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KALTRA
Kaltra Innovativtechnik GmbH
Max-Reger-Str. 44 · 90571 Schwaig · Deutschland

lambda

Direct expansion cooling

35-95kW

- **Microchannel evaporators**
  ensures consistent and predictable heat transfer
- **Superior efficiency, high redundancy**
  global energy efficiency leadership with EER up to 4.06
- **Significantly less footprint and weight**
  space saving solution for data center applications

Lambda DX

Direct expansion precision cooling system with dual refrigerant circuit

SCROLL · R410A · EC-FANS · MICROCHANNEL · DOWNFLOW

Eight models in 4 enclosure sizes with integrated or underfloor fan compartments

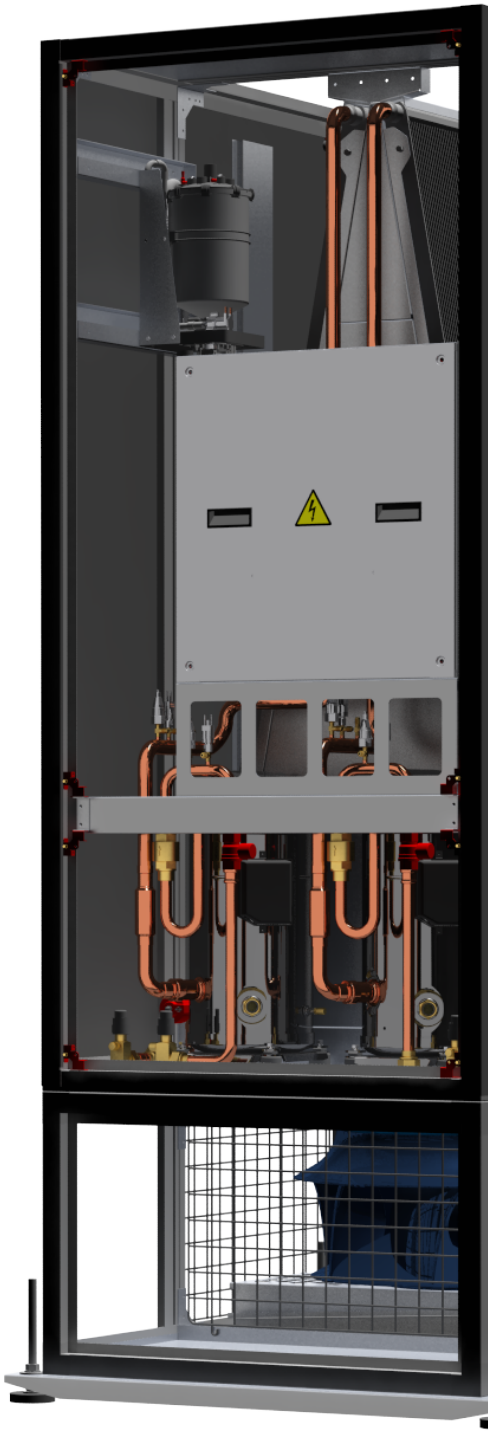
November 2016

Innovative cooling solution

Lambda DX is the next generation direct expansion cooling solution based on microchannel evaporator technology. With microchannel evaporators, Lambda DX offers the highest efficiency level available today, as well as a number of advantages, including reduced weight, smaller footprint, reduced refrigerant charge and predictable heat transfer performance.

1 EC fans

Lambda DX features the new radial fans with unique blade geometry and offers more airflow by smaller size and wide efficiency range. In combination with EC-motors with integrated control functionality, communication interface and overtemperature protection, these fans provide unbeatable energy efficiency, maximum flexibility, and lowest possible sound emission.
The EC motor technology provide significant savings at both full-load and part-load operation. Lambda's EC-motors are maintenance free and have a longer lifetime in comparison to brushed motors.



2 Scroll compressors

The Copeland scroll compressors is the result of large scale research and development efforts underway since 1979. These efforts have led to the production of the most advanced scroll compressor design currently available for air-conditioning applications.
Dual compressor Lambda DX units are perfectly suitable for both constant heat load and variable heat load applications. The customers of Lambda DX systems with R410a optimized scroll compressors can benefit from quiet operation, unmatched reliability and low operating cost.

3 Microchannel evaporators

Lambda DX air conditioning units based on newly developed microchannel evaporators with advanced design that combines high performance flat tubes, state-of-the-art airside fins and ultra low pressure manifolds with integrated refrigerant distributors.
Unique geometry of the manifolds and refrigerant distributors make it possible to fed the microchannel tubes equally for evaporation and ensures consistent and predictable heat transfer. Vertically-oriented microchannel tubes ensure free condensate water shedding.
In combination with doubled area A-shaped design, microchannel evaporators allow achieving a number of advantages, including low airside pressure drops, higher cooling capacity, extremely less weight and reduced refrigerant charge.

based on microchannel coils

Lambda DX air conditioning system provides precise and reliable control of indoor temperature, humidity and airflow for proper operation of cooled facilities. In addition to vast array of options, this gives our customers the flexibility to design solutions, matching increasingly complex requirements as closely as possible. Lambda DX cooling solution provides the excellent balance of high predictability, high power density, adaptability, and the best overall TCO.

