

VALUE THROUGH PERFORMANCE

HT SERIES  
**HYDROGARD**<sup>®</sup>  
HIGH TEMPERATURE  
INLET AIR DRYERS

DELTECH



*Takes the heat to save you money!*

## Deltech Hydrogard® HT Series dryers provide clean, dry compressed air for high inlet temperature applications.

Deltech compressed air dryers have been the systems of choice for many years. Our Hydrogard® HT Series high temperature inlet air dryer is no exception. The HT Series is an engineered system that provides an aftercooler, refrigerated air dryer, separator/filter and drain valve in one unit. Look to Deltech for the best in compressed air treatment products.

### Deltech dryers can take the heat

- Accepts hot compressed air (up to 195°F inlet) directly from the air compressor
- Eliminates need for aftercooler
- Built-in aftercooler offers:
  - Reduced installation cost
  - Lower outlet air temperature to customer's system
  - Prevents damage to the dryer from high temperature inlet air
  - Condenses up to 65% of the water vapor in the system

### Performance at a glance

- Easy-to-read color-indicating refrigerant suction pressure gauge
- Alerts high temperature inside chiller
- Separator/filter removes liquid water and particulate contaminants down to 3.0 microns

### Virtually Maintenance Free

- Timer-operated drain valve removes condensate
- Condenser coils do not foul from dirt and dust; coil spacing 4 times greater than traditional dryers

### Small Footprint

- Unique heat exchanger
  - Increased surface area
  - More efficient than traditional designs
  - Combined air-to-air and air-to-refrigerant in one
  - Compact size



### Precooler/reheater design saves money

- Uses out-going cold air to further reduce temperature of inlet air
- Reduces load on refrigeration system
- Allows for use of a smaller, more economical refrigerant compressor
- Lowers energy consumption and operating costs

### Dryer helps protect the environment

- Uses environmentally-friendly, non-CFC, refrigerant



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## How It Works

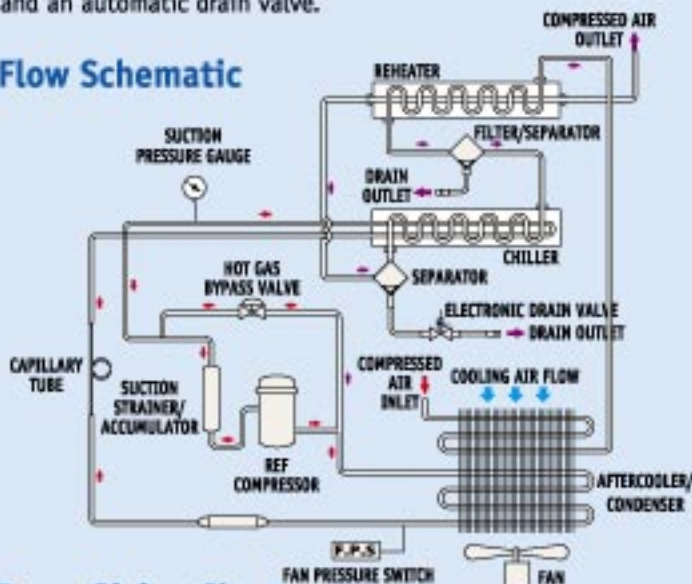
HT Series dryers use refrigeration and fan cooling to condense entrained moisture out of the airstream. By eliminating the high temperature of the inlet air resulting from the compression process, the aftercooler built into the dryer prevents thermal damage to the downstream heat exchangers and condenses most of the water vapor contained in the system.

Saturated, high temperature inlet air enters the aftercooler which condenses water vapor and initially cools the air. The air then passes through the air-to-air heat exchanger where it is pre-cooled by the outgoing cold air. The inlet air is further cooled in the refrigeration chiller. The cold, dry air is then reheated by incoming warm air when it passes back through the air-to-air heat exchanger.

A refrigerant compressor and condenser supply low temperature refrigerant to the chiller/evaporator. The capillary tube and hot gas bypass valve match the operation of the refrigerant system to the compressed air cooling load. In the chiller, heat is transferred from the compressed air to the refrigerant.

The process cools the air, reducing its capacity to hold water vapor and resulting in moisture condensation. The excess vapor condenses and is removed from the airstream by a separator/filter and an automatic drain valve.

