

MANUAL

8/12/05

INSTALLATION, OPERATION & MAINTENANCE

**Commercial High Efficiency
Heat Pipe Dehumidifier**

Model BKP™ 100

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Model BKP™ 100

INSTALLATION, OPERATION & MAINTENANCE

1. GENERAL DESCRIPTION

The *BKP™ 100* is a commercial high efficiency dehumidifier that plugs into a standard 115Volt outlet. It is radically different from other dehumidifiers because of the proprietary heat pipe used to exchange heat between the warm intake air and the cold air discharge from the evaporator. This process pre cools the incoming air and allows more moisture to be condensed for less energy spent. The heat pipes are passive devices that use no energy.

The *BKP™ 100* comes pre-charged with refrigerant and is ready for operation. It can be ordered for remote installation with duct flanges, or for portable use with installed grills, dehumidistat and wheels for easy movement. Condensate water is removed by gravity drain.

2. INSPECTION

All HPT products are carefully tested and inspected prior to shipment. Each unit is in good working condition when packaged. If the package is damaged in any way, check the contents immediately; note damage on shippers Bill of Lading and have him/her sign your statement to insure prompt claim processing. Notify the carrier immediately of the damage so he can come out and inspect the product and packaging. The carrier alone is responsible for handling and settling your claim.

HPT will cooperate in assessing damage if unit is returned to the factory prepaid.

3. INSTALLATION

The *BKP™ 100* can be placed as a stand-alone unit in an occupied space or ducted from a mechanical room with optional duct flanges. The *BKP™ 100* is designed to operate in conditioned space with temperatures ranging from 60°F to 85°F. Special factory options may be ordered for operation above or below these limits.

3.1 DUCTING

The *BKP™ 100* with optional duct flanges can be used with suitable metal or fiberglass ducts using approved methods. The ducts must be sized appropriately for the airflow listed. A good quality air filter of equal or larger size may be installed in the inlet register and located for ease of maintenance. **The duct must not add more than 0.5" E.S.P. inclusive of both supply and return ducts.**

3.2 Condensate Drain

The *BKP™* 100's are supplied with a condensate gravity drain outlet. For the gravity drain, the pipe must have a downward slope for the entire distance to the outside. If installed above the ceiling, the pipe must be supported every 3 or 4 feet to prevent sagging. If the line has any level runs or dips, it will not drain properly. Ensure that the drain line has a U trap to prevent outdoor air from being aspirated into the *BKP™*.

For installation above the ceiling or above the ground floor, it is recommended that the *BKP™* be installed over a separate drain pan, which is piped to a separate drain point.

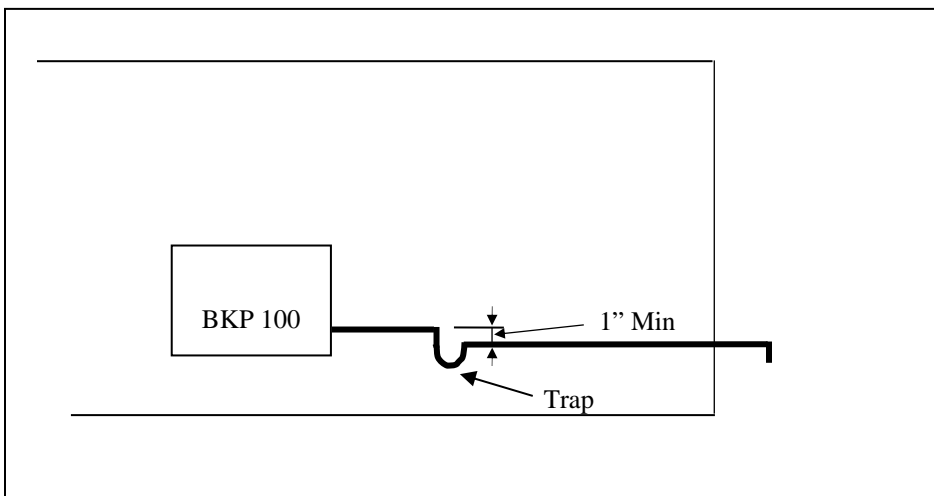


Fig 3.42 A P-Trap must be added to the condensate drain.

4. ELECTRICAL WIRING

4.1 Power Supply

The *BKP™ 100* Should be plugged into a 15 Amp outlet on a circuit by itself. The use of an extension cord is not recommended. If it is necessary to locate the unit away from an outlet use a heavy-duty appliance extension cord of the type used for window air conditioners.

4.2 24 VAC Control Wiring

For the portable unit a dehumidistat is supplied and installed on the unit. If the *BKP™ 100* is to be ducted into a space the humidistat may be remote mounted. It should be placed in the conditioned space away from heat sources, entrance doors or any sources of humid air. It is recommended to place the dehumidistat at a location where it could sense the average relative humidity of the space.

