



ERV- PAC Packaged Air Conditioning XES Swim Pool Unit



Manufactured
by Armcor

Overview

The Armcor XES series provides packaged air conditioning and energy recovery for indoor swimming pool areas and other corrosion-prone environments like coastal areas. Designed with the specific need to overcome condensation and the corrosive nature of the air processed, the XES unit includes corrosion-resistant panels, fans, coils and heat-exchange media. The unit configuration suits external rooftop or plant room applications.

CORROSION PROTECTION

Components

1.0 Panel (Internal)

Armcor units use Colorbond Panel Casing which are 0.6mm powder coated galvanized steel sheets surrounding an insulating foam layer. Pool units or those with near-ocean applications have air streams with high humidity, chlorine and/or salinity content which increases the risk of corrosion of the unit compartments.

All surfaces exposed to the airstream are coated with a Promek AMC anti-corrosion layer. Promek AMC coating is environmentally friendly, maintains cooling efficiency and is proven to double the life of key components. The coating maintains a smooth airflow and keeps the unit at optimum performance levels by maintaining heat exchange. Promek AMC coating passes ASTM B117 up to 10,000 salt-spray hours.



2.0 Coils

Coils carry water or refrigerant of high and low temperatures and are likely to collect condensate on the surface. To protect the coils from corrosion and to increase their lifetime, coils are coated with a layer of Promek AMC or THAN Super Coat.

2.1 Promek

Coils are coated with Promek AMC. Promek's coating prevents moisture from accumulating on the coil which eliminates the risk of a breeding ground for bacteria and mould.

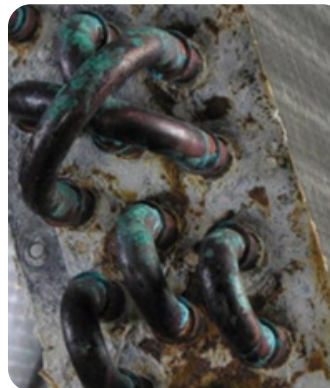
Promek AMC coating Test Data

Property	Tests	Promek AMC
Salt Spray	ASTM B117	Exceeds 10,000 hours
Salt Spray Acidic	ASTM G85 A1	Exceeds 3,000 hours
Water Immersion	ASTM D870	500 hours minimum
Cross Hatch	ASTM 3359	5B
UV Resistance	ASTM D4587	Exceeds 1,000 hours
Flexibility	ASTMD522M	PASS
Thermal Conductivity	ASTM E1225	2.6 W/MK
CS Condensation	ISO 6270	PASS
CS Chemical Resistance	ISO 7523	PASS
Pressure Drop		< 1%
Viscosity (Krebs, KU)		93 – 98
Viscosity (Centipoise, cP)		1300 – 1500
Solids % by :volume/wt		30.00% / 50.00%
Density		1.2138 kg/L
pH		8.8 – 9.5
Gloss at: 20°/60		65/92
VOC		165g/L
Flash Point		Water-borne/non-flammable
DFT		20 microns
Coverage (Coil Face)		15m ² /L
Application temperature		Apply at above 5°C