4 Dual refrigerant circuit

Lambda DX features two independent refrigerant circuits each connected to its own microchannel evaporator, thus allowing the maintenance tasks to be carried out with the cooling system at power.
Through the use of microchannel evaporator, the refrigerant charge of the Lambda DX air conditioners significantly reduced in comparison to old-style fin/tube designs.
Each refrigerant circuit equipped with electronic expansion valve (EEV) which has the function of regulating and optimizing the refrigerant quantity to the evaporator according to the current needs.
Lambda DX features refrigerant leak detection system, which is becoming a high priority for many customers, especially considering the potential for loss of inventory if a major leak renders a cooling system inoperable.
All the components of Lambda DX's refrigerant circuit are located within the separate compartment, thus allowing easy access for maintenance and servicing.

5 Controls

The control hub of Lambda DX is a sophisticated processor with control logic specially developed for direct expansion precision cooling units.
Users can deploy various control strategies based on either continuous temperature control, or on-demand airflow control, or continuous pressure control by maintaining a pressure differential between the cold and hot aisles.

Unit identification

Lambda DX		U	18
Fan compartment	Integrated (-) Underfloor (U)		
Enclosure size	09/12/15/18		

Enclosure size	Length mm	Width mm	Height (DX) mm	Height (DXU) mm	Full height (DXU) mm
900	985	920	2050	1950	2478
1200	1285	920	2050	1950	2478
1500	1585	920	2050	1950	2478
1800	1885	920	2050	1950	2478

highlights

Technical specifications

Model	Enclosure size	Total capacity kW	Sensible capacity kW	Compressors qty.	Fans qty.	EER kW/kW	Compressors consumption kW	Fans consumption kW	Airflow m³/h	External static pressure Pa	Delta T °C
Lambda DX w/ integrated fans compartment											
Lambda DX09	900	33.3	30.5	2	1	3.82	3.97	0.78	9000	20	10.3
Lambda DX12	1200	52.1	48.1	2	1	3.86	5.92	1.66	14000	20	10.5
Lambda DX15	1500	72.2	66.1	2	2	3.96	8.07	2.08	19500	20	10.3
Lambda DX18	1800	86.2	79.9	2	2	3.82	10.01	2.53	24000	20	10.2
Lambda DXU w/ underfloor fans compartment											
Lambda DXU09	900	35.9	32.5	2	1	3.86	4.34	0.62	9000	20	11.0
Lambda DXU12	1200	56.5	51.1	2	1	3.97	6.39	1.45	14000	20	11.1
Lambda DXU15	1500	77.9	70.7	2	2	4.06	8.70	1.79	19500	20	11.1
Lambda DXU18	1800	93.8	85.2	2	2	3.91	10.91	2.14	24000	20	10.8

Air inlet temperature: 24°C; Relative humidity: 45%; Ambient air temperature: +35°C ; Condensing temperature: 45°C

Package, options and accessories

Features		Features	
General			
MCHE electrocoat	☐	Motorized backdraft damper	☐
MCHE thermoguard	☐	Underfloor discharge plenum (DX only)	☐
Multi-stage electric heater with thyristor control (regular/high capacity)	☐	Fan compartment blind paneling (DXU only)	☐
Steam humidification system (regular/high capacity)	☐	Floorstand (DX only)	☐
Dehumidification system	☐	Noise-reduction shells for compressors	☐
Condensate discharge system	■	Thermal/noise reduction insulation	■
Condensate tray leak detection	■	Touch screen HMI	■
Smoke/fire detection	☐	Air intake plenum	☐
Air side			
EC fans	■	G4 air filtration w/ filter change switch	■
Temperature/humidity probe on air supply (supplied loose)	■	F7 air filtration w/ filter change switch	☐
Temperature/humidity probe on air intake	■	High-performance filters for air intake plenum	☐
Refrigerant side			
Electronic expansion valves (EEV)	■	Temperature transmitters (on suction, discharge and liquid line)	■
Solenoid valve for liquid line	☐	Pressure transmitters (on suction, discharge and liquid line)	■
Liquid receivers (supplied loose)	☐	Test connections (on suction, discharge and liquid line)	■
Filter driers (DXU: supplied loose)	■	Refrigerant leak detection	■
Check valve on compressor discharge	■	Dual refrigerant circuit	■
Power and controls			
Continuous temperature/humidity control	■	BMS connectivity	■
Continuous pressure control (incl. differential pressure switch)	■	SNMP connectivity	■
Continuous airflow control (incl. differential pressure switch)	■	Power factor capacitor	☐
Soft starter	☐	Phase sequence control	☐
Controller UPS	☐	Energy management	☐
Dual power supply changeover switch	☐	Remote monitoring software	☐

■ Standard feature
☐ Option

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