The dehumidistat is of the 24 V type and should be wired with T-stat 18 gauge, low voltage wire. (See wiring diagram in unit control panel.)

5. Refrigerant Charging

Troubleshooting and charging of the *BKP™ 100* must be done by an experienced refrigeration technician

It is highly recommended that if the charge is in doubt, the charge that is in the machine should be recovered and the proper charge weighed in. It is important to have the proper charge of refrigerant. Too low of charge will cause excessive superheat and inefficient operation. Too high of charge will cause the excess charge to be forced into the accumulator and possibly being carried over into the compressor causing damage during low load periods.

6. OPERATION

The dehumidistat controls the operation of the dehumidifier.

Set the dehumidistat at the desired level, the dehumidifier will run and remove humidity until the set humidity is reached, at which time the dehumidifier will shut off. For normal operation, a range from 50% to 60% will provide the best comfort. Settings below 50% will make the unit run longer and will be less economical. Settings above 60%, which may be required in certain situations, will be more economical, but may not provide adequate comfort.

7. MAINTENANCE

It is essential that the air filter on the inlet of the unit be kept clean in order to prevent excessive power consumption and possible damage to the unit. Check the filters routinely to determine the frequency of replacement.

Check condensate drain regularly to ensure that the condensate is draining properly. If installed with an auxiliary drain pan under the unit, check that it is dry.

It is recommended that the BKP™ be serviced annually by an authorized HPT certified technician to provide maximum efficiency and insure long life.

8. Sequence of Operation for Standard Unit

The BKP™ is controlled, on or off, by a dehumidistat which senses the relative humidity of the space. The BKP™ units have a remote mounted dehumidistat and are designed to be used with a duct system having a total external static of 0.5 in H₂O or less.

On a call for dehumidification the contact in the dehumidistat is made sending control power to the blower relay. Control power is also sent through a recycle time delay to the compressor contactor.

When the unit cycles off or is shut off for any reason there is a time delay before the compressor can come back on. This off-cycle time delay will reset when the machine has been off for the selected number of minutes (factory set to 5 minutes).

The refrigerant system is a R-22 (Chlorodifluoromethane) system consisting of a compressor, condenser coil, hot gas bypass valve, liquid filter dryer, capillary tube and an evaporator with dehumidifier heat pipes. The coil section contains both the evaporator and condenser coils. The airflow enters through the pre-cool heat pipe then through the evaporator then the reheat heat pipe and the condenser.

To prevent freeze up in low load conditions, a hot gas bypass valve is installed to bypass hot gas directly into the evaporator. The valve starts to open when the suction pressure drops below 60 PSIG and will prevent the coil temperature from going below freezing.

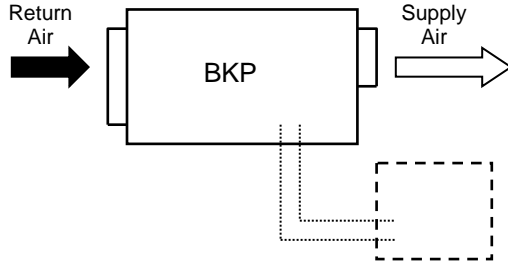
9. SPECIFICATIONS

BKP™ 100

Models	100
<i>Capacity (lbs/day) at 80°F & 60% RH (AHAM)</i>	98
<i>Capacity (lbs/day) at 80°F & 50% RH (ASHRAE)</i>	76
<i>Operating Range</i>	From 55°F/100%RH to 95°F/55%RH
<i>Air Flow Rate (cfm)</i>	250
<i>Dimensions (WxHxD) (in.)</i>	25 x 18.5 x 18.5
<i>Net Weight (lbs)</i>	115
<i>Filter Size (WxHxD) (in.)</i>	14 x 14 x 1
Electrical (60 Hz)*	
<i>Voltage/Phase</i>	115V/1 ph
<i>Max. Fuse or HACR Circuit Breaker (A)</i>	15
<i>Compressor FLA</i>	7.5
<i>Compressor LRA</i>	49
<i>Min. Circuit Ampacity (A)</i>	11
<i>Normal Operating Power (W)</i>	850 W
<i>Compressor</i>	Rotary
<i>Blower Motor Power (hp)</i>	1/15

