KAHN Adsorptive Systems

LPC Liquid Dehydrator Series

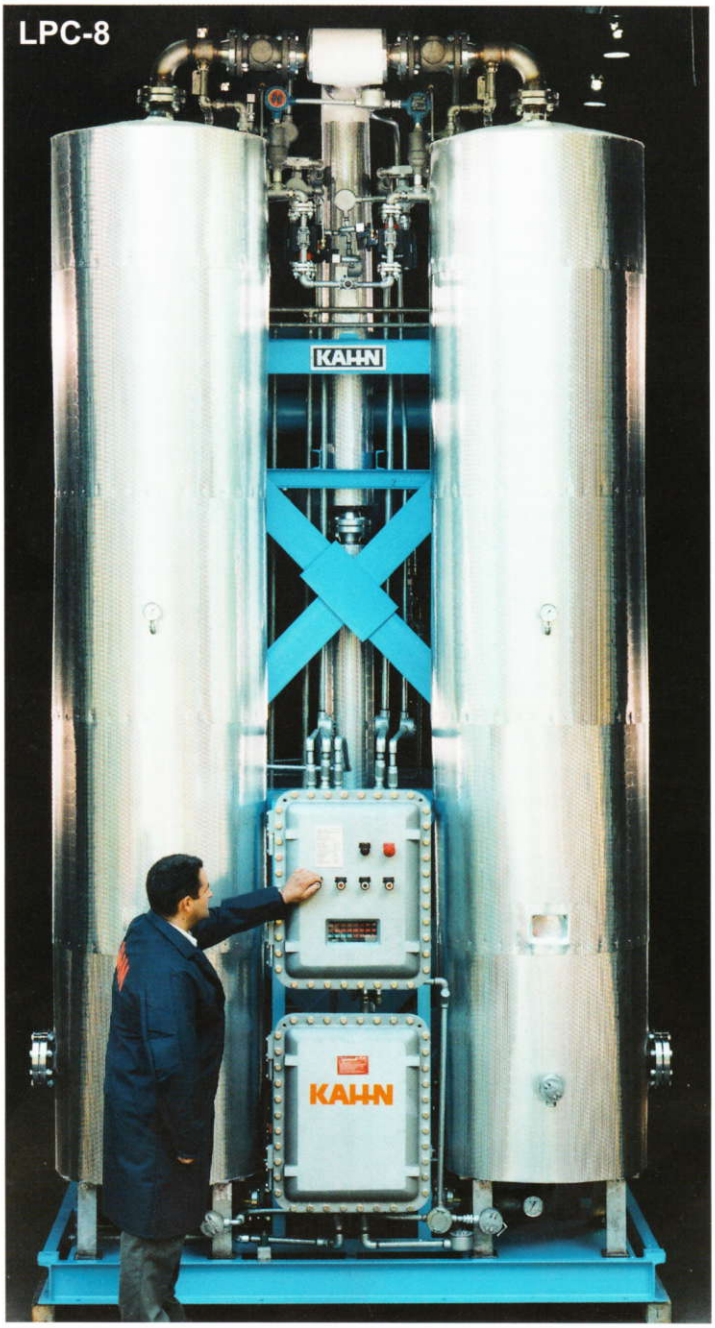
Catalog No. LPC-98

The need for clean, pure, moisture-free process liquids and solvents is critical for numerous applications today. Moisture and contamination are typically found in all industrial grade fluids, rendering them less than desirable for high purity chemical and manufacturing processes. Applications such as semiconductor and optical manufacturing demand extremely pure solvents with low moisture content. In addition, the rapidly rising cost of solvent disposal as hazardous waste makes reprocessing economically advantageous.

Kahn LPC-series liquid dehydrators offer state-of-the-art liquid dehydration and purification capabilities for a wide range of process liquids and solvents, including:

Acetone	Methyl acetate
Benzene	Olefin
Ethanol	Propyl alcohol
Isopropyl alcohol	Sulfur hexafluoride
Liquefied gases	THF
Liquid hydrocarbons	Toluene
MEK	Vinyl acetate
Methanol	Xylene

With seven standard models spanning the flow range up to 28 gpm and custom design capabilities beyond that range, Kahn LPC-series liquid dehydrators can handle inlet moisture contents to 5000 ppm and reliably deliver product moisture levels below several ppm. Also offering a wide range of process gas dehydrators, Kahn is a world leader in adsorptive dehydration and purification systems for demanding and critical applications.



Standard Features

- Recovery pump to drain remaining fluid prior to regeneration - no process fluid wasted.
- Semi-closed loop regeneration - minimal venting of gas to minimize VOC emissions and gas costs .
- Nitrogen purge for safe operation with flammable liquids.
- Advanced PLC control system; user friendly operator interface with annunciator panel.
- Status/alarm interface to customer DCS.
- Safe-mode automatic shutdown sequence in the event of process disruption or malfunction.
- Automatic resume mode to minimize process interruption due to unexpected power loss.
- Optimized bed geometry for even the most challenging polar liquid applications.
- Models LPC-1 through -8 completely assembled, pre-piped and pre-wired on a single heavy structural steel base and shipped complete.
- Towers, heater vessel and regeneration piping heavily insulated for high efficiency and personnel protection.
- Dual relief valves for system protection and safety.
- Separate large adsorbent fill and drain ports conveniently located on each vessel.
- Tough epoxy coating on all carbon steel components for durable protection in even the harshest chemical environments.

