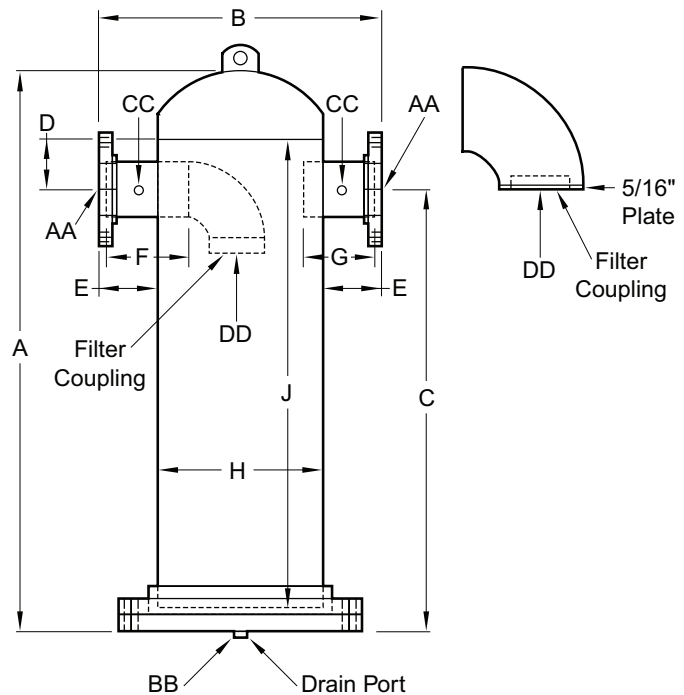


- High flow mainline system filters
- The F21 provides 1 micron particle removal filtration
- The F61 provides 0.01 oil coalescing
- The F61 features carbon type vapor removal filtration
- Optional automatic or timer drains available



Technical Data

Maximum Working Pressure: 150 psig (10 bar)
 Maximum Inlet Temperature: 150°F (65°C)
 Dryer Vessel: ASME Code, Section VIII, and latest addenda (4" and larger units)
 Exterior Finish: Industrial enamel
 Standard: Manual drain valve, and pressure differential gauge.

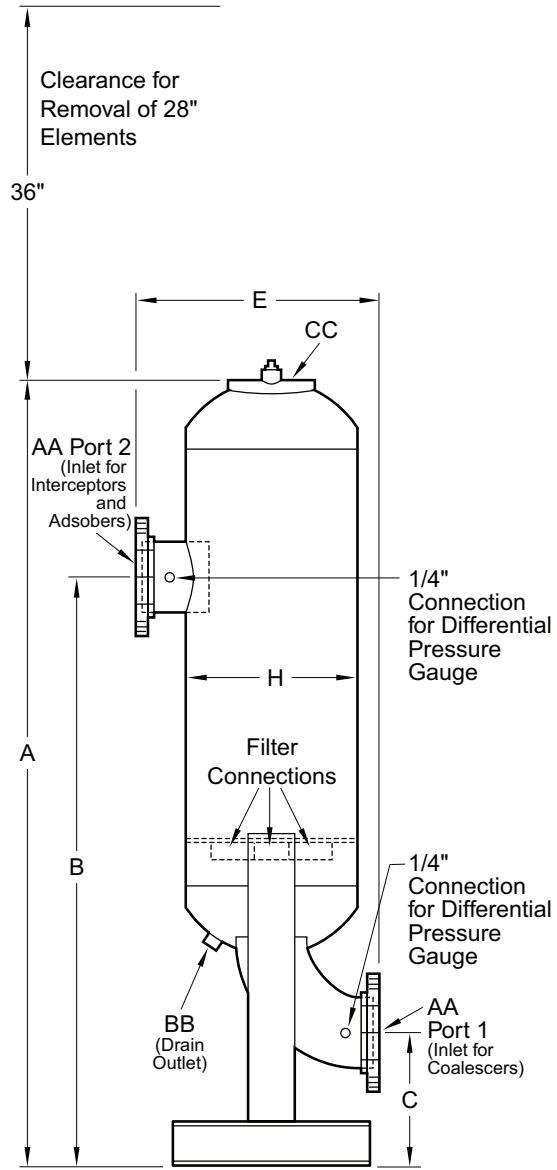
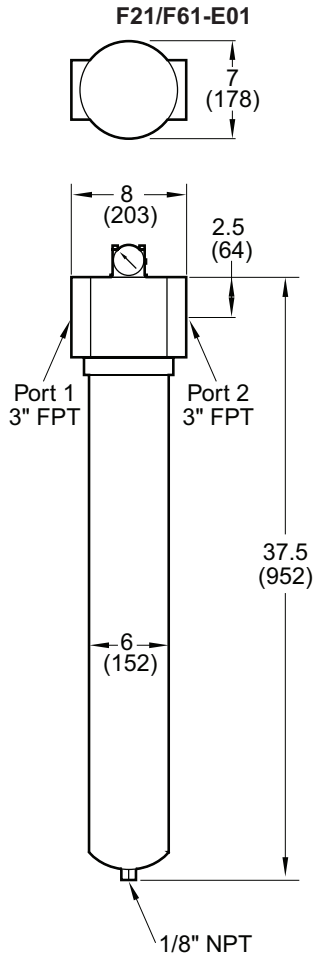