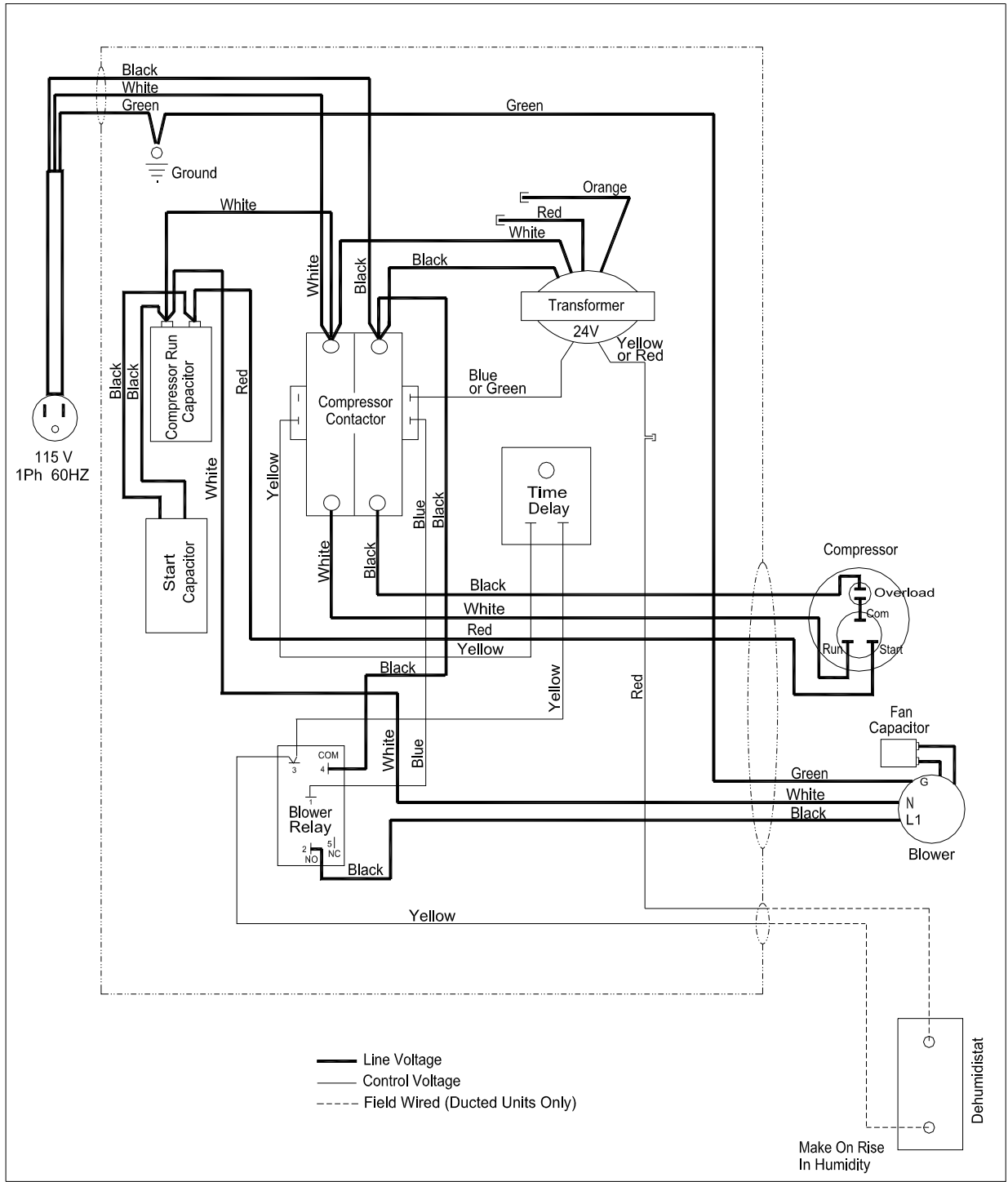
Specifications subject to change without notice.

BKP™ and BKP-AC™ SERIES TROUBLESHOOTING CHECK LIST

Company: _____ Phone: (____) _____ Fax: (____) _____ Job Name: _____ Model # : _____ Serial # : _____ Test performed by: _____ Date: _____	 <p style="text-align: right; margin-top: 5px;">Remote Condenser</p>
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Test		Dehumidification	Air Conditioning
Air	Return Air Flow	CFM	CFM
	Return Air Temperature	___ °F DB ___ °F WB	___ °F DB ___ °F WB
	Return Air Static Pressure (Negative)		in. WG
	Return Duct Size	" Depth	" Width
	Supply Air Temperatures	___ °F DB ___ °F WB	___ °F DB ___ °F WB
	Supply Duct Air Pressure (Positive)		In. WG
	Supply Duct Size	" Depth	" Width
	Condensate after 15 min (see Note below)		
Refrigerant	High Discharge Pressure / Sat. Temperature	___ psig ___ °F	___ psig ___ °F
	Liquid Line Temperature / Sight Glass	°F SG Clear? <input type="radio"/>	°F SG Clear? <input type="radio"/>
	Low Suction Pressure / Saturated Temperature	___ psig ___ °F	___ psig ___ °F
	Suction Line Temperature (@coil outlet)	°F	°F
	Suction Superheat	°F	°F
Elec.	Compressor ___ Volts / Amps at outdoor °F	___ Amps at ___ °F DB	___ Amps at ___ °F DB
	Indoor Blower <input type="radio"/> Lo <input type="radio"/> Med <input type="radio"/> Hi Volts/Amps	___ Volts	___ Amps
BKP-AC	Outdoor Fan _____ Volts / Amps		_____ Amps
	Outdoor Fan Pressure Switch set at		ON: _____ psig OFF: _____ psig
	Vapor Line Length / Size		_____ ft _____ "OD
	Liquid Line Length / Size		_____ ft _____ "OD