## Flow Schematic



## Dryer Sizing Chart

INLET AIR TEMP	Inlet Air Pressure psig (barg)								
	Correction Factor								
°F (°C)	60 (4.1)	80 (5.5)	90 (6.2)	100 (6.9)	110 (7.6)	125 (8.6)	150 (10.3)	175 (12.1)	
110 (43)	1.04	1.14	1.17	1.20	1.23	1.28	1.37	1.46	
120 (49)	1.02	1.12	1.15	1.18	1.21	1.26	1.35	1.44	
130 (54)	1.01	1.11	1.14	1.17	1.20	1.25	1.34	1.42	
140 (60)	0.98	1.08	1.11	1.14	1.16	1.21	1.29	1.38	
150 (66)	0.96	1.05	1.08	1.11	1.13	1.18	1.26	1.35	
160 (71)	0.92	1.01	1.04	1.07	1.09	1.14	1.22	1.30	
170 (77)	0.87	0.95	0.98	1.01	1.03	1.07	1.14	1.22	
180 (82)	0.81	0.89	0.92	0.94	0.96	1.00	1.07	1.14	
185 (85)	0.78	0.85	0.88	0.90	0.92	0.96	1.03	1.09	
190 (88)	0.74	0.81	0.84	0.86	0.88	0.91	0.98	1.04	
195 (91)	0.70	0.77	0.80	0.82	0.84	0.87	0.93	0.99	

## Sizing Information

If inlet conditions are different from rating conditions (refer to back page), dryer capacity will be affected as shown in the Dryer Sizing Chart.

Inlet temperature, inlet pressure, ambient air temperature, and air flow must be established before a dryer can be specified for your application.

**Example:** Select a dryer for 30 scfm air flow at 90 psig (6.2 barg) inlet pressure, 150°F (66°C) inlet air temperature and 80°F (27°C) ambient air temperature conditions.

**Step 1:** On the Dryer Sizing Chart below, locate the inlet air temperature, 150°F (66°C).

**Step 2:** At 150°F (66°C) inlet air temperature, read across the chart to 90 psig (6.2 barg) inlet air pressure. The correction factor is 1.08.

**Step 3:** To adjust the required flow for standard rating conditions, divide the required flow by 1.08.

$$30 \text{ scfm} / 1.08 = 28 \text{ scfm}$$

**Step 4:** Using the ratings and dimensional data on the back page, select a dryer that has a rated capacity of 28 scfm or larger. In this case, you would select dryer Model HT35.

**Step 5:** Dryer capacity will also be affected if the ambient air temperature is different from 95°F (35°C). For accurate dryer sizing, divide the adjusted dryer flow determined in step 3 by the appropriate correction factor from the table below. For 80°F (27°C) ambient air temperature, required dryer capacity is:

$$28 \text{ scfm} / 1.22 = 23 \text{ scfm}$$

From the ratings and dimensional data on the back page, select Model HT25.

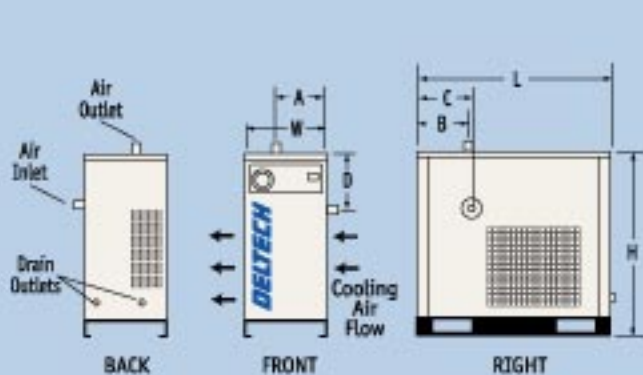
## Correction Factors

Ambient Air Temp °F (°C)	Correction Factor
75 (24)	1.26
80 (27)	1.22
85 (29)	1.17
90 (32)	1.09
95 (35)	1.00
100 (38)	0.88
105 (41)	0.76
110 (43)	0.60
113 (45)	0.50