F21/F61-01
Inches (mm)

Model	A	B	C	D	E	F	G	H	J	AA	BB	CC	DD	Wt.
F21/F61-F01	45.13 (1146)	17.63 (448)	36.50 (927)	3.50 (89)	4.50 (114)	6.00 (152)	5.50 (140)	8.63 (219)	41.00 (1041)	3.00 (76)	0.50 (13)	0.25 (6)	3.00 (76)	175
F21/F61-G01	44.38 (1127)	21.75 (552)	34.88 (886)	4.00 (102)	4.50 (114)	6.38 (162)	5.50 (140)	12.75 (324)	37.00 (940)	4.00 (102)	0.50 (13)	0.25 (6)	4.00 (102)	300
F21/F61-J01	56.25 (1429)	23.75 (603)	45.75 (1162)	5.00 (127)	5.50 (140)	6.50 (165)	7.00 (178)	12.75 (324)	51.00 (1295)	6.00 (152)	0.50 (13)	0.25 (6)	4.00 (102)	350

F21 and F61 Mainline Filters

All Dimensions in Inches (mm)



F21/F61-51
Inches (mm)

Model	A	B	C	D	E	AA	BB	CC	Wt.
F21/F61-J51	75.00 (1905)	55.56 (1411)	12.63 (321)	16.00 (406)	22.00 (559)	6.00 (152)	0.50 (13)	6 x 8	415
F21/F61-L51	81.00 (2057)	60.31 (1532)	12.06 (306)	20.00 (508)	27.13 (689)	8.00 (203)	0.50 (13)	11x15	670

* For complete F21 and F61 product numbering system see ALE-27-30



D11 Series Product Numbering System

Sample Model Number **D 1 1 - 1 0 0 - 0 0 1 0**

Position **1 2 3 - 4 5 6 - 7 8 9 10**

1 Unit

D = Compressed Air Dryer

2 3 Series

11 Series = Refrigerated, R134a

4 Voltage

1 = 115-60 Hz-1/110-50 Hz-1 (5 thru 150 scfm units)
2 = 230/220-60 Hz-1/200-50 Hz-1 (5 & 10, 40 thru 200 scfm units)
3 = 230/208-60 Hz-3 (200 scfm only)
4 = 460-60 Hz-3 (200 scfm only)
6 = 240/220-50 Hz-1 (5 thru 200 scfm units)

5 Accessory Package

0 = (5 thru 100 scfm units)
16" power cord
(130 thru 200 scfm units)
On/Off switch, power on and high temperature indicator lights, drain tube, panel mounted refrigerant suction pressure gauge, and electrical terminal block

1 = (5 thru 20 scfm units)
Panel mounted refrigerant suction pressure gauge, drain tube kit and 16" power cord

2 = (5 thru 100 scfm units)
Panel mounted refrigerant suction pressure gauge, 6' power cord, on/off switch, power on and high temperature indicator lights and drain tube kit

3 = (30 thru 100 scfm units)
Panel mounted refrigerant suction pressure gauge, 6' power cord, on/off switch, power on and high temperature indicator lights, outlet air pressure gauge, inlet air temperature gauge, and drain tube kit
(130 thru 200 scfm units)
Panel mounted refrigerant suction pressure gauge, electrical terminal block, on/off switch, power on and high temperature indicator lights, outlet air pressure gauge, inlet air temperature gauge and drain tube kit

4 = (130 thru 200 scfm units)
Panel mounted refrigerant suction pressure gauge, refrigerant discharge pressure gauge, electrical terminal block, on/off switch, power on and high temperature indicator lights, outlet air pressure gauge, inlet air temperature gauge, outlet air temperature gauge, inlet air pressure gauge and drain tube kit

