

alp

PACKET TYPE HYGIENIC[®]
AIR HANDLING UNITS

“ f o r a g o o d a i r ”



alperen[®]
ENGINEERING

alperen.com.tr

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 Package Type Hygienic Air Handling Units

Alp Package Type Hygienic Air Handling Units

Our package type hygienic central-station air handling units have been designed by considering the needs of the places classified based on the German VDI 2803-V principles, for class 1 and class 100.000 places that needs high internal air quality (IAQ) and an environment purified from particles, such as operating theaters, intensive care rooms, vaccination rooms, and places in electronic and optical industries; for US Federal Standard 209E, class 0 and class 7; and for EN 150 14644-I as well as M1.5 and M6.5.

Our package type hygienic central-station air handling units comply with DIN 1946-4 and EN 13053. Projections that may cause dust accumulation are removed from inner parts of the central-station units, and smooth surfaces are created on such parts. Joints are filled with antibacterial silicone gaskets and thus, dust accumulation is prevented. Our central-station units having a washable inner surface have also an extremely hygienic structure.

Air flow rates of our package type hygienic central-station air handling units are produced variably, depending on the desired values.

In our package type hygienic central-station air handling units, G3 and G4 class filters that can be classified as roughing filter according to DIN 1946-4 are placed at the suction side of the fan, immediately after the assembly of the air inlet. F7 and F9 class precision bag filters and compact filters are placed at the pushing side of the fan, after a cell with deflector. H13 and H14 class HEPA filters are placed in the place, where they serve in the scope of clean room technology, immediately before the blowing terminal element. They are not placed into the central-station air handling unit.

Air flow rates of the package type hygienic central-station air handling units are produced variably, depending on the required values.

Our package type hygienic air handling units:

- They are the devices used for elimination of the contamination arisen from the gases released during anesthesia in operating theaters as well as the ones caused by other reasons;
- for high quality filtration of the contamination elements that may be transmitted to the environment through the fresh air before hepa;
- for keeping the place under positive pressure by the blow and suction air, and thus, preventing contamination that may arise from the side volumes;
- for preventing microbial transmission to the side places, by keeping the septic places under negative pressure;
- for providing heat and moisture values of the place with certain precisions;
- and at the same time, for providing savings in terms of operating costs.



Alp Package Type Hygienic Air Handling Units

Radial Fans

EUROVENT and AMCA certified radial fans used in Alp central-station air handling units are used with optionally forward or backward curved blades depending on the required capacity. Double suction radial fans are used with additional filtering elements.

Radial fans are produced as belt-pulley driven devices with galvanized metal sheet body in spiral form. The fan rotor is statically and dynamically balanced. The electric motor is mounted on a specially designed belt tensioning mechanisms.

Pulleys are equipped with conical clamping bush. The connection between fan discharge outlet and cell panel is provided by means of a connector. Fan, motor and belt tensioning mechanism are fixed on a reinforced C profile chassis. In addition, whole the moving system is mounted on spring or rubber insulators. Radial fans used in Alp central-station air handling units can be taken out from the side. In Alp central-station air handling units, frequency converters suitable or radial fan motors can be applied separately if desired. Illumination of the fan cell is provided by controlled hermetic luminaires.

Plug Fans

In our Alp central-station air handling units, optionally plug fans are preferred because of the fact that they are easy to clean and prevent accumulation of dust on the surfaces. Depending on the characteristics of air flow rate-pressure, plug fans are applied as directly coupled or belt-pulley driven. Plug fans used in Alp central-station air handling units are fans with backward curved blades. Rotor is mounted directly on the motor shaft. Whole the moving system is mounted on spring or rubber insulators. Plug fans used in Alp central-station air handling units can be taken out from the side. In Alp central-station air handling units, frequency converters suitable or plug fan motors can be applied separately if desired. Illumination of the fan cell is provided by controlled hermetic luminaires.

Panels

Specially extruded aluminum profiles and double-walled 45-60 mm thick panels with polyurethane filling or rock wool insulation are used in the cabin construction of Alp central-station air handling units. Exterior surfaces of the panels are produced of galvanized metal sheet coated with PVC or anti-static paint. Panels are connected to profiles with special screws; and neoprene seals are placed between the panel and profile. A smooth surface is provided, by applying liquid silicone to the joints.

