

Model Selection Chart

Model	Nominal Capacity	
	cfm	m3/hr
D41IM	24	41
D54IM	32	54
D71IM	42	71
D90IM	53	90
D110IM	65	110
D150IM	88	150
D180IM	106	180
D221IM	130	221
D299IM	176	299

Capacity at 100 psig (7 barg) and 95°F (35°C) inlet

Correction Factors

Sizing Factors For Ingersoll Rand Modular Desiccant Air Dryers

Inlet Pressure		Inlet Temperature °C (°F)			
barg	psig	35 (95)	40 (104)	45 (113)	50 (122)
4	58	0.63	0.61	0.55	0.46
5	73	0.75	0.73	0.66	0.55
6	87	0.88	0.85	0.77	0.64
7	100	1	0.97	0.88	0.73
8	116	1.13	1.10	0.99	0.82
9	135	1.25	1.21	1.10	0.91
10	145	1.38	1.34	1.21	1.01
11	160	1.5	1.46	1.32	1.10
12	174	1.63	1.58	1.43	1.19
13	189	1.75	1.70	1.54	1.28
14	203	1.88	1.82	1.65	1.37
15	218	2	1.94	1.76	1.46
16	232	2.13	2.07	1.87	1.55

Dew Point Correction Factors

Outlet Dew Point		Correction Factor
°C	°F	
-40	-40	1
-70	-94	0.7

Inlet temperature, inlet pressure, required air flow and pressure dew point must be established before an adsorption air dryer can be specified for your application. Once these operating conditions are known, you can select the most economical adsorption dryer using the dryer sizing chart on the previous page and the model selection chart.

Example

Select a dryer for a compressor producing, at full load 100 cfm (170 m³/hr) at 87 psig (6 barg) with 104°F (40°C) air inlet temperature with a pressure dew point of -40°F (-40°C).

Temperature and Pressure

Step 1

On the sizing chart locate the inlet temperature 104°F (40°C).

Step 2

At 104°F (40°C), read down the chart to 87 psi g (6 bar g) operating pressure, the correction factor is 0.85. The correction factor for the pressure dew point is 1.0. At the operating temperature and pressure, the capacity of the adsorption dryer will be 0.85 of the capacity at ISO 7183 rating conditions. No correction for the pressure dew point.

Step 3

To adjust the required flow for ISO 7183 rating conditions, divide the required flow by 0.85

Example:

$$\text{Sizing Capacity} = \frac{\text{Actual Capacity}}{\text{Sizing Factor} \times \text{DPF}}$$

$$\begin{aligned} \text{Sizing Capacity} &= \frac{100 \text{ cfm}}{0.85 \times 1} \\ &= 117 \text{ cfm (200 m}^3\text{/hr)} \end{aligned}$$

Step 4

Using the model selection chart, select a dryer which has a rated capacity of 117 cfm (200 m³/hr) or larger. Selected model is a D221IM.

Dew point

Dryer capacity will also be affected if a dew point other than -40°F (-40°C) is specified.

Step 1

For accurate dryer sizing, divide the rated dryer capacity determined in Step 3 (of the temperature and pressure section) by the appropriate correction factor from the table on the previous page.

Example

For -94°F (-70°C) dew point (correction factor 0.7)

Sizing Capacity = $\frac{\text{Actual Capacity}}{\text{Sizing Factor} \times \text{DPF}}$

Sizing Capacity = $\frac{100 \text{ cfm}}{0.85 \times 0.7} = 168 \text{ cfm (285 m}^3\text{/hr)}$

Step 2

Using the model selection chart, select a dryer which has a rated capacity of 168 cfm (285 m³/hr) or larger. Selected model is a D299IM.