6 Cabinet Options

0 = No side panels
1 = Side panels
2 = Ambient filter with no side panels
3 = Ambient filter with side panels

7 8 9 10 Size

0005 = 5 scfm
0010 = 10 scfm
0015 = 15 scfm
0020 = 20 scfm
0030 = 30 scfm
0040 = 40 scfm
0050 = 50 scfm
0075 = 75 scfm
0100 = 100 scfm
0130 = 130 scfm
0150 = 150 scfm
0200 = 200 scfm

D10 Series Product Numbering System



Sample Model Number.....> **D 1 0** - **2 0 0** - **0 2 5 0**

Position> **1 2 3** - **4 5 6** - **7 8 9 10**

1 Unit

D = Compressed Air Dryer

2 3 Series

10 Series = Refrigerated, R22

4 Voltage

- 2 = 230/208-60 Hz-1
- 3 = 230/208-60 Hz-3
- 4 = 460-60 Hz-3
- 5 = 600/550-60 Hz-3
- 6 = 240/220-50 Hz-1
- 7 = 240/220-50 Hz-3
- 8 = 420/380-50 Hz-3

5 Accessory Package

- 0 = (250 thru 500 scfm units)
On/Off switch (control circuit), power on light, refrigerant suction pressure gauge, air inlet temperature gauge and air outlet pressure gauge
(600 scfm and larger units)
On/off switch (control circuit), power on light, refrigerant suction pressure gauge, refrigerant discharge pressure gauge, air inlet and outlet temperature gauges, and air inlet and outlet pressure gauges
- 1 = (250 thru 500 scfm units)
On/off switch (control circuit), power on light, refrigerant suction pressure gauge, refrigerant discharge pressure gauge, air inlet and outlet pressure gauges, and air inlet and outlet temperature gauges
- 2 = On/off switch (control circuit), power on light, refrigerant suction pressure gauge, refrigerant discharge pressure gauge, air inlet and outlet pressure gauges, air inlet and outlet temperature gauges, and alarm bell
- 3 = On/off switch (control circuit), power on light, refrigerant suction pressure gauge, refrigerant discharge pressure gauge, air inlet and outlet pressure gauges, and air inlet and outlet temperature gauges, and flow meter
- 4 = On/off switch (control circuit), power on light, refrigerant suction pressure gauge, refrigerant discharge pressure gauge, air inlet and outlet pressure gauges, air inlet and outlet temperature gauges, alarm bell and flow meter