Cell

Cells used in Alp central-station air handling units are produced of specially extruded aluminum profiles and double-walled 45-60 mm thick panels with polyurethane filling or rock wool insulation. On the cells, there are coarse filter, bag filter, fan, aspirator, heater, cooler, humidifier, heat recovery device, sight glass intended for control and maintenance of some elements such as fans, hinged, handled and security-controlled doors. In addition, internal lighting fixtures are used. Cells are produced as with a structure that can be connected to each other from their insides by means of high strength fittings, with suitable bolts and nuts.

Intervention Doors

Intervention doors of Alp central-station air handling units are produced of specially extruded aluminum profiles and double-walled 45-60 mm thick panels with polyurethane filling or rock wool insulation. In intervention doors of all our central-station air handling unit models are equipped with strength and durable door handles and hinges with the feature of compression that provides leak-tightness.

And in intervention doors of some element such as coarse filter, bag filter, fan, aspirator, heater, cooler, humidifier, heat recovery device, and fan, there is a sight glass allowing for their control and maintenance.

Filters

In our central-station air handling units, G3 and G4 class filters that can be classified as roughing filter are placed at the suction side of the fan, immediately after the assembly of the air inlet. F7 and F9 class precision bag filters and compact filters are placed at the pushing side of the fan, after a cell with deflector.

And U.V disinfection filter is placed after the bag and compact filters. Filters have compression equipment and frame structure that is easy to remove and assemble. Filter housings, where filter frames are placed, are equipped with sealant gaskets. Filter frames are placed in such as way as to be mounted on the gaskets.



Alp Package Type Hygienic Air Handling Units

Pre-Filter Cell

Cassette panel filters used as controlled and renewable pre-filters in Alp central-station air handling units are made of a special blend of crude fibers. Cassette filters have an extremely durable structure. Its surrounding protection cage is placed in order to protect its filtration feature from strokes. Cassette panel filters are the filters in class G2 (EU2) - G3 (EU3) - G4(EU4) - F5 (EU5). Cassette filters used in Alp central-station air handling units are produced as cellulose-based and fiberglass-based.

Precision Filter Cell

Bag and compact filters used as a precision filter in Alp central-station air handling units are made of synthetic fiber material, and show a superior performance with their high dust collection capacity. Bag filters usually produced with a depth of 500 and 600 mm are also produced in specific sizes. Bag filters made of synthetic fiber are used in ventilation systems. And in hygienic air-conditioning system, they are mounted inside of the central-station air handling unit, with intent to protect the HEPA filters. Synthetic fiber bag filters make filtration in the classes G3 (EU3) - G4 (EU4) - F5 (EU5) - F6 (EU6) - F7(EU7) - F8 (EU8)- F9(EU9) class.

Active Carbon Filter Cell

Active carbon filters used in Alp central-station air handling units have the feature of capturing gas molecules. A surface of the active carbon filters consist of millions of micro pores. Many odor-emitting toxic gases are captured thanks to these pores. Active carbon filters must be changed depending on the ambient air pollution and frequency of their use. Active granular carbon filters are used as odor eliminator filters in the places where heavy odors emanate. In active granular carbon filters, only granular carbons are replaced when the filter becomes dirty. There is no need to replace the filter cells.

Particulate Arresting Filters

HEPA that is also known as particulate arresting filter stands for High Efficiency Particulate Arresting. HEPA filters are the filters that can separate 85% of the particles with the sizes up to 0.3 micron from the air. Filters, which are more precise than HEPA filters with their precision percentage of % 99,999, are called ULPA filters. HEPA and ULPA filters have a paper-like maintenance-free structure consisting of special fibers. These filters must be replaced with new ones in a certain period of time. Because of their filtration performances, reliabilities and maintenance-free structures, today HEPA and ULPA filters are used in operating theaters, hospitals and clean room applications. MDF, plastic, or metal-framed HEPA and ULPA filter models are available.

Drift Eliminator

Cooling coils of our central-station air handling units are equipped with condensation tray and drift eliminator.

In cooling exchanger, drift eliminators with PVC or aluminum fins are used, depending on the air flow speed. Drift eliminator fins are designed in such a way as to keep the maximum amount of water, and can be taken out with skid. Condensation trays are made of 1.5 mm thick stainless steel plates, with a size that can contain the heat exchanger and drift eliminator.

