

alp CONCRETE COOLING[®]
SYSTEMS
“for a well concrete”



alperen[®]
ENGINEERING

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About Us

Alperen Engineering Heating and Cooling Systems Industry&Trade Ltd.

Our company serves in the field of air conditioning of ventilation of spaces deemed as clean rooms such as operating rooms, intensive care units, laboratories and spaces in the electronics and food industry as well as meeting the requirements as to industrial air conditioning of ventilation of all indoor areas such as shopping malls, factories, hotels, offices, educational institutions and manufacturing plants.

Our company, for the first time in Turkey, has realized the production of custom-designed concrete cooling groups based on spot cooling the concrete as a result of the R & D activities conducted thereby. Our company carries out meticulously all steps germane to cost assessment, providing information, projecting, offering price quotes, manufacturing, installation, commissioning and service.

Our company, having launched the commercial operations thereof in January 2000, produces standard and hygienic air handling units, water chillers, concrete cooling groups, clean room air conditioning equipments, rooftop air conditioning systems air cleaning devices and realizes production of special orders.

Furthermore, our company, with the experienced staff thereof in its field, furnishes services such as sales, after sales service, project and contracting for air-conditioning products such as hygienic air conditioning systems, precision-controlled air-conditioning systems, package type air conditioning systems, central air conditioning systems, chiller systems, VRV air conditioning systems, split air conditioning systems, ventilation equipments, textile air ducts, polyurethane air ducts, galvanized & stainless steel air ducts, air cleaning equipments, hepa filters, coil filters, bag filters, carbon filters, fan coils, convectors, heat recovery equipments, dehumidifiers, air curtains and infrared and radiant heaters.

We aim to be closer and provide a better service by virtue of our meticulously prepared websites that are updated every moment. You can have information incident to our products, brands and models, perform computations of online capacity, can receive offer, place orders, purchase and request a delivery service thanks to sharing of information provided through our company via internet.

Our services and works are based on aesthetic appearance, high performance, affordable usage, robustness, durability, prompt service and your esteemed satisfaction.

We are constantly working with our technical services aiming at efficiency with minimum cost in our products in addition to our expert engineers closely following the latest innovations in the rapidly evolving fields of heating, cooling, ventilation and air-conditioning sectors and delivering same to you.

Our Products

- Standard Air Handling Units
- Hygienic Air Handling Units
- Package Type Hygienic Air Handling Units
- Dehumidification Units
- Precision-Controlled Air Conditioning Systems
- Laminar Air Flow Units
- VRV - VRF - VRS Air Conditioning Systems
- Rooftop Air Conditioning Systems
- Split Air Conditioning Systems
- Mono Block Air Conditioning Systems
- Water Cooling Systems
- Concrete Cooling Systems
- Fan Coil Systems
- Convector Systems
- Automatic Control Systems
- Ventilation Equipments
- Air Ducts
- Air filters

Alp Concrete Cooling Systems

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Temperature is one of the chief factors that affect the quality of concrete adversely. Temperature, at the same time, causes problems in mixing, placement and curing operations. The majority of these problems results in increasing in the rate of hydration and the rate of evaporation of the water in the fresh concrete mixture.

Temperature, affects also the durability properties of the concrete adversely. As such, negative effects of the temperature on the concrete must be monitored and appropriate measures must be taken.

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The "**spot cooling**" method developed in recent years is based on cooling the concrete after placing or in other words after pouring the concrete into the mold, and in works carried out through this method high concrete quality in the desired norms has been reached.

"Alp Concrete Cooling Systems" utilized to cool the concrete in special norms in industrial constructions such as dams, bridges and power plants is a system that cools the concrete itself but not the mixing water of the concrete.

Polyethylene pipes selected according to the criteria of the concrete to be employed after the mold beams laid in the mold are placed in the mold. Polyethylene pipes are placed in the mold in accordance with the project prepared earlier. After pouring of the concrete molding is completed, the cold water obtained from the concrete cooling group is moved in the concrete by virtue of polyethylene pipes and cooling of the concrete is ensured within the calculated time.