6 Options

- 0 = Air-cooled
- 1 = Water-cooled
- 2 = Air-cooled with ambient filters

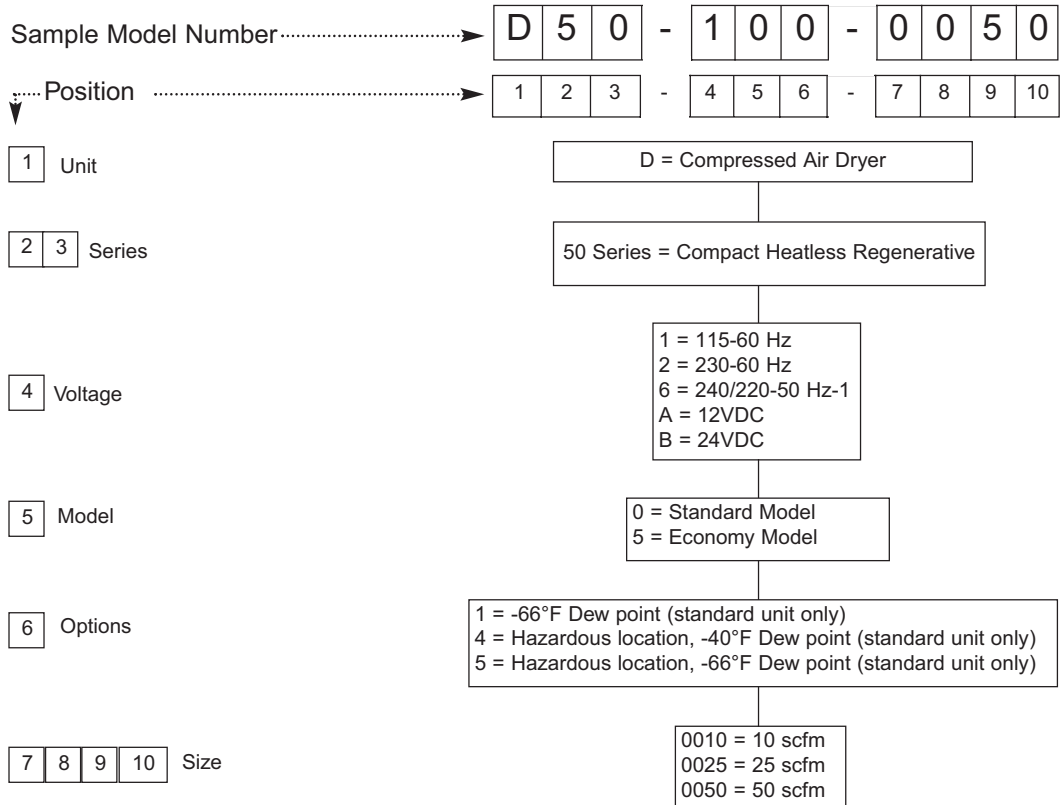
7 8 9 10 Size

- 0250 = 250 scfm
- 0325 = 325 scfm
- 0400 = 400 scfm
- 0500 = 500 scfm
- 0600 = 600 scfm
- 0800 = 800 scfm
- 1000 = 1000 scfm
- 1250 = 1250 scfm
- 1500 = 1500 scfm*
- 1750 = 1750 scfm
- 2000 = 2000 scfm
- 2500 = 2500 scfm
- 3200 = 3200 scfm
- 4000 = 4000 scfm
- 5000 = 5000 scfm
- 6250 = 6250 scfm
- 7500 = 7500 scfm

