



**PRODUCT RELEASE  
FOR IMMEDIATE RELEASE**

**For additional information, please contact:**  
Earthship USA, Inc. (US Division)  
PH: (510)659-0641  
info@earthshipusa.com

## **AIRS™ AIR CYCLE REFRIGERATION SYSTEM**

### **First Commercially Available Air Refrigeration System**

Tokyo - Japan, December 16, 2003 – Earthship Co., Ltd. introduces AIRS50, the first commercially available air cycle refrigeration system that produces air as low as -60°C (Centigrade) / -76° F (Fahrenheit). AIRS50 is a state-of-the-art air cycle refrigeration system that utilizes only air, therefore, it is both CFC (chlorofluorocarbon)/ freon free and ammonia free. It is completely devoid of any CO<sup>2</sup> emission and other harmful chemicals that cause ozone layer depletion. AIRS50 is a safe and cost-effective alternative for temperature reaching -30°C and below and is designed with the intention to protect and safeguard the future of our planet without sacrificing the power of modern technology.

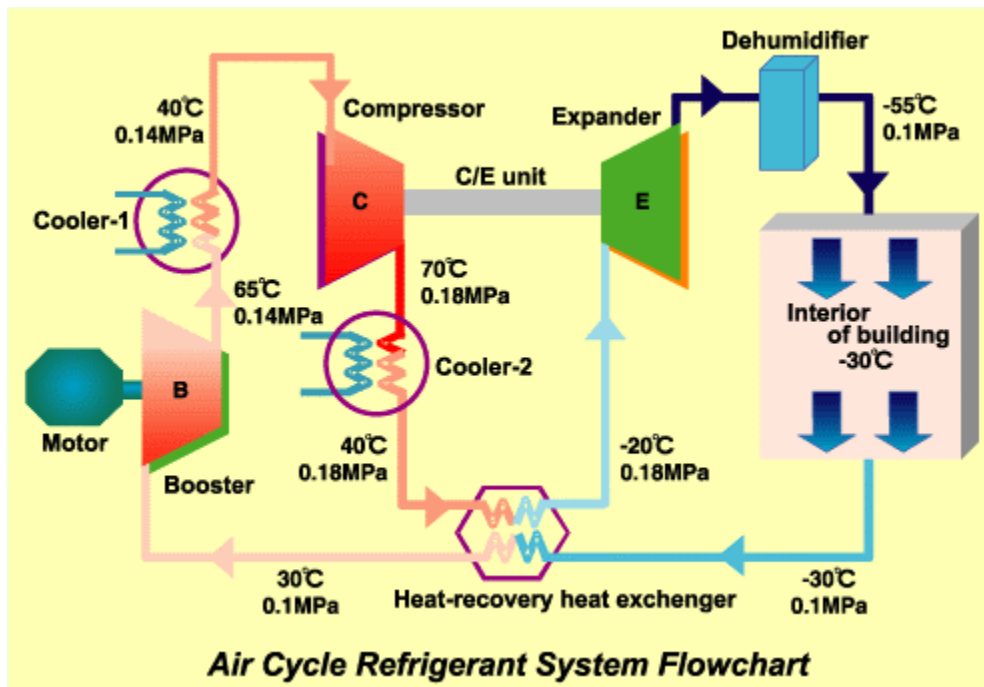
AIRS50 is available in two models: AIRS50-30 is the 5 USRT unit producing air at -30°C/-22°F and is available in March 2004 and AIRS50-60 is the 5 USRT unit producing air at -60°C/-76°F to be released in July 2004.

AIRS50 is an air cycle system comprised of few but highly advanced components (turbine, booster, heat exchanger, defroster and controller) that significantly reduce installation time and maintenance costs.

AIRS50 does not use any CFC-related or other substitute coolants that cause environmental hazards, making it perfectly safe when leakage occurs. The maximum pressure inside the refrigeration system is less than 2 atmospheric pressure, therefore extra safety precautions and regulatory measures are not required. Defrosting process is also unnecessary inside the warehouse.

- More -

With patented technology, the system is capable to producing very low temperature efficiently by initially having air sucked in from the refrigerated room by the booster compressor. (See flowchart illustration below) The incoming air first goes through the heat-exchanger to remove some heat from the air going into the expander turbine; the pressure is then raised by the booster compressor and then cooled before going to the second compressor which raises the pressure further along with the temperature; then the heat-exchanger is used to lower and temperature along with pressure increase; having further cooled in the heat-exchanger; air then gets expanded in the turbine to a very low temperature; then lastly condensation is removed before injected into the refrigeration facility.



AIRS50 measures at approximately 2m Width x 2m Depth x 2.2m Length (6' 5" W x 6' 5" D x 7' L). Not only is the system easy to maintain, it does not require the extra step of replenishing the refrigerants. At less than 2 atmospheric pressure, running cost

-more-



is greatly reduced and poses zero risk of contaminating the refrigerated goods and pollute the atmosphere.

AIRS50 can be utilized in various industries such as refrigerated / frozen warehouses, grocery delivery centers, ship containers, air cargo, rapid-food freezing, pharmaceutical production, and air-conditioning systems. Air Cycle systems in general also produce a great amount of heat for hot water, which is applicable in areas such as hotels, hospitals, and leisure centers where hot water service is needed.

By contrast, using air cycle, supersaturated air at chill temperatures can be produced, extending the range of conditions and enabling greater overall cost savings than when using rapid chilling, without damaging product quality. The new advancement in turbine technology coupled with the development of compact heat exchangers and other unique components set the foundation of AIRS50, making it a highly desirable and competitive refrigeration system in the market today.

###

**Send sales leads to:**

Earthship USA, Inc.  
4160 Technology Drive  
Fremont, CA 94538  
PH: (510) 659-0641  
Fax: (510)440-8043  
[info@earthshipusa.com](mailto:info@earthshipusa.com)