOW cord)					L	W	H				
10	3	653377 <sup>1</sup>	654377 <sup>1</sup>	640377 <sup>1</sup>	-	-	3/4"	14	12	24	1	1	42	619020
27	7.5	653316	654316	640316	-	-	3/4"	14	12	24	1	1	46	619020
40	10	653300	654300	640300	-	-	3/4"	14	12	24	1	1	46	619081
40	10	-	-	640112 <sup>2</sup>	-	-	3/4"	14	12	24	1	1	50	N/A
40	10	-	-	640124 <sup>3</sup>	-	-	3/4"	14	12	24	1	1	50	N/A
70	15	653902 <sup>4</sup>	654902 <sup>4</sup>	640902 <sup>4</sup>	-	-	1-1/2"	14	12	34	1	1	54	619081
80	20	653451	654451	640451	-	640490	1-1/2"	36	11	24	1	2	120	619081
120	30	653653	654653	640653	-	-	1-1/2"	54	11	24	1	3	170	619160
120	30	-	-	-	640805	640690	1-1/2"	36	11	24	1	2	120	619160
140	35	653922 <sup>4</sup>	654922 <sup>4</sup>	640922 <sup>4</sup>	-	-	1-1/2"	36	12	34	1	2	130	619160
200	50	-	-	-	640815	640790	1-1/2"	54	11	24	1	3	170	619242
240	60	-	-	-	640825	-	1-1/2"	36	11	24 x 2	2	2	120 x 2	619242 x 2
400	100	-	-	-	640835	640891	1-1/2"	54	11	24 x 2	2	3	170 x 2	619242 x 2
600	125	-	-	-	640845	-	1-1/2"	54	11	24 x 3	3	3	170 x 3	619242 x 3
800	150	-	-	-	640855	-	1-1/2"	54	11	24 x 4	4	3	170 x 4	619242 x 4

**Notes:**

SFD dryers equipped standard with separator, internal 3-micron prefilters and 10-micron post-filters.  
 Optional Coalescing Prefilter: 0.01 micron prefilter equipped with a pneumatic condensate drain.  
 Min/Max. operating pressure for 10 scfm = (90-130) psig; All other SFD models = (90-190) psig.  
 Multiple unit SFD drying systems include all necessary dryer manifolds & wall mount struts.

- <sup>1</sup> Near zero purge - 2 lb. desiccant cartridges
- <sup>2</sup> 12Vdc MLT, mounted 12Vdc heaters, and universal mount bracket for outdoor use
- <sup>3</sup> 24Vdc MLT, mounted 24Vdc heaters, and universal mount bracket for outdoor use
- <sup>4</sup> 8 lb. high capacity desiccant cartridges

# SFD service kits

Reference letters in the first column match the diagram at right.

Step 1. Identify # of cartridges in SFD air dryer system

# of cartridges:      2   4   6   8   12   18   24

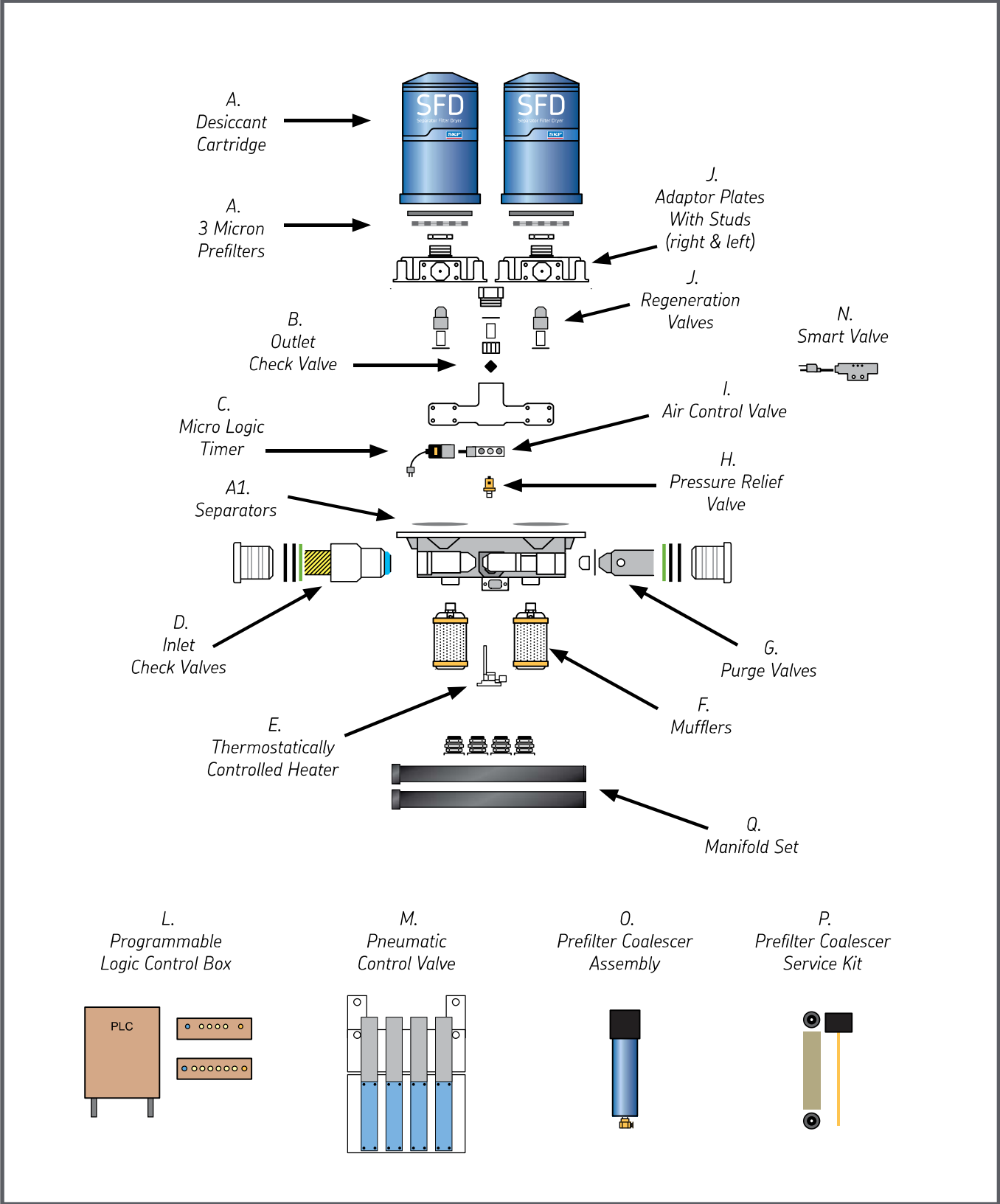
Step 2. Locate part number and order quantity required