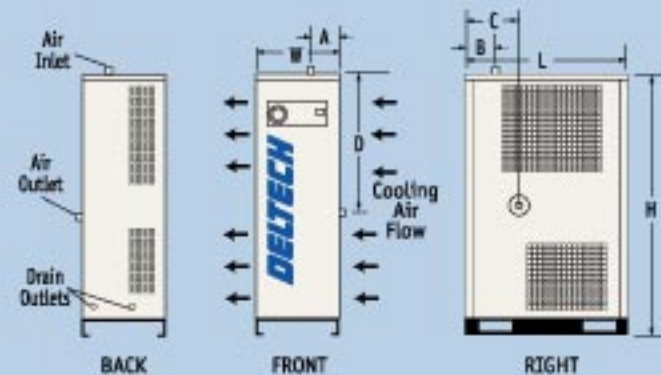


## Operating Conditions

- Maximum inlet air temperature: 195°F (91°C)
- Minimum inlet air temperature: 40°F (4°C)
- Maximum ambient air temperature: 113°F (45°C)
- Minimum ambient air temperature: 40°F (4°C)
- Maximum operating pressure: 175 psig (12.1 barg)
- Electrical requirements: 115 V/1ϕ/60 Hz



25-35 scfm



50-100 scfm

## Specifications

Model	Dimensions inches (cm)								Inlet-Outlet Connections Inches NPTM	Approx. Ship Wt. lbs (kg)	Unit Net Wt. lbs (kg)
	H	W	L	A	B	C	D				
HT25	27.2 (69.1)	12.9 (32.8)	29.8 (75.6)	8.0 (20.3)	7.8 (19.8)	8.3 (21.1)	8.7 (22.1)	1/2	174 (79)	151 (69)	
HT35	27.2 (69.1)	12.9 (32.8)	29.8 (75.6)	8.0 (20.3)	7.8 (19.8)	8.3 (21.1)	8.3 (21.1)	3/4	176 (80)	154 (70)	
HT50	46.1 (117.1)	14.9 (37.8)	29.8 (75.6)	4.9 (12.4)	5.6 (14.3)	9.8 (24.9)	24.8 (63.0)	3/4	256 (116)	229 (104)	
HT75	46.1 (117.1)	14.9 (37.8)	29.8 (75.6)	4.9 (12.4)	5.6 (14.3)	9.8 (24.9)	24.8 (63.0)	3/4	277 (126)	251 (114)	
HT100	48.5 (123.1)	16.8 (42.8)	38.8 (98.6)	4.9 (12.4)	13.5 (34.3)	11.2 (28.5)	25.7 (65.3)	1	350 (159)	313 (142)	

Model	Flow <sup>1</sup>	Pressure	Unit	Refrigerant	Min.	Fan	Aftercooler	Refrigerant	Refrigerant	Cooling	Heat								
	Capacity	Drop <sup>2</sup>	RLA	Compressor	Circuit	Motor	Fan Motor	Type	Charge	Air Flow	Rejection								
	scfm	Nm <sup>3</sup> /min	psig	LRA	RLA	hp	hp	RLA	oz	gr	cfm	btuh							
HT25	25	0.7	4.1	0.28	6.3	0.56	28.0	5.2	1/4	7.9	100 Watts	1.12	n/a	n/a	R134a	12.3	350	587	3,556
HT35	35	1.0	4.8	0.33	7.0	0.65	34.0	5.9	1/3	8.8	100 Watts	1.12	n/a	n/a	R134a	14.5	410	587	3,667
HT50	50	1.4	3.1	0.21	9.5	0.97	34.0	7.7	1/2	11.9	16 Watts	0.72	100 Watts	1.12	R134a	17.6	500	1,395	5,557
HT75	75	2.1	3.9	0.27	11.2	1.15	51.0	9.0	6/7	14.0	100 Watts	1.12	100 Watts	1.12	R22	32.4	920	1,637	10,230
HT100	100	2.8	4.9	0.34	14.9	1.73	56.0	11.8	1	18.6	100 Watts	1.12	400 Watts	2.0	R22	37.0	1,050	2,637	11,673

1. Performance data obtained with rating conditions of 180°F (82°C) inlet temperature, 125 psig (8.6 barg) inlet pressure, 100% relative humidity, 95°F (35°C) ambient temperature and 5 psi (0.35 barg) pressure drop.

2. Pressure drop at rated conditions.



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