The system is fully automated, can provide the desired temperature and flow values rate and can make reporting within desired intervals.

Flow and temperatures system in outgoing and return collectors can be adjusted measured and reported separately.

The system has been tested and received full marks in cooling of the concretes with special norms in the İzmit Bridge Project applied for the first time in our country.

Concrete cooling systems produced for Bridge Project have cold water delivery line as well as cold water return line. Each line in the outgoing collector can send water at the desired temperature and the desired flow rate separately. Operating ranges of the cooling group, delivery-return lines temperatures and flow rates are monitored and reported to the automation system.

Number of lines, the amount of heat, the amount of flow and operating ranges the delivery-return collectors of the concrete cooling system can be set at different values depending on your project.

"Alp Concrete Cooling Systems" designed through "Alperen Engineering" bear the signature of Turkish engineers. System design and automation have been designed, projected and manufactured through Turkish engineers.

The system has features to be utilized in different areas in need of cooling other than buildings and machinery such as cooling of facilities incident to race horses.

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Following incidents occur as the concrete temperature increases;

- * The requirement for water increases,
- * Consistency loss increases,
- * Setting duration shows irregularities,
- * Sweating rate and duration become unstable,
- * Increased tendency to cracking in plastic and drying contraction develop,
- * Increased risk of the formation of cold joint,
- * The control of the air content becomes more difficult,
- * Aesthetic appearance deteriorates.



Specifications of the Concrete Cooling System:

1. The concrete cooling system has been designed as a portable package cooling group which can perform the cooling works of the molded concrete in the desired norms and values in a single unit and suitable for outdoor weather conditions and for field works.
2. The concrete cooling system can be produced indifferent capacities according to the requirements.
3. The system is able to produce cold water in the desired flow rate.
4. The system can produce cold water at the desired temperature.
5. The system measures and reports the delivery and return temperatures of the cooling water.
6. The system features a robust structure for work site conditions.
7. The system hosts advanced automatic control system and “Alp special automation software”.
8. The system features easy set-up and easy transportation.
9. The system consists of a single unit design in a package that occupies small space.
10. Outer surface of the system cabinet is made of powder coated modular panels. All parts of the cabinet
11. Capacity control of the cooling group is performed proportionally. Performance values of the cooling group are in conformity with the ARI Standard 550/590-98.

Alp Concrete Cooling Systems

12. The compressors used in cooling group are tilted, semi-hermetic type, composed of a single screw and can serve on site. Compressor parts can be easily reached for maintenance and repair. Compressor bearings have a service life of min. 100,000 hours. When more than one compressor is used in the cooling group, refrigerant circuits of each compressor are designed independently. The economizer of the compressor is located outside the compressor with an eye to simplify the structure of the compressor and has a gas-cooled structure.

13. The materials of the pipe connections of delivery and return lines within the system are furnished in a way to be easy and suitable for use under site conditions.