Reference	Part No.	Order Quantity						Descriptions	
Not Shown	619000	1	2	3	4	6	9	12	SFD "O" Ring/Gasket Kit
A,B,D,G	619700	1	2	3	4	6	9	12	Full Service Kit - includes 2 #619704 (w/ 3 micron filters) cartridges, 2 inlet check valves, 2 purge valves, 1 outlet check valve
B,D,G	619702	1	2	3	4	6	9	12	Valve Service Kit - includes 2 inlet check valves, 2 purge valves, 1 outlet check valve
A	619704	1	2	3	4	6	9	12	4 lb Desiccant Cartridge Kit - includes 2 cartridges (w/3 micron filters)
Not Shown	619705	1							Internal Purge 2 lb. Desiccant Cartridge Kit - includes 2 cartridges (w/3 micron filters)
Not Shown	619667	1	2	3	4	6	9	24	8 lb Desiccant cartridge kit (includes 2 cartridges w/3 micron filters)
A,A1	619710	1	2	3	4	6	9	12	4 lb. Desiccant Cartridge Kit includes 2 cartridges (w/3 micron filters) & internal base separators
C	619790	1	1	1					110 Volt Micro Logic Timer
	619792	1	1	1					12 Volt Micro Logic Timer
	619794	1	1	1					24 Volt Micro Logic Timer
E	619750	1	2	3	4	6	9	12	110 Volt Heater Kit
	619782	1	2	3	4	6	9	12	12 Volt Heater Kit
	619784	1	2	3	4	6	9	12	24 Volt Heater Kit
Not Shown	619935	1	2	3					MLT/Heater Wire Harness (MLT only)
F	619772	2	4	6	8	12	18	24	Muffler (1 each)
H	619740	1	2	3	4	6	9	12	Pressure Relief Valve
I	619755	1							Air Control Valve - Three air lines (MLT only)
	619925	1							Air Control Valve - Two air lines (MLT only)
J	619708	1							Regeneration Valve: .016 orifice - includes 2 (for use with 20 to 27 CFM dryers standard 4 lb cartridges)
	619715	1	2						Regeneration Valve: .030 orifice - includes 2 (for use with 40 to 80 CFM dryers standard 4 lb cartridges)
	619730			3	4	6	9	12	Regeneration Valve: .060 orifice - includes 2 (for use with 120 CFM and up dryers with standard 4 lb cartridges and up to 140 CFM dryers with high capacity 8 lb cartridges)
	619731			3	4	6	9	12	Regeneration Valve: .090 orifice - includes 2 (for use with 3 or more high capacity 8 lb. cartridges)
K	619734	1	2	3	4	6	9	12	Right hand adaptor plate with stud
	619735	1	2	3	4	6	9	12	Left hand adaptor plate with stud
L	619812		1		1				PLC Control Box (PLC only) For dryer assembly rows with 2 dryers
	619820			1		1	1	1	PLC Control Box (PLC only) For dryer assembly rows with 3 dryers
M	619985	1	1						Pneumatic Control Valve (PC only); 40-80 CFM
	619987		1						Pneumatic Control Valve (PC only); 120 CFM
	619989			1					Pneumatic Control Valve (PC only); 200 CFM
N	619711	1	1	1					Smart Valve upgrade kit for Synchronous Compressor Control (includes SV air control valve)
	619713	1	1	1					Smart Valve timer with 3 prong plug (not Synchronous Compressor Control equipped) (SV air control valve not included)
	619714	1	1	1					Smart Valve timer with SOOW cord for Synchronous Compressor Control (SV air control valve not included)
	619717	1	1	1					Smart Valve air control valve (timer not included)
O	619020	1							20 cfm Prefilter Coalescer Complete Assembly
	619081	1	1						<80 cfm Prefilter Coalescer Complete Assembly
	619160			1	2				<120 cfm Prefilter Coalescer Complete Assembly
	619242			1		2	3	4	<200 cfm Prefilter Coalescer Complete Assembly
P	619245		1	1	2	2	3	4	40-200 cfm Prefilter Coalescer Service Kit
	619246	1							20 cfm Prefilter Coalescer Service Kit
Q	619781		1		2				Round Manifold kit for two dryers
	619786			1		2	3	4	Round Manifold kit for three dryers
Not Shown	640455								Accessory dryer unit - 40 cfm (does not include control device)

Refer to Service Manual for complete parts list.

# SFD service kit parts

Options shown in chart on previous page.





Trade-offs are over with the Separator Filter Dryer. Get really low dew points without the large energy consumption or high ticket price of traditional heat-less regenerative desiccant air dryers.

[skf.com](http://skf.com) | [skf.com/us/products/other-products/separator-filter-dryer/](http://skf.com/us/products/other-products/separator-filter-dryer/)

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