Note: To perform condensate flow test, run the unit for 15 minutes, then capture condensate for 5 minutes in a graduated container. Air side conditions must be measured during this time.
 Is condensate TRAP properly installed? Yes. No.



BKP 100 Electrical Wiring Diagram

BKP™ and BKPool™ Series Packaged Dehumidifier Twelve-Month Limited Warranty

Subject to the following conditions, Heat Pipe Technology, Inc. (HPT), warrants this product to be free from defects in material and workmanship for a period of TWELVE MONTHS from the date of installation, not to exceed 90 days from date of shipment. This warranty is in lieu of all other warrants not expressly set forth herein, whether expressed or implied by operation of law or otherwise. In the event this product fails under normal use and service within the applicable period, HPT will correct, repair or, at its sole discretion, replace the defective product or refund the purchase price of products which are returned freight prepaid to HPT for inspection, when accompanied by proof of purchase and written claims of defect, and which upon inspection by HPT, do comply with the terms of this warranty.

This warranty applies to the first retail buyer and extends to any subsequent owners of the systems.

Additional Three-Year Limited Warranty On Compressor (Packaged Equipment Only)

Additionally, HPT warrants the COMPRESSOR to perform under normal use and conditions for a period of THREE YEARS from the date of completion of installation, not to exceed 90 days from date of shipment, when installed in accordance with factory instructions and recommendations. In the event the compressor malfunctions or fails to perform during this warranty period, HPT will repair or, at its option, replace the compressor at the pro-rated schedule of cost shown below:

Percentage of repair or replacement cost paid by Heat Pipe Technology, Inc.

Month of Claim	Percentage
1 - 12	100%
13 - 24	66%
25 - 36	33%

The cost of replacement parts or components shall be determined by the price schedule in effect at the time of submission of warranty claim.

Repair or replacement parts will be furnished F.O.B. factory in all cases.

If HPT elects to replace or provide a refund, the defective product must be returned to HPT free and clear of liens or other encumbrances.

Limitations on Liability

- A. This warranty does not cover and no warranty is made with respect to:
- B. Failures not reported to HPT within the period specified above;
- C. Failures or damage due to misapplication, misuse, abuse, improper storage or handling, abnormal conditions of temperature, water, dirt, corrosive substances or other contaminants;
- D. Products which have been repaired with parts or materials not furnished or approved by HPT or by its authorized dealers or representatives, or products which have been in any way tampered with or altered; and
- E. Products damaged in shipment or storage or otherwise without fault of HPT.
- F. Failure of the product resulting from modifications to the product or due to unreasonable use including failure to provide reasonable and necessary maintenance. Failure due to corrosion on models not corrosion protected. Damage to the product caused by improper power supply voltage, accident, fire, floods, or acts of God. WARRANTOR IS NOT RESPONSIBLE FOR CONSEQUENTIAL DAMAGES.

HPT total responsibility for any claims, damages, losses or liabilities related to the product covered hereunder shall not exceed the purchase price of such product. In no event shall HPT be liable for any special, indirect, incidental or consequential damages of any character, including but not limited to loss of use of productive facilities or equipment, lost profits, property damage, transportation, installation or removal, lost production, or personal injury whether suffered by Purchaser or any third party. HPT disclaims all liability for any and all costs, claims, demands, charges, expenses or other damages, either direct or indirect, incident to personal injury or property damage arising out of any cause of action based on strict liability.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the exclusion or limitation above of consequential damages or the limitation of time above on implied warranties may not apply to you.

This warranty gives you specific legal rights and you may have other rights which may vary from state to state.

Warranty Registration

To insure your warranty protection, please fill in the Warranty Registration form and mail or fax it to:

Heat Pipe Technology, Inc.
4340 NE 49th Avenue, Gainesville, FL 32609
Fax: (352) 367-1688

WARRANTY REGISTRATION FORM	
Customer Name:	
Customer Address:	
Phone: () -	Fax: () -
Please Check One: <input type="checkbox"/> Homeowner <input type="checkbox"/> Dealer	
Model No:	Serial No:
Type of Product:	
Date of Installation:	Dealer/Installer:
Name & Address of Dealer/Company You Purchased from	
Name:	
Address:	
Customer Signature:	