VALUE THROUGH PERFORMANCE

HPK Series

HIGH PRESSURE INLET AIR DRYERS

JEMACO
Flair Corp
A JVC of BPX Corporation

HPK Series

Jemaco HPK Series refrigerated compressed air dryers are specially designed to deliver reliable protection against moisture in high pressured working condition. Dry compressed air can reduce downtime and extend the life time of air-operater devices.

Performance at a Glance

- Refrigerant control valves ensure accurate temperature control and trouble-free performance at 0 to 100% load
  - Matches cooling capacity to cooling requirement
  - Prevents freeze-ups and refrigerant compressor overheating

Precooler/Reheater

- Uses outgoing air to initially cool the incoming air
- Allows for smaller, more economical refrigeration system
- Results in lower energy consumption and reduced operating costs
- Prevents pipeline sweating at the dryer outlet

Non-Cycling Design

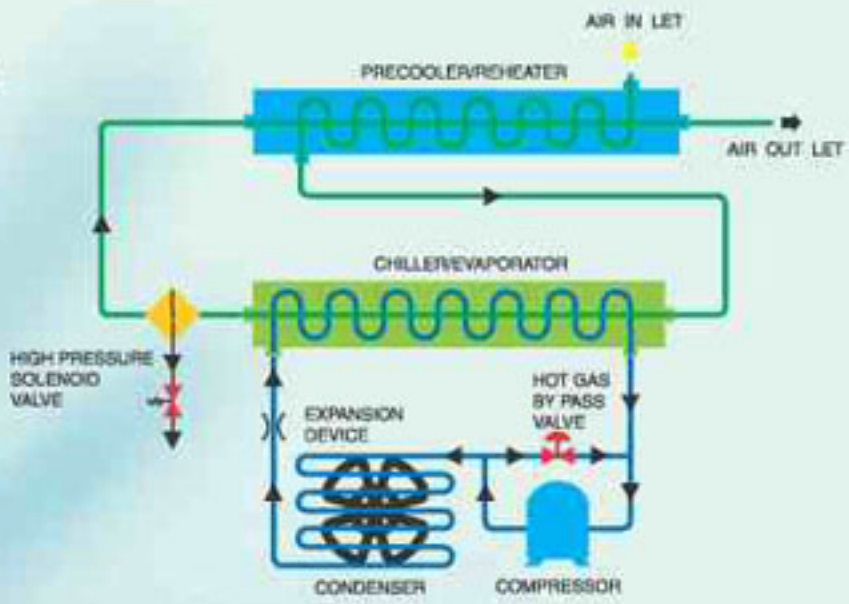
- Provides uniform dew points
- Enhances refrigerant compressor reliability and longevity
- Results in a more compact, lighter weight package

How it Works

Saturated compressed air enters the precooler/reheater where it is cooled by exchanging heat with the outgoing cold air. The inlet air is further cooled in the chiller/evaporator. The cold air is then reheated when it passes back through the air-to-air heat exchanger(Precooler/Reheater).

A refrigerant compressor and condenser supply low-temperature refrigerant to the chiller/evaporator. Expansion device and the hot gas bypass valve match the operation of the compressed air cooling load. In the evaporator, heat is transferred from the compressed air into 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 and automatic drain valve.



HP50K through HP1250K

DSM – STANDARD

- Power ON/OFF Switch
- Dew Point Monitor(LED Lamp)
  - Indicates dew points
  - Indicates thermometer malfunction
- Auto Drain Valve Control
  - Time adjustment
  - Operating test
  - Operating control
  - Circuit protection fuse

SCM – OPTION

- Power ON/OFF Switch
- Air Dryer START/STOP Switch
- SCAN/SEEK(LCD Monitor)
  - Inlet air temperature
  - Dew point
  - Ambient air temperature(Air-Cooled)
  - Refrigerant suction temperature
  - Refrigerant discharge temperature
- Appropriate Alarms for the following:
  - High inlet temperature(Over 49℃)
  - Low Ref. suction temperature (Below −4℃)
  - Ambient temperature (Below 2℃ or Over 49℃)
  - High inlet temperature inside chiller
- Emergency Stop for the following:
  - [illegible]
  - [illegible]
  - Warning message on LCD monitor
- Self-Diagnosis
  - [illegible]
  - [illegible] malfunction
- Indicating normal operation with LED lamp
- Remote Control
  - Remote START/STOP
  - NO, NC alarm for remote alarm
- RS-485 Serial port for remote communication (RS-232 Optional)
- Auto Drain Valve Control
  - Time adjustment
  - Operating test
  - Circuit protection fuse

Sizing Information

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

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

Ambient Temperature Correction Factor

Ambient Air Temperature °F(℃)	Correction Factor
80(27)	1.12
90(32)	1.06
100(38)	1.00
110(43)	0.94

Power Supply Frequency Factor

Voltage cycle	50Hz	60Hz
Correction Factor	0.83	1.00

Dew point Correction Factor

Pressure Dew Point °F(℃)	38(3)	50(10)
Correction Factor	1.0	1.2

Example

Select a dryer for 7.2Nm³/min air flow at 435psig(30barg) inlet pressure, 90°F(32℃)inlet air temperature, 80°F(27℃)ambient air temperature and 50Hz conditions.

Step 1 On the Dryer Sizing Chart below, locate the inlet air temperature, 90°F(32℃)

Step 2 At 90°F(32℃) inlet air temperature, read across the chart to 435 psig(30barg)inlet air pressure. The correction factor is 1.18.

