Combitherm AIR-COOLER

AIRCRAFT COOLING SYSTEM

SPECIAL FEATURES

Semi-hermetic screw compressor according to the latest design standards · Ecological refrigerant R 134a (ODP=0) as standard · All heat exchangers are made of high quality material with epoxy finish · Energy saving because no hot-gas bypass is required · Reduced use of primary energy increases economy and lowers operating costs · Less strain on the power generator in the weak load range · Large range of applications up to ambient temperatures of +55 °C · Highly efficient through infinitely variable control system · Long lifespan due to full protection system for all unit components · Maintenance- and user-friendly.

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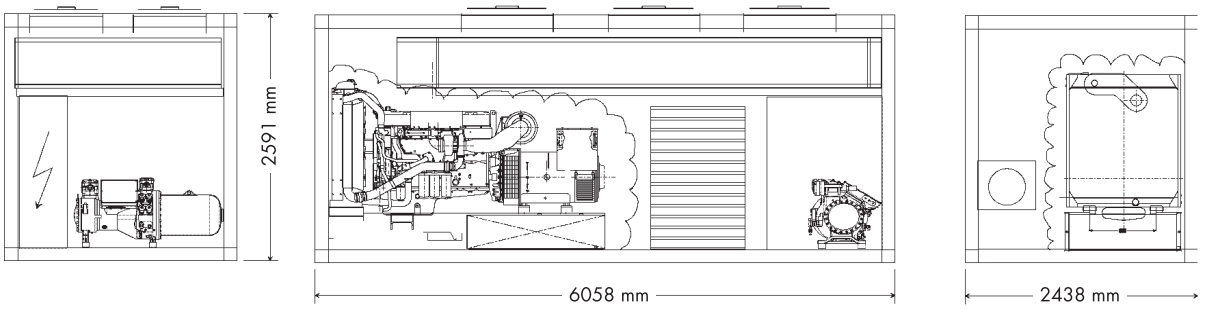
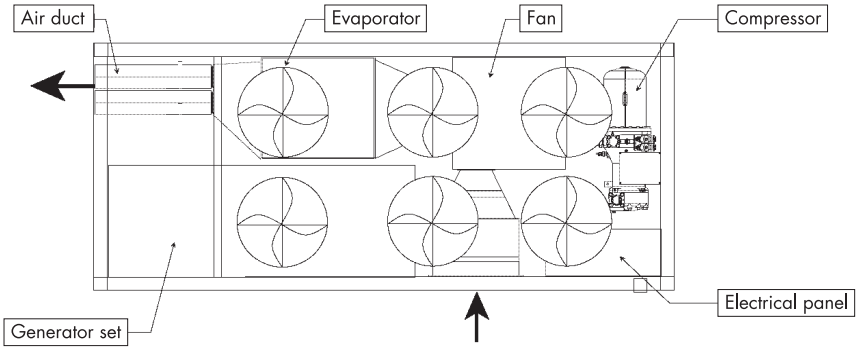
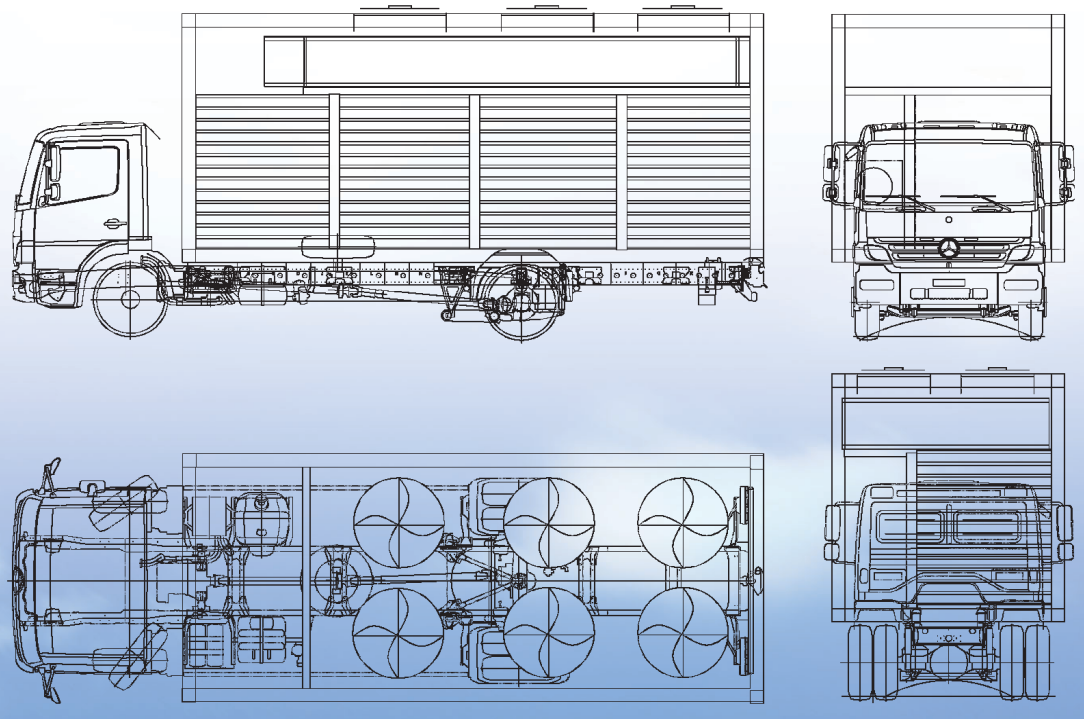
Dimensions and Truck Mounted Design.