14. The system runs with a redundant pump system.

15. Equipments employed in the system run in harmony with the automation system.

16. Condensers and fans belonging to the cooling system have been designed to work according to the site conditions.

17. Evaporator and condenser coils of the system are made of aluminum fins placed on copper tubes hydro-mechanically.

18. The batteries in the system have been subjected to leakage test at 150 psig and pressure test at 450 psig.

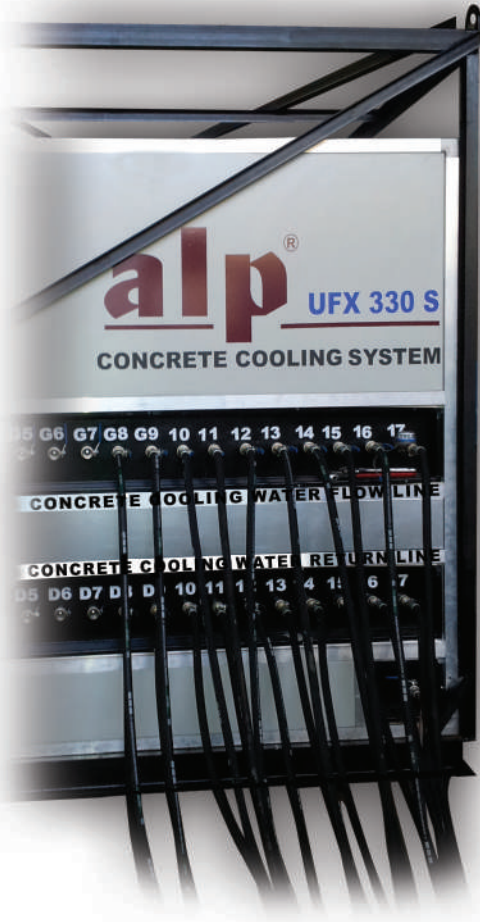
19. Condenser fins are corrosion resistant against outdoor air factors. Condenser fans are in class IP54 and the operating temperature thereof is between - 40C to + 55C. Condenser fans with high efficiency and low noise level are used.

20. Control system of the cooling group is in a panel (IP54) with a locked door which is not affected by external factors. Power and operation panels are in different compartments for safety and control. There is a fuse, thermal phase protection relay and contactor for each compressor and each condenser fan.

21. There is a high and low pressure cut-off switch and frost thermostat for each refrigerant and a flow cut-off switch for each compressor and a timer again for each compressor showing the working time in the cooling group.

22. Threaded valves for DN15-40 while flanged valves used for higher diameters. Valve sizing has been made in line with the system requirements. Control valves in conformity with standard Kv values that can provide equal - percentage flow curve have been employed. All the valves are suitable for the PN16 pressure class.

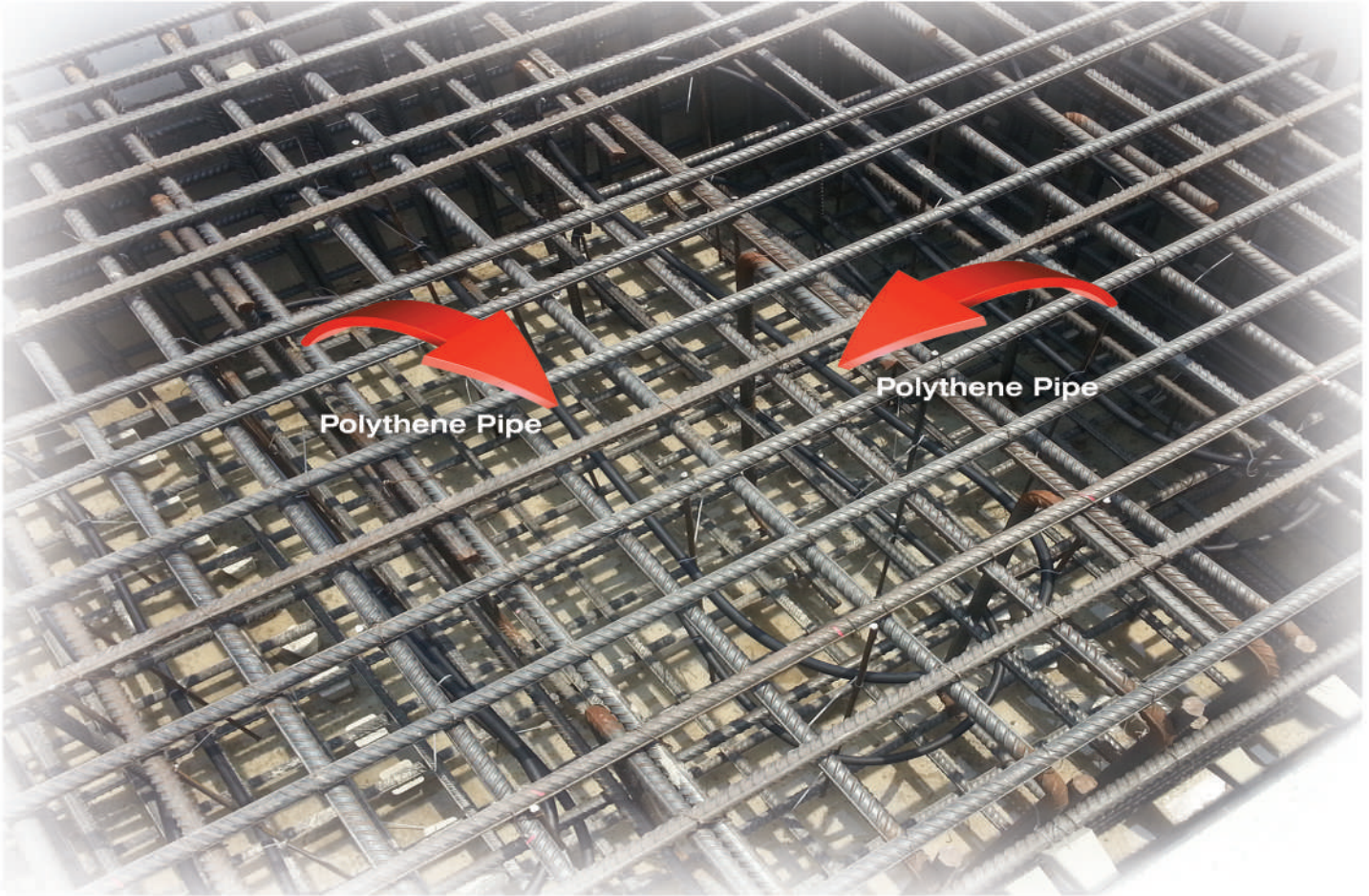
23. On/off functioning valves have been utilized throughout the pipe system. All power valve engines were selected with the power to be able to shut down the system pressure.