Step 3 To adjust the required flow for standard rating conditions, divide the required flow by 1.18.

$$\frac{7.2Nm^3/min}{1.18} = 6.1Nm^3/min$$

Step 4 Using the ratings and dimensional data on the back page, select a dryer which has a rated capacity of 6.1Nm³/min or larger. Select model HP200K.

Step 5 Dryer capacity will be affected if the ambient air temperature is different from 100°F(38℃).
For accurate dryer sizing, divide the adjusted dryer flow determined in step 3 by the appropriate correction factor from the table "Ambient Correction Factor"
For 80°F(27℃) ambient air temperature, required dryer capacity is:

$$\frac{6.1Nm^3/min}{1.12} = 5.4Nm^3/min$$

From the rating and dimensional data on the back page, select Model HP150K.

Step 6 Dryer capacity will also be affected if the voltage cycle is 50Hz. For accurate dryer sizing, divide the adjusted dryer flow determined in step 5 by
the appropriate correction factor from the table "Power Supply Frequency Factor".
For 50Hz, required dryer capacity is:

$$\frac{5.4Nm^3/min}{0.83} = 6.5Nm^3/min$$

Using the rating and dimensional data on the back page, select Model HP200K.

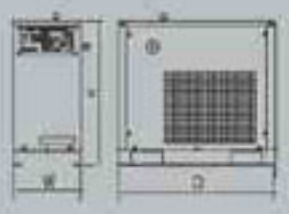
Dryer Sizing Chart

Inlet Air Temperature °F(℃)	Inlet Air Pressure psig(barg)								
	Correction Factor								
	290(20)	363(25)	435(30)	508(35)	580(40)	653(45)	725(50)	798(55)	870(60)
70(21)	1.58	1.62	1.65	1.70	1.72	1.74	1.75	1.77	1.79
80(27)	1.34	1.37	1.40	1.45	1.46	1.47	1.49	1.50	1.52
90(32)	1.13	1.16	1.18	1.22	1.23	1.24	1.25	1.27	1.28
100(38)	0.92	0.94	0.96	0.99	1.00	1.01	1.02	1.03	1.04
110(43)	0.76	0.78	0.80	0.82	0.83	0.84	0.85	0.85	0.86
120(49)	0.63	0.64	0.65	0.67	0.68	0.69	0.69	0.70	0.71

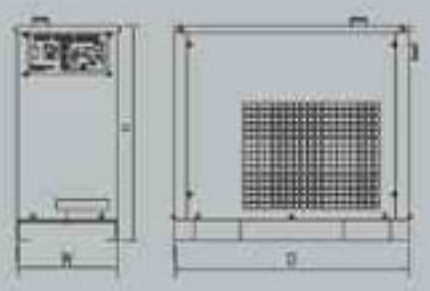
K Series

Operating Conditions

- Maximum inlet pressure: 45 barg
- Maximum inlet air temperature:49℃
- Minimum inlet air temperature:4℃
- Maximum ambient air temperature:43℃
- Minimum ambient air temperature:4℃
- Electrical requirements:
  220/240V-1PH-60/50Hz for HP50K through HP300K
  220/240V-3PH-60/50Hz for HP425K through HP1250K



HP50K-HP250K



HP300K-HP600K

SPECIFICATIONS

Model	*Flow Capacity (Nm³/min)	Dimensions H inch(mm)	Dimensions W inch(mm)	Dimensions D inch(mm)	Inlet-Outlet Connections (inch)	Approx Ship Wt lbs(kg)	Compressor HP	Unit Kw	Refrigerant
HP50K	2.0(2.12)	20.5(521)	11.3(287)	29.8(757)	3/4	148(67)	1/4	0.47	R-22
HP75K	3.0(3.18)	27.2(691)	12.9(328)	29.8(757)	3/4	185(84)	1/2	0.58	R-22
HP100K	4.0(4.24)	27.2(691)	12.9(328)	29.8(757)	1	187(85)	2/3	0.72	R-22
HP125K	5.0(5.30)	35.0(889)	16.1(408)	38.8(985)	1	249(113)	5/6	1.03	R-22
HP150K	6.0(6.36)	35.0(889)	16.1(408)	38.8(985)	1½	258(117)	5/6	1.03	R-22
HP200K	8.1(8.59)	35.0(889)	16.1(408)	38.8(985)	2	293(133)	1	1.31	R-22
HP250K	10.1(10.71)	35.0(889)	16.1(408)	38.8(985)	2	311(141)	1¼	1.64	R-22
HP300K	12.1(12.83)	43.0(1090)	19.7(500)	46.1(1170)	2½	452(205)	1⅗	2.28	R-22
HP425K	17.0(18.02)	43.0(1090)	19.7(500)	46.1(1170)	2½	542(246)	2	2.52	R-22
HP500K	20.2(21.41)	43.0(1090)	20.5(520)	58.7(1490)	2½	644(292)	2⅗	3.20	R-22
HP600K	24.1(25.55)	43.0(1090)	20.5(520)	58.7(1490)	2½	677(307)	2⅗	3.20	R-22

* Rating conditions are 38℃ inlet temperature, 40barG inlet pressure, 100% relative humidity, 38℃ ambient temperature, 60Hz.
Flow capacity in parenthesis is for the conditions 35℃ inlet temperature, 40barG inlet pressure, 100% relative humidity, 25℃ ambient temperature, 50Hz.

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