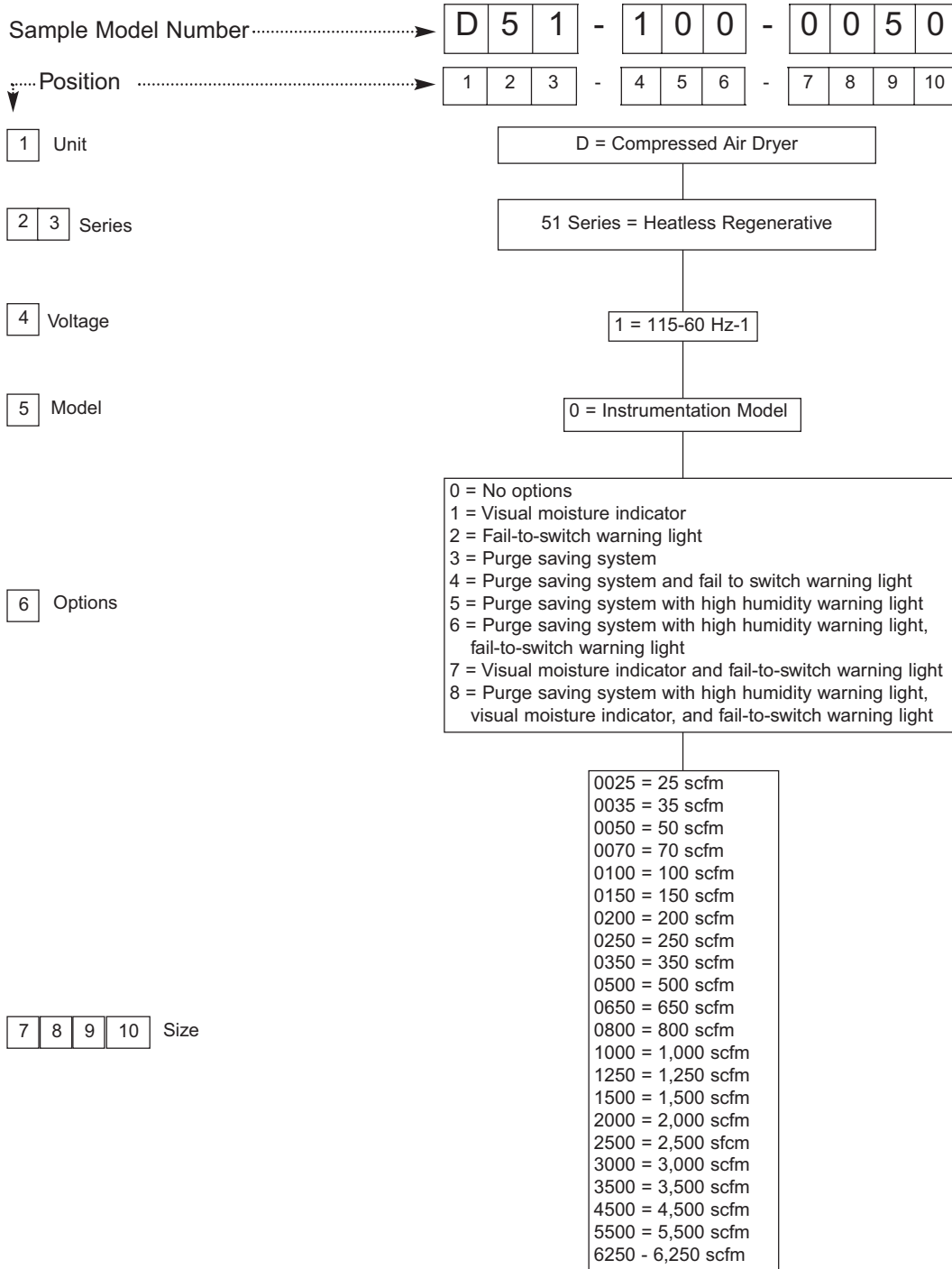
* Not available as a water-cooled unit



D50 Series Product Numbering System

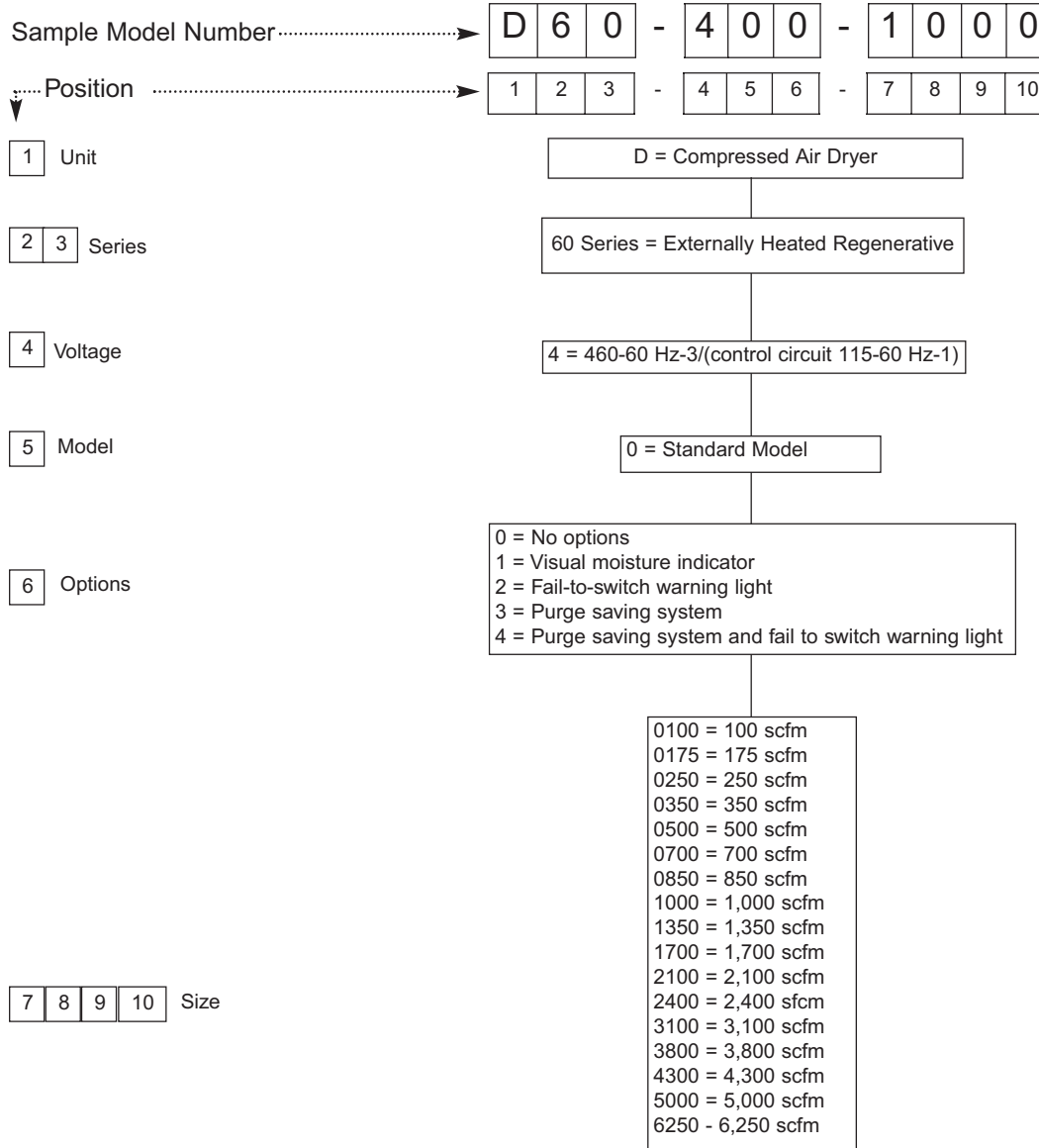


D51 Series Product Numbering System

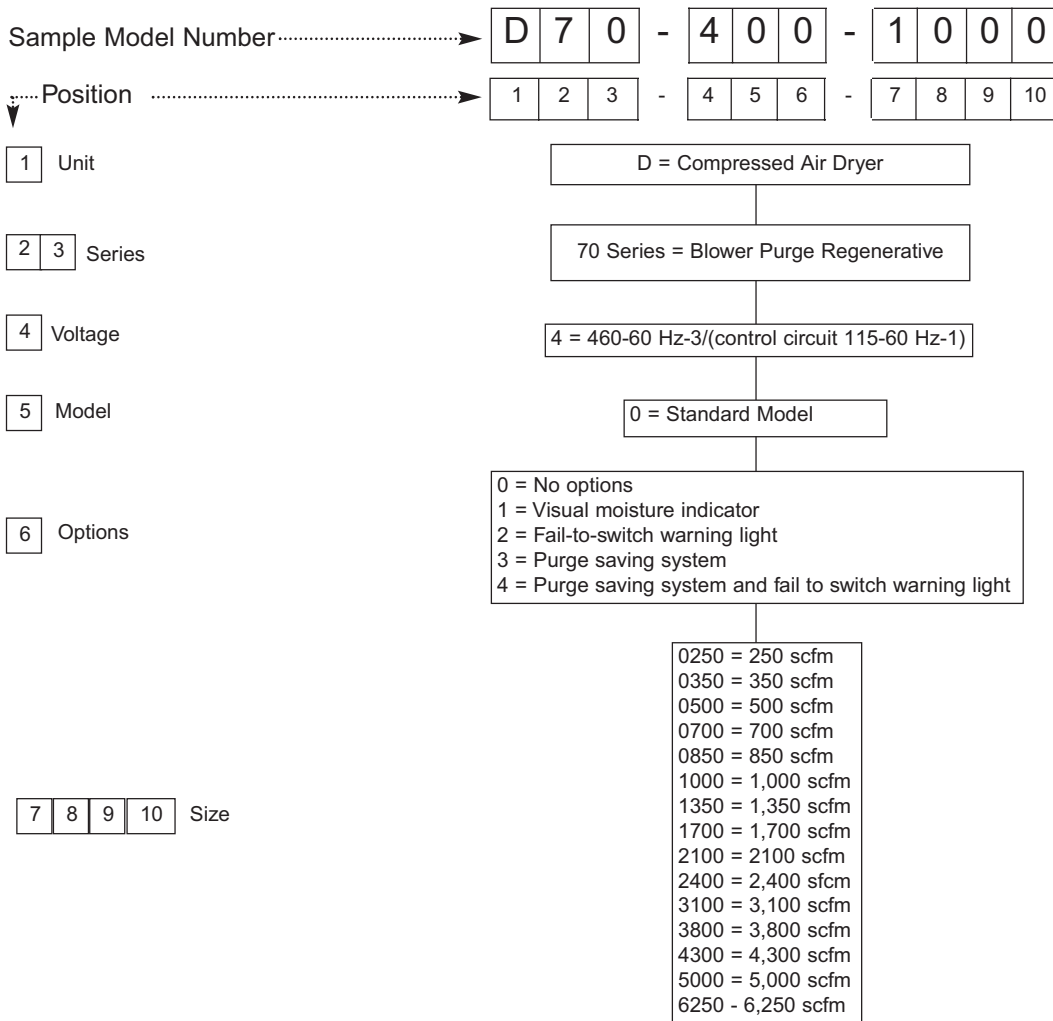




D60 Series Product Numbering System

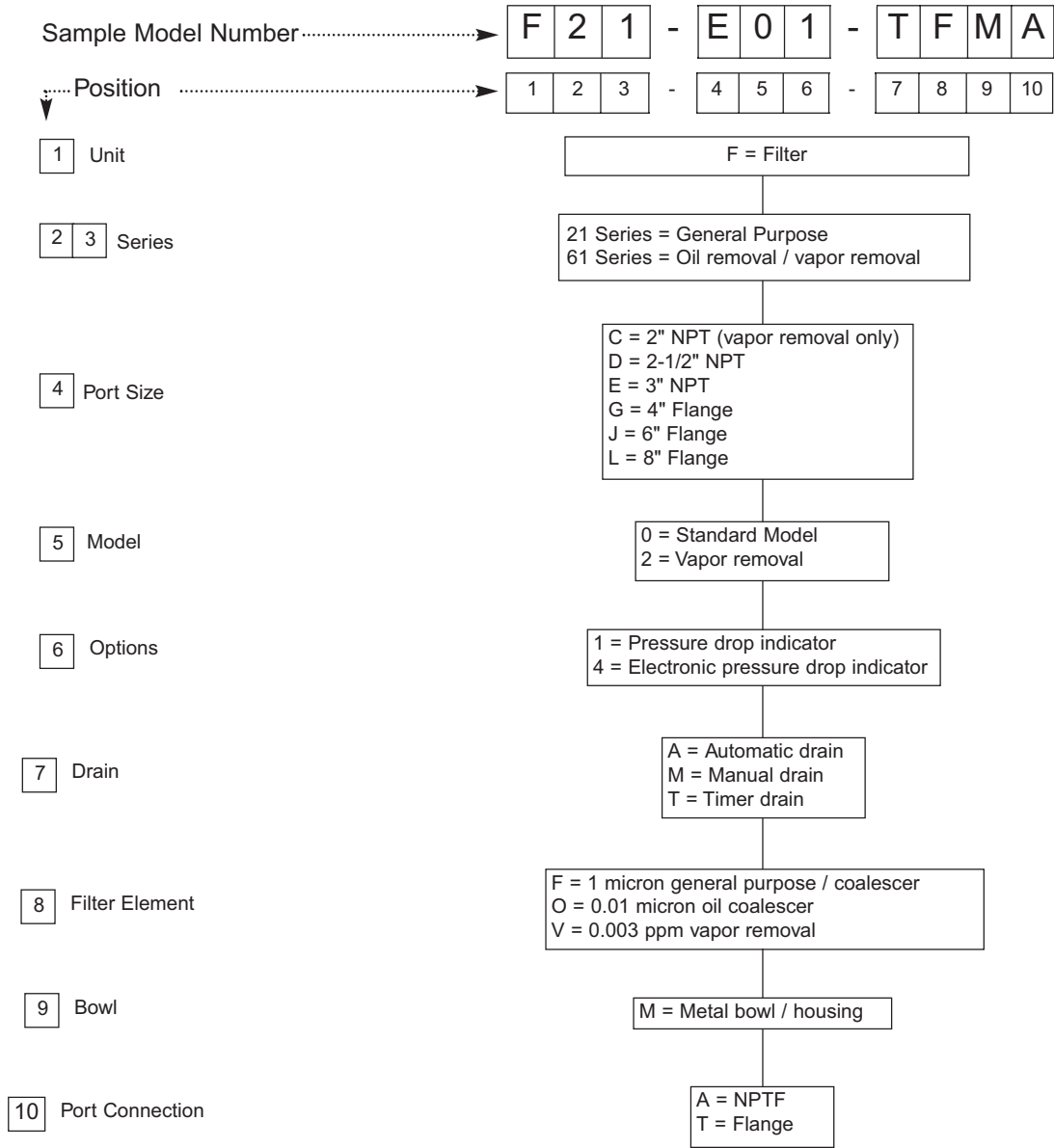


D70 Series Product Numbering System





Technical Data





Selecting an Air Dryer

Identify the following operational conditions:

- Air flow requirement of your system in scfm: _____
 - For dryers servicing a complete air system, multiply the compressor horsepower by four to obtain an approximation of the compressor flow capacity in scfm.
 - For dryers servicing a branch line, determine the maximum flow for that branch.
- Dryer inlet air pressure in psig: _____ 100 psig*
 - Best results are obtained with a high inlet air pressure. Do not exceed the maximum inlet air pressure listed under **Specifications**.
- Dryer inlet air temperature in °F: _____ 100 psig*
 - Bests results are obtained with a low inlet air temperature. Do not exceed maximum temperature listed under **Specifications**.
- Ambient air temperature at dryer in °F: _____ 100 psig*
 - Ambient temperature must be within the range listed under **Specifications**.
- Minimum temperature to which downstream piping will be exposed in °F: _____
Pressure dewpoint required in °F: _____
 - The lowest downstream temperature determines dewpoint requirement. A 35°F pressure dewpoint is the lowest practical dewpoint for refrigerant dryers. In some cases a 50°F pressure dewpoint may be acceptable, resulting in greater flow capacity and cost savings. The dewpoint chosen should be approximately 10°F (6°C) below the lowest downstream temperature.
- Power requirements: Volts _____ Cycle _____ Phase _____
- Air or water-cooled model: _____
 - Use water-cooled model (available in 400 scfm size and larger) when ambient temperature is above 110°F (43°C).