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24. There is a test pump in the system to control the delivery and return lines. Use and design of this pump is suitable for the field works.

25. All electrical wiring inputs and outputs of the system are in conformity with the IP 65 standard.



26. The power supply connections of the system have been made with the design and strength to work in site conditions.

27. Joint parts of the system are leak-proof. The connections of outline parts have been made with corrosion and outdoor weather-resistant rivets or bolt-nut connections.

28. The system is resistant to work in site conditions and can be moved easily.

29. The system runs with electricity.

30. There are transportation lugs for removal of the system by crane. This places of these ears have been determined to prevent ropes to give damage to the device during removal the thereof.

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31. There is a column with a height of 200 mm made of minimum 3 mm galvanized steel in the base of the cooling system. There are slots or lugs on this column necessary for transportation and relocation of the system on the citted.

32. All flow and temperature values in the system can be monitored on the display while reports can be received in desired intervals.

33. Exports from the system, both the temperature and flow rate are displayed in the table as well as a graph.



34. The automatic control system allows access for the users to the system data through the local network within the facility as well as outside the facility via standard internet browser programs over the internet if connectivity is provided

35. We supply all kinds of labor, materials and software with an eye to ensure that the automatic control system runs functionally.

36. Mechanical equipments have been prepared with the installations thereof made to the system subsequent to being calibrated in our factory.

37. Power supply panels, automation panels and related consumables are installed in line with the requirements of the system.

38. The established system includes password protection to provide access to the data, functions and features within itself.

39. The automatic control system has the infrastructure that enables the creation of the information flow of and different scenarios.

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40. The created reports are stored in a PC and retroactively analyzed through the user should it be necessary.

41. Data received can be monitored easily by the user in graphical environment without the need for any additional program.

42. Animated graphics such as seeing the blades of a running fan while rotating have been prepared.

43. Current data values on the graphics are renewed automatically without need to user intervention .

44. A home page is assigned separately to each user. Users' access to graphics other than the ones on their pages can be prevented.

45. Retrospective data graphics can be monitored while selections in the desired date and time range can be performed.

46. Each point on the system has been subjected to the functionality test.

47. End-user personnel can receive training at your facility and on the system board. Persons providing the trainings are provided through our expert personnel with sufficient information level as to the system in terms of hardware and software.