Alp Package Type Hygienic Air Handling Units

U.V Disinfection Filter Cell

The rays, which are shorter than the visible rays but longer than X-rays, are called ultraviolet rays. It is because human eye can see the range between red and violet lights. In the ultraviolet filter systems used in Alp central-station air handling units are equipped with ultraviolet lamps providing UV rays. Quartz tubes allow for the best UV rays passage is used in order to prevent ultraviolet lamp from contacting the water. UV lamp has a life of 9000 hours. After the completion of this period that is about one year, you can reactivate the system by just replacing the lamp. This special light utilized as a disinfectant is also called short-wavelength light or UV-C light. This light length is between the UV-C band of 200 nm (nanometers) and 280 nm. The wavelength required for disinfection is 253.4 nm (0.0002534 mm). These lamps are used as sterilizers, with the applications made in different ways depending on the environments, where they are intended to be utilized.

UV rays with a wavelength of 253.4 nanometers immediately neutralize microorganisms, bacteria, viruses, molds and fungus spores at the rate of 99.99%, by disrupting their DNA structures. They prevent replication between thymine molecules in the DNA structure. The filter types used in Alp central-station air handling units are determined depending on the filter types used, structure of the central-station, manufacturing criteria and requirements.

Heating and Cooling Coils

In Alp central-station air handling units, coils with copper pipe and aluminum fin or steel pipe and steel fin are used, depending on the requirement. Heating and cooling coils are subjected to 20 bar leakage test after their production. The frames of the coils are made of stainless Cr-Ni or galvanized metal sheet. The coils can be easily intervened by removal of the side cover. Cooling coils of our central-station air handling units are equipped with condensation tray and drift eliminator.

Drainage trays used in all our central-station air handling units are produced of stainless Cr-Ni. As a standard when the steam pressure is under 4 bar, steam heating coils are produced as with thick-wall copper pipes and aluminum fins. And systems with a pressure under 4 bar are produced as dip galvanized and with steel spiral. They are also made of stainless metal sheet for special applications.

In central-station units, which will be used in the places with no risk, the heating and cooling coils are placed in a single cell. However, a plenum cell with a width of 600 mm must be placed in areas with the risk of freezing. That plenum cell will also facilitate the assembly of the plenum cell freezing thermostat.

Silencers

Silencers used in Alp central-station air handling units are placed after the fan and before the bag filter. And aspirator silencers are placed immediately before the aspirator. Aspirator silencers can be directly connected to the aspirator cabinet. However, in applications with radial fan, a plenum cell with the length of 600 m equipped with deflector must be placed between the fan and silencer, for an appropriate air distribution. In the cases where plug fans are used, there is no need for additional plenum. Deflector be placed into the fan cabinet. Interior surfaces of the silencer are produced of stainless metal sheet, in such a way as to ensure homogeneity with the other parts of the cabinet. Silencers are produced as with a 900mm, 1200mm, 1500mm, 1700mm and 2000mm.

Alp Package Type Hygienic Air Handling Units

Mat Type Humidifiers

In mat-type humidifiers used in Alp central-station air handling units, the process is carried out by evaporation. Since droplet is not carried, situations dangerous for the health are not created. The lengths of mat-type humidifiers are between 600 and 900 mm. Depending on your desire, plenums with the length of 600 mm can be placed at the outlet sides of the humidifiers for ease of maintenance and service.

Steam Type Humidifiers

Steam humidifiers used in Alp central-station air handling units are classified in two types, as the ones producing the steam by themselves and the ones using the existing steam. If there is a sufficient amount of steam in the place to be acclimatized is available, the condensed water in the steam is separated and sprayed in the form of dry steam to the acclimatized air, and thus, the humidification process is carried out. With a 2-way motorized valve mounted on the steam injection nozzle, the desired humidity level is controlled proportionally or in two positions. The lengths of steam humidifiers vary between 600 mm and 1200 mm, depending on the desired efficiency and weather conditions. And in the places where steam is not available, humidifiers that can produce their own steam by evaporating the water through the electrodes can be used.