If your dryer operational conditions for Items 2, 3, and 4 are the same as the number in the shaded box* on the same line you need only determine which nominal capacity will meet your pressure dewpoint requirement, Item 5. See **Flow Specifications** on facing page.

Operational conditions other than Standard Operating Conditions*, require use of the Dryer Sizing Formula to determine the appropriate dryer size for the application.

*Standard Operating Conditions, per ANSI/B93.45M, are used to obtain the nominal flow rating for Norgren dryers. These conditions are fully detailed under **Flow Specifications** on the facing page.

Converting cfm at stated Pressure to scfm

- Q = Air flow in CFM at stated P pressure
- P - Pressure in psig
- P_A = P pressure converted to pressure in psia
- Q_A = Flow in scfm

$$Q_A = Q \left[\frac{P_A}{14.7 \text{ psia}} \right]$$

Example:

Flow = 23 cfm at 125 psig (at 500' above sea level)
P_A = 125 psig /14.4** = 139.4

**See correction table at right for atmospheric pressure for your elevation

$$Q_A = 23 \text{ cfm} \left[\frac{139.4 \text{ psia}}{14.7 \text{ psia}} \right] Q_A = 218.10 \text{ scfm or } 218 \text{ scfm}$$

Finding Pressure Drops for Non-standard Flows

Use the following formula to find the approximate pressure drop for flows not listed in the flow specifications table

$$\Delta P \approx \left[\frac{Q_R}{Q_S} \right]^2 \times \frac{114.7 \text{ psia}}{P} \times \Delta P_S$$

- Where:
- ΔP = Calculated pressure drop
- Q_R = Actual flow
- Q_S = Air flow at 35°F pressure dew point rating
- P = Actual supply pressure in psia
- ΔP_S = Pressure drop at rated conditions and flow

Dryer Sizing

If conditions are other than standard operating conditions*, use the following formula to determine dryer air flow rating (Q_R) required for your system. (Q_R = _____ scfm)

$$Q_R = Q_A(K1)(K2)$$

Where:

- Q_R = Air flow rating required for dryer
- Q_A = Actual flow requirement – Item 1
- K1 = Correction factor for inlet temperature and operating pressure (Chart 1)
- K2 = Correction factor for ambient temperature (Chart 2)

Example

Given the following conditions, determine the dryer air flow rating required.

- Air flow requirement of system: 120 scfm
- Dryer inlet air pressure: 150 psig
- Dryer inlet air temperature: 80°F
- Ambient air temperature at dryer: 110°F
- Minimum downstream temperature: 50°F
- Power requirements: 115V, 60 cycle, 1 phase
- Air or water cooled: Air

Solution

$$Q_R = Q_A (K1)(K2)$$

$$Q_R = 120 \text{ scfm} \times .62 \text{ (Chart 1)} \times 1.11 \text{ (Chart 2)}$$

$$Q_R = 82.6 \text{ scfm}$$

A 100 scfm D11 dryer will fit this application.

	60°	80°	100°	120°	130°
Pressure psig	Correction Factors K1				
50	0.43	0.77	1.20	1.80	2.23
75	0.39	0.70	1.07	1.56	1.89
100	0.37	0.66	1.00	1.43	1.71
125	0.36	0.63	0.95	1.34	1.60
150	0.35	0.62	0.92	1.28	1.51
175	0.35	0.60	0.90	1.24	1.46
200	0.34	0.60	0.88	1.21	1.41

Ambient Temperature	Correction Factor K2
60°F	0.66
70°F	0.73
80°F	0.81
90°F	0.90
100°F	1.00
110°F	1.11

Alt. above sea level ft	Atmospheric Pressure (psi)
0	14.7
500	14.4
1500	14.2
2000	13.9
2500	13.4
3000	13.1
3500	12.9
4000	12.7
4500	12.5
5000	12.2