Training is given in 3 stages:

- Free Pre-Training: One-day general user training after the system is commissioned.
- Free Refresher Training: One-day general training after about 2-4 weeks subsequent to the completion of pre-training in which more advanced topics will be addressed and questions will be answered.
- Additional Pay Training: The user can receive additional training provided that same receives an appointment from our company.

48. Concrete cooling system is guaranteed for 2 years against any manufacturing defects.



ALP CONCRETE COOLING SYSTEM TECHNICAL SPECIFICATIONS

TYPE	COOLING CAPACITY (KW)	ENERGY (KW)	SUPPLY VOLTAGE	COOLING RANGE	RESERVE TANK (LT)	COOLING WATER FLOW (M ³ /H)	COOLING WATER TEMPERATURE	NUMBER OF WAY LINE	RETURN LINE NUMBER	METHOD OF CONNECTION	A (mm)	B (mm)	H (mm)	WEIGHT (KG)
ALP FX 40S	40	14,5	3PH/380-420V-50 Hz	7 -12 C	230	1 x 6	10°C	6	6	H. COUPLING	1.850	2.930	2.050	1.840
ALP FX 60S	60	21,8	3PH/380-420V-50 Hz	7 -12 C	250	1 x 6	10°C	6	6	H. COUPLING	1.850	2.930	2.050	1.900
ALP FX 80S	80	29,1	3PH/380-420V-50 Hz	7 -12 C	420	1 x 8	10°C	8	8	H. COUPLING	1.960	2.930	2.150	2.180
ALP FX 100S	100	36,3	3PH/380-420V-50 Hz	7 -12 C	450	1 x 8	10°C	8	8	H. COUPLING	2.280	2.930	2.250	2.310
ALP FX 130S	130	44,3	3PH/380-420V-50 Hz	7 -12 C	570	1 x 12	10°C	12	12	H. COUPLING	2.280	3.300	2.340	2.670
ALP FX 160S	160	58,1	3PH/380-420V-50 Hz	7 -12 C	570	1 x 12	10°C	12	12	H. COUPLING	2.280	3.300	2.340	2.920
ALP FX 190S	190	69,3	3PH/380-420V-50 Hz	7 -12 C	600	1 x 12	10°C	12	12	H. COUPLING	2.310	4.500	2.340	4.600
ALP FX 220S	220	80	3PH/380-420V-50 Hz	7 -12 C	600	1 x 12	10°C	12	12	H. COUPLING	2.310	5.700	2.340	5.000
ALP FX 250S	250	90,9	3PH/380-420V-50 Hz	7 -12 C	600	1 x 12	10°C	12	12	H. COUPLING	2.310	5.700	2.340	5.450
ALP FX 280S	280	101,8	3PH/380-420V-50 Hz	7 -12 C	600	1 x 12	10°C	12	12	H. COUPLING	2.310	5.900	2.340	5.700
ALP FX 330S	330	120	3PH/380-420V-50 Hz	7 -12 C	650	1 x 17	10°C	17	17	H. COUPLING	2.310	6.500	2.340	6.000
ALP FX 380S	380	138,2	3PH/380-420V-50 Hz	7 -12 C	650	1 x 17	10°C	17	17	H. COUPLING	2.310	6.500	2.340	6.330
ALP FX 430S	430	156,5	3PH/380-420V-50 Hz	7 -12 C	650	1 x 17	10°C	17	17	H. COUPLING	2.650	6.750	2.420	6.920
ALP FX480S	480	174,6	3PH/380-420V-50 Hz	7 -12 C	700	1 x 20	10°C	20	20	H. COUPLING	2.650	6.750	2.420	7.280
ALP FX530S	530	192,7	3PH/380-420V-50 Hz	7 -12 C	700	1 x 20	10°C	20	20	H. COUPLING	2.850	7.200	2.420	7.860

The values gives in the table may show variations in the stage of production.
An information data could be demanded from our compan for the equipments of definite values or in different capacity.

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