Double-Coil Type Heat Recovery

Double-coil heat recovery systems used in Alp central-station air handling units are made by placing one of the two heat exchangers with finned pipe into the exhaust unit, and placing the other on the inlet of the fresh air unit. By means of a heat pump, the heat-conveying fluid is circulated through the coils. With the heat gained by heating the fluid passing through the exhaust unit is used to heat the fresh air by the heat exchanger. In the places where the outside air temperature is higher than 0 °C, water can be used as the heat-conveying liquid. However, when the places where the outside air temperature is lower than 0 °C, ethylene-glycol mixtures in certain proportions up to 40% are used to eliminate the risk of freezing. In the cases where the temperature at the fresh air outlet of the heat recovery coil is lower than 0 °C, the heat-conveying liquid is used with an automatic defrost system, in order to prevent freezing on the surfaces of the heat-conveying coil in contact with the air. If there is a risk of surface condensation in the heat recovery coil at the exhaust side, condensing vessel is used. In addition, drift eliminator is used for the air velocities higher than 2.5 m/sec.

Plate-Type Heat Recovery

With their efficiencies up to 70%, plate-type heat recovery systems used in Alp central-station air handling units provide more heat recovery in comparison with the double-coil systems. However, single or two-storey central-station air handling units are used instead of classical central-station units, in order to implement plate heat recovery systems to air handling units. Plated heat exchangers with butt and by-pass dampers are used in heat recovery systems when the outside air temperature is lower than 0 °C, due to the risk of clogging caused by frost on the surfaces at the exhaust air side. In such a case, a two-position servo-motor is used to drive the dampers. When a pressure loss increase signal is given by the differential pressure switches due to clogging, the butt damper is closed and by-pass damper is opened to melt the ice. When the pressure loss returns to normal, the dampers are turned to their previous positions by means of the servomotor.

Rotary Drum Type Heat Recovery

Rotary drum type heat recovery devices used in Alp central-station air handling units are produced of rotary type heat recovery rotor that rotates in the cell. The rotor is rotated by a motor and belt-pulley mechanism. Its specially designed carcass cell is made of aluminum that is protected against sea water. It is also manufactured from galvanized steel. The rotor is made of alternating flat and corrugated aluminum fins.

The heat recovery devices used in Alp central-station air handling units are determined depending on the structure of the central-station unit, manufacturing criteria and requirements.

Dampers

Air dampers used in Alp central-station air handling units are produced of specially extruded aluminum profile cases and fins having an aerodynamic structure. Structure of damper fin and cassette are made of aluminum. Air leaks are minimized by using gaskets at the fin edges. Damper fins are connected to fiber glass reinforced plastic gears. Dampers work sensitively and without space. They are controlled manually or by servomotor.

Damper gears used in Alp central-station air handling units have been designed in such a way as not to contact the air and hidden with special aluminum profiles, for protection against the external factors such as dust, contamination etc.

Electric Motors

Three-phase asynchronous squirrel cage electric motors with the protection class 1P55 are used in Alp central-station air handling units. Generally the motors used are single-speed motors but two-speed motors can be used as well, upon special demands. Electric motors are placed on special motor bases with tension mechanism.

Electric Heaters

Electric heaters used in Alp central-station air handling units are used for support purpose or for low heating loads. Electric heaters are preferred particularly in the places where it is difficult to heat the air by known methods or where the filters and serpentines are required to be protected against freezing. Electric heater elements used in Alp central-station air handling units are made of stainless steel sheet, and their frame is made of galvanized steel sheets. As a standard, electric heaters are equipped with automatic-reset limit thermostat and manual-reset safety thermostat. Their protection class is IP43. Electric heater is energized only when the fan runs. The required measures have been taken to cut energy when the fan does not run. In our electric heaters with a capacity higher than 30 kW, the fan runs for 2-3 minutes after any power failure, and reduces the heat remained on the electric heater, in order to eliminate the risk of any possible fire.

Selection Program for Alp Central-Station Air Handling Units

As the software intended for the selection of Alp central-station air handling units, ALPAIRCOMFORT allows for selecting the central-station air handling units and designing their all kinds of applications in a Windows-based process. With the software ALPAIRCOMFORT intended for the selection of central-station air handling units, it is extremely easy and fast to select the central-station air handling that has the desired features.

Alp Automatic Control Systems

Alp automatic systems is offering Engineering services in hospitals, shopping centers, educational establishments, sport complexes, factories, warehouses, energy installations and every place which needs air comforts in addition to software and hardware solutions including programming.

It is possible to provide comfortable and safe atmosphere with less energy and work power by handling an automation technology. With Alp automation systems temperature, flow, pressure, humidity and air quality can be easily controlled and the required reports tables or graphics could be supplied.