Distribution Partner

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Technical Description.

The unit consists of the following components:

1 refrigerant cycle for cooling fresh air. Condensation heat is removed via a separate air-cooled condenser. The whole installation is built in a weather-resistant container with noise insulation. The unit is built in accordance with the EU Machineries Directive (89/392/EWG) in the draft 91/368 EWG.

1 single stage screw compressor, semihermetic, supplier BITZER, Germany, CSH-series with integrated oil separator, enclosed drive motor with part-winding start and all required accessories.

1 condenser, air-cooled, with 1 refrigerant cycle, designed for the compressor load, with sucking axial fans. Housing with profile frame, casing made of galvanized steel sheet, completely laquered. Heat exchanger (condenser block) consisting of Cu-pipe 12mm and Alu fins 2,4mm distance, epoxy coated. Axial fan, noiseless, Motor with 2 speeds or with speed control, maintenance-free, protection class IP 54. Condensation pressure control consisting of speed controller for fan, pressure transmitter, no-return valve, manual shut-off valve.

1 direct expansion heat exchanger for chilling the ambient air, consisting of Cu-pipe 12mm and Alu fins with epoxy coating, suitable for dry evaporation. The heat exchanger is manufactured from special copper tubes. Design operating pressure 16 bar with TÜV approvement.

1 refrigerant collector unit with a minimum capacity of 35 litres to contain the complete refrigerant filling, fitted with a sight glass for level indication as well as a safety release valve.

Refrigeration accessories as required, installed within the refrigeration cycle as filter dryers, magnetic valve in the liquid line, sight glass, electronic expansion valves, manometers for R 134a.

Refrigeration piping connecting the above equipment within the cycle, including all attachment and connection materials as well as insulation of the cold sections (suction line).

Refrigeration filling of the unit with R 134a and special refrigerant oil.

Control of unit by means of electronic controllers, digital display for temperatures, demanded stages and all necessary temperature sensors.

Control and switching components for the refrigeration system in the unit and in the control panel installed and connected electrically in accordance with their function.

1 electric panel, built according to the european and international standards, attached to the unit, including all switch and safety components for the air cooling unit as well as the complete control system as described above. The electric panel includes all connecting wiring. The components described above are installed within the panel and connected in accordance with their function. All motors, switch and safety components within the unit are connected with the panel.

Air supply duct system consisting of air supply fan with stepless frequency control system, insulated duct system including connecting duct to the aircraft.

1 radial fan, design in heavy steel-weld-construction, one sided suction. Casing of material St 37, with cover on suction side. Impeller of material St 37, exactly static and dynamic balanced. Drive direct, impeller mounted on motorshaft, motor mounted on welded St 37-socle. 1 self-actuated flap mounted in fan-discharge. 1 vibration damper (steel-rubber).

Container conform with ISO standards, length of 6m (20feet), side and air inlet panels of galvanized steel with powder coating, noise insulation, maintenance doors, different colours available.

Diesel driven generator set with 6 cylinders in line, Direct fuel injection, Aspiration turbocharged. Water cooled by radiator and cooling fan (belt driven) sized for temperatures up to 55°C (tropicalised). Complete with gear driven circulating coolant pump for HT (high temperature) circuit. Single cooling circuit with air charge air cooler (CAC air-to-air).

Electric starter with batteries, Battery charging alternator, Electronic speed governor.

Alternator, output voltage: 480/277V Three phases 60 Hz - p.f.: 0,8.

