



DRY STAR HOT

REFRIGERATED AIR DRYER

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DRY STAR HOT AIR DRYER PERFORMANCE DRYER SIZING CHART*

Inlet Air Temperature		Inlet Air Pressure psig (barg) Flow (% of Rated Capacity)													
		45	50	60	70	80	90	100	110	125	150	175	200	225	232
°F	(°C)	3.1	3.4	4.1	4.8	5.5	6.2	6.9	7.6	8.6	10.3	12.1	13.8	15.5	16.0
110	43	0.93	0.96	1.02	1.07	1.11	1.14	1.17	1.19	1.23	1.28	1.30	1.33	1.37	1.39
120	49	0.90	0.93	0.99	1.04	1.07	1.11	1.13	1.15	1.19	1.24	1.26	1.29	1.32	1.34
130	54	0.87	0.89	0.95	0.99	1.03	1.06	1.08	1.11	1.14	1.19	1.21	1.23	1.27	1.29
140	60	0.84	0.86	0.91	0.96	0.99	1.02	1.05	1.07	1.10	1.14	1.17	1.19	1.22	1.24
150	66	0.81	0.83	0.88	0.92	0.95	0.99	1.01	1.03	1.06	1.10	1.12	1.14	1.18	1.20
160	71	0.79	0.81	0.86	0.90	0.94	0.97	0.99	1.01	1.04	1.08	1.10	1.12	1.15	1.18
170	77	0.78	0.80	0.85	0.89	0.92	0.95	0.97	0.99	1.02	1.06	1.08	1.10	1.13	1.15
180	82	0.76	0.78	0.83	0.87	0.90	0.93	0.95	0.97	1.00	1.04	1.06	1.08	1.11	1.13
190	88	0.75	0.77	0.82	0.86	0.89	0.92	0.94	0.96	0.99	1.03	1.05	1.07	1.10	1.12
200	93	0.74	0.76	0.81	0.85	0.88	0.91	0.93	0.95	0.98	1.02	1.04	1.06	1.09	1.11

Inlet temperature, inlet pressure, required air flow, pressure dew point, the capacity of the refrigerated dryer will be a percentage of the capacity at rated conditions and maximum ambient temperature must be established before a refrigerated air dryer can be specified for your application. Once these operating conditions are known, you can select the most economical refrigerated dryer using the **Dryer Sizing Chart and the Model Selection Chart**.

Example:

Select a dryer for a compressor producing, at full load, 50 scfm (1.4 m³/min) at 175 psig with 180°F (82°C) inlet temperature, a 50°F (10°C) pressure dew point and 95°F (35°C) maximum ambient temperature.

Step 1. On the **Dryer Sizing Chart**, locate the inlet temperature 180°F (82°C).

Step 2. At 180°F (82°C) inlet air temperature, read across the chart to 175 psig (12.1 bar g) operating pressure. At the operating temperature, pressure and 50°F (10°C) pressure dew point the correction factor will be 1.06.

Step 3. To adjust the required flow for rated conditions, divide the required flow by 1.06.

$$50 \text{ scfm} / 1.06 = 47.2 \text{ scfm}$$

Step 4. Using the **Model Selection Chart**, select a dryer which has a rated capacity of at least 47.2 scfm (1.3 m³/min) or larger. Select model DSH50.

Dryer capacity will be affected by ambient temperatures other than 95°F (35°C). Ambient temperatures higher than 95°F reduce the refrigeration system capacity to provide sufficient cooling for the dryer's rated capacity. Ambient temperatures lower than 95°F (35°C) increases the refrigeration system capacity and permits the selection of a smaller, more economical dryer.

For accurate dryer sizing in various ambient temperatures, divide the rated dryer capacity determined in Step 3 by the appropriate correction factor from the Ambient Temperature Correction Factor table. For an ambient temperature of 80°F (26.7°C), required dryer capacity is 47.2 scfm (1.3 m³/min) divided by 1.38 or 34.2 scfm (1 m³/min). From the **Model Selection Chart** select DSH35.

Ambient Temperature Correction Factors

Ambient Air Temperature		Factor
(°F)	(°C)	
60	16	1.93
70	21	1.67
80	27	1.38
90	32	1.12
95	35	1.00
100	38	0.89
110	43	0.69
115	46	0.61

Model Selection Chart

Flow (scfm)	Model
15	DS15-H
25	DS25-H
35	DS35-H
50	DS50-H
75	DS75-H
100	DS100-H