Alp automatic control systems comprises software and hardware solutions in order to run all HVAC equipment's automatically that needed in cooling heating, air ventilations and air conditionings and all related systems.

The goal of Alp automatic control systems is to carry out the services of automatic observing, operating, control and reporting, energy productivity works with energy saving in connection with air-conditioning equipment's inside the building. Additionally handling the integration of the available systems via the protocols in the automatic systems.

Taking the using of energy saving as a fundamental in Alp automatic systems a data input and output can be obtained. To reach the required comfortable level the system integration is brought to the needed cycle. Our automatic systems provide the maximum level in energy saving in cooling and heating centrals, cooling groups, boilers, pumps and similar all HVAC systems in summer and winter conditions. In the meantime it provides the easy handling to the operator. When the system is handled the adjustment of temperature and time programming to the real using time and when it was not handled putting the system off will save a large scale of energy.

Alp control systems has control units and a large scale of production of a modular designs which are in compliance with applications of all HVAC that shows diversities according to the need of the comfortable atmosphere. Alp automation systems plans the control systems of HVAC of multi direction, low cost and that provides energy saving and also provides to put these systems in a quick cycle. The sensitive controls in our automation systems will provide an ideal temperature atmosphere and will remove the unnecessary processing adjustment for the set values. It should be kept in mind a decrease of only 1 °C in set value will save energy in the percentage of 5% - 6% .

In the result of long experience and comprehensive research our automatic systems are showing a great evolution. Alp automation systems have a long lasting using infrastructure. If necessary unlimited joints can be added to our automation systems or can be integrated with different technologies. Alp automation systems is in a characteristics that carry your requirements for long lasting years.

Alp air conditioning centrals are applicable in automatic control systems of all models.

ALPMED - HYGIENIC AIR HANDLING DEVICES

DEVICE TYPE	Un-Recoverable Heat				Heat Recoverable			
	ALPMED 101S	ALPMED 102S	ALPMED 103S	ALPMED 104S	ALPMED 101C	ALPMED 102C	ALPMED 103C	ALPMED 104C
Flow of Air Ventilation	2500	5000	7500	10000	2500	5000	7500	10000
Ventilation	1250/750	1250/750	1500/850	1500/850	1250/750	1250/750	1500/850	1500/850
Motor Power Ventilation	1,5	3	5,5	7,5	1,5	3	5,5	7,5
Flow of aspirator	2500	5000	7500	10000	2500	5000	7500	10000
Aspirator	750/550	700/500	750/500	750/500	750/550	700/500	750/500	750/500
Motor Power Aspirator	1,1	2,2	4	5,5	1,1	2,2	4	5,5
Cooling Capacity	30	65	95	125	30	65	95	125
Number and type of the Compressor	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL	2 AD.-SCROLL
Sound Level	69	68	70	72	69	68	70	72
Electrical Heater	30 KW / 2 KD.	60 KW / 2 KD.	90 KW / 3 KD.	120 KW / 3 KD.	30 KW / 3 KD.	60 KW / 2 KD.	90 KW / 3 KD.	120 KW / 3 KD.
Water Heater	30,5	61	91,5	121	30,5	61	91,5	121
Water Heater Connection Diameter	1"	1"	1 1/4"	1 1/4"	1"	1"	1 1/4"	1 1/4"
Capacity of Steam Humidor	15	35	45	55	15	35	45	55
Electrical Power of Steam Humidor	11,25	26,25	33,75	41,25	11,25	26,25	33,75	41,25
Heated Electrical Power	53	110	162	214	53	110	162	214
Un-Heated Electrical Power	23	50	72	96	23	50	72	96
Dimensions								
Length	2415	2350	2795	3075	1550	1550	2300	2585
Height	1000	1065	1305	1455	1450	1450	1700	1855
Depth	2130	2260	2390	2690	2650	2650	3050	3350
Weight	1000	1050	1250	1660	1180	1180	2100	2410

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.

“ f o r a g o o d a i r ”

alperen.com.tr



alperen[®]
ENGINEERING

alperen.com.tr

Mahmutbey Cad. ☎ +90 212 503 35 36

No: 114 📞 +90 212 503 18 77

Şirinevler / İSTANBUL 📧 alperen@alperen.com.tr