Synchronous, self-regulated, self-excited, brushless, 4 poles, 12 winding leads, short pitch 2/3.

Steady-state voltage deviation: ± 1,5 %, Voltage regulation: ± 5 %.

Automatic voltage regulator with three phases voltage sensing. Permanent magnet alternator.

Type of construction MD35: direct coupling with SAE adaptor, flexible disc and single bearing rotor.

Insulation class H. Tropicalised windings. Mechanical degree of protection: IP23 with drip proof protection.

Efficiency at 4/4: 92,8 %.

Unit factory tested and delivered with all necessary documentation.

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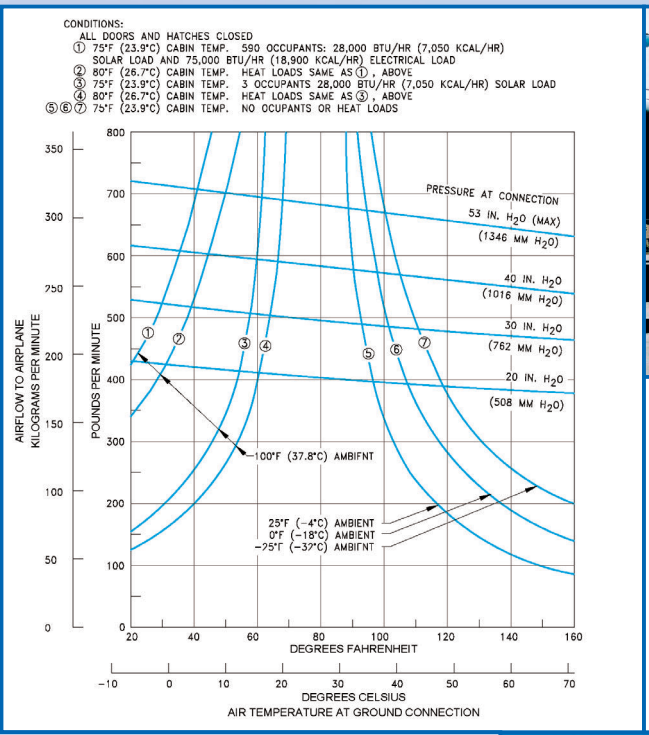
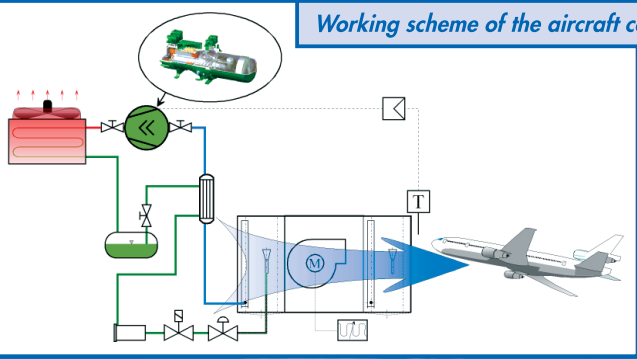
Technical Data.

Technical data type TRACU SC 8500		HT XL	HT XXL
Cooling capacity at 45°C Air Temperature	kW	245	290
Rated capacity (ASHRAE class 4 standard)	tons	107	127
Air in	°C/% r.h.	+40/45	+45/40
Air out	°C/% r.h.	+5/100	+5/100
Dewpoint	°C	29	31
Air ambient min./max.	°C	+15/+55	+15/+55
Number of compressors	pieces	1	1
Number of circuits	pieces	1	1
Performance stages	%	25-100	25-100
Power consumption compressor	kW	95	120
Power supply	V/Ph/Hz	480/3/60	480/3/60
Refrigerant		R 134a	R 134a
Technical data air cooled condenser		**HT XL**	**HT XXL**
Condensing capacity	kW	340	410
Air in	°C	+40	+45
Air volume	m^3/h	119.400	119.400
Number of fans	pieces	6	6
Power consumption	kW	6 x 1,85	6 x 1,85
Sound level in 3m distance	dB(A)	85	85
Technical data fan blower		**HT XL**	**HT XXL**
Max. air flow	kg/h	11.000	11.000
External pressure	Pa	9.000	9.000
Max. power consumption fan	kW	51	51
Technical data Genset		**HT XL**	**HT XXL**
Prime power	kVA	254	320
Number of cylinders	pieces	6	6
Working speed	r.p.m.	1.800	1.800
Operating time at 3/4 load	h	11,2	10,7



> Example: Pre-conditioned air requirement of a B747



Working scheme of the aircraft cooler <