KAHN & COMPANY, INC. 885 Wells Road, Wethersfield, CT 06109
Phone: (860) 529-8643 Facsimile: (860) 529-1895 E-mail: adsorb@kahn.com

Specifications

Model	Process line size (NPT)	Cooling water (gpm)	Typical Peak load (kW)	Typical Avg. load (kW)	Size (inches) Length	Width	Height	Approx. weight (lbs)
LPC-1	1/2	1.5	8.6	4.3	48	48	90	2400
LPC-2	1/2	2	15	7	75	75	122	4000
LPC-5	1/2	6	36.8	19	82	82	156	7200
LPC-8	3/4	9	66	29.5	95	95	195	10800
LPC-10	3/4	12	70	27	110	110	270	25000
LPC-20	1	24	140	53.8	144	144	320	53600
LPC-28	1 1/2	36	250	101	215	215	395	106000

Drying: The inlet process fluid flows into tower 1 and passes upward through the adsorbent at a very low velocity. The adsorbent bed geometry is optimized for the mass transfer dynamics of liquid dehydration.

Regeneration begins when the drain pump empties the off-line tower. Regeneration gas flow is circulated by a motor-driven blower, heated in an external heater vessel and directed to the tower being regenerated. Moisture and residual process fluid are desorbed, vaporized and carried out of the bed by the hot gas, which exits the tower and passes through a cooler and liquid separator. Regeneration purge and makeup are optimized for each specific application to minimize gas costs and maximize regeneration efficiency. At the end of the heating cycle, cool gas continues to recirculate to cool the bed and ensure stable process fluid temperatures.

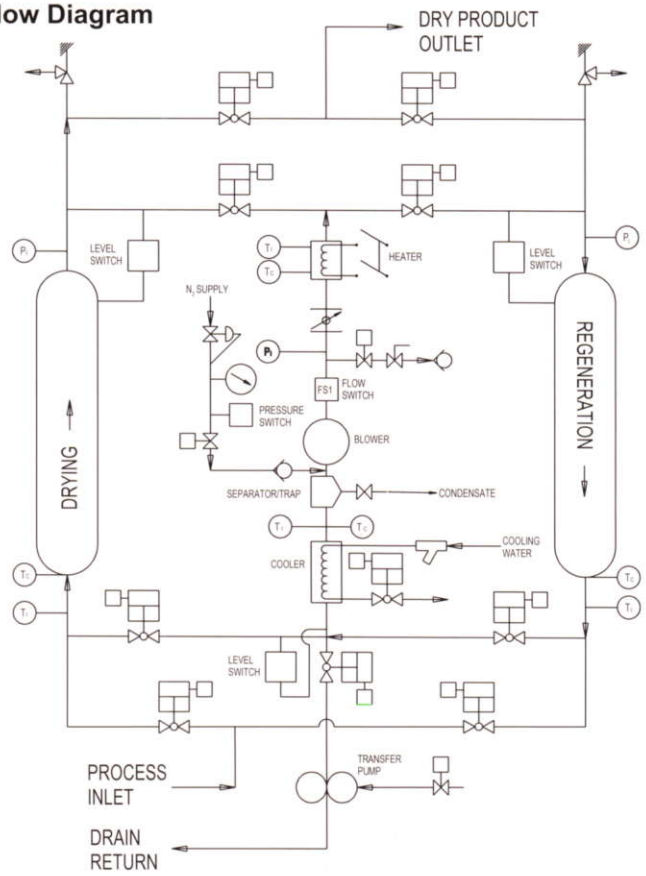
Gentle, even heating by convection assures that the adsorbent is completely regenerated, without exposing the adsorbent or vessels to excessive thermal or physical stresses inherent to internal heater designs.

Automatic control: The operation of the LPC-series dehydrator is completely automatic. A sophisticated PLC-based control system automatically switches towers based on preset cycle duration or external product moisture level feedback. Process temperatures, pressures, flows and liquid levels are continuously monitored/controlled for safe, reliable operation.

Optional Features

- Process pump for batch-type operation.
- NEMA Class 4, 4X, 7 electrics (NEMA 7 standard for all flammable applications.)
- Stainless steel vessels/piping/all wetted components.
- Filled Teflon or PEEK valve seats/sealing.
- Integral modem for remote (long distance) process/regeneration monitoring and control system reprogramming.
- Steam regeneration heater.
- Prefilters and afterfilters.
- Special regeneration cycle temperature profiles to prevent thermal breakdown of sensitive fluids.

Flow Diagram



Note: The information included herein was correct at the time of publication and supersedes all previously published data. However, it is our policy to continually improve our products to ensure ever better performance. Consequently, current Kahn products may incorporate modifications not shown or described on these pages.

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