Promek coating on coil



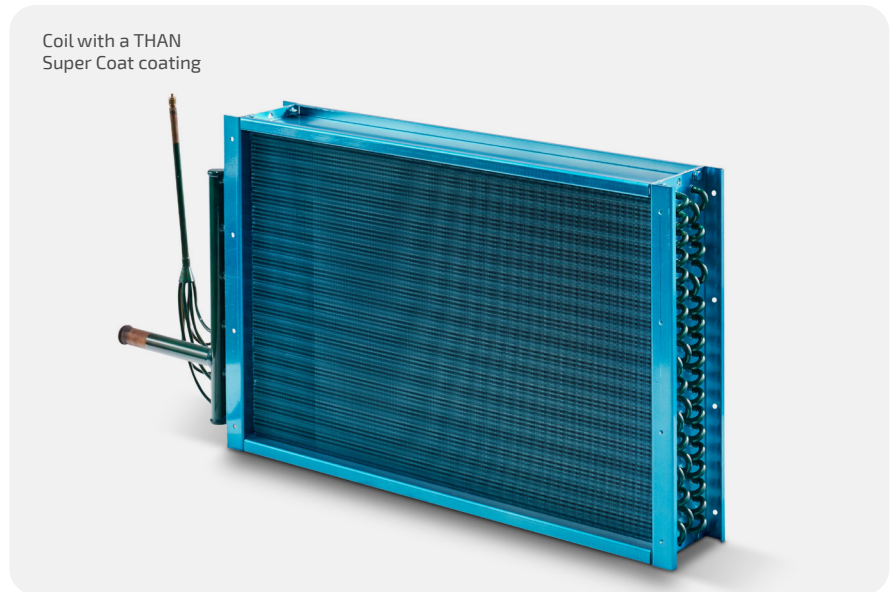
Promek non-coating on coil



Source: Promek Technologies (<https://promektechnologies.com.au/promek-amc/>)

2.2 THAN Super Coat

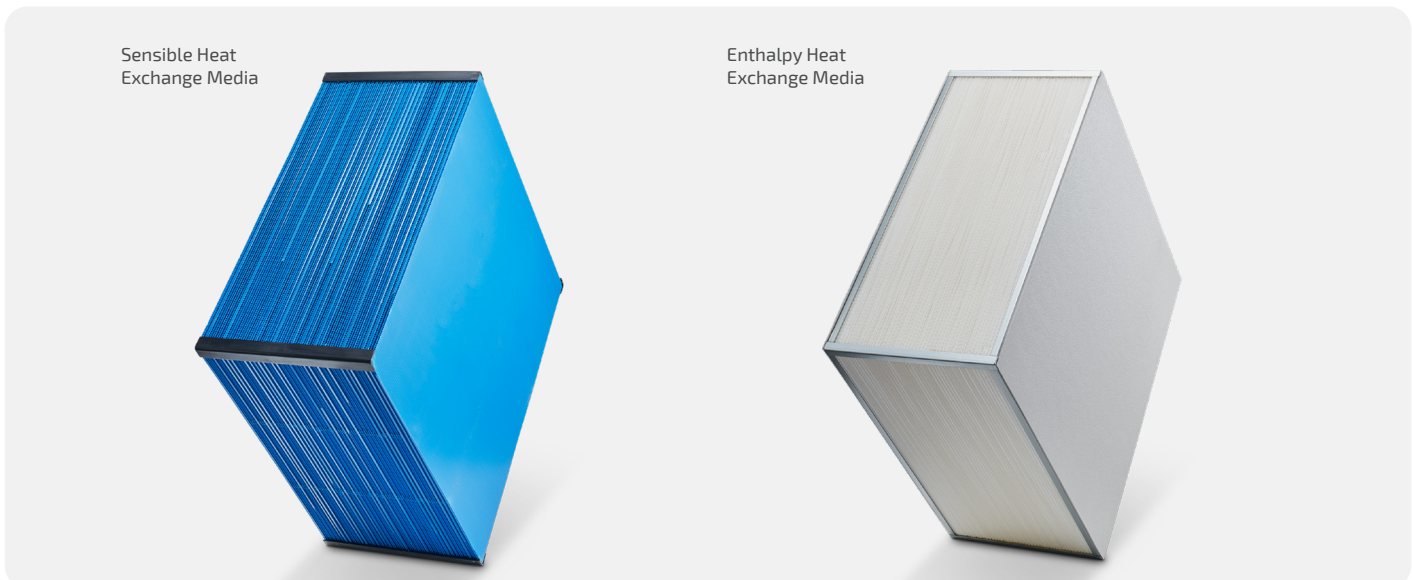
THAN Super Coat is a hydrophobic coating which increases condensed water flow on the coil surface, reduces dust and dirt, and resists corrosive environments. It also has Silver Ion Coating diminishing mould and bacteria build-up on coils, making the coils free from contamination of microbes. THAN Super Coat is tested according to ASTM B117 Neutral Salt Spray Test for up to 5,000 hours and ASTM G85 Acidified Salt Spray for up to 2,000 hours. Suitable applications include HVAC units for industries producing high corrosive substances, and the food and beverage industry.



Source: THAN (<https://en.thaiausnor.com/heat-custom>)

3.0 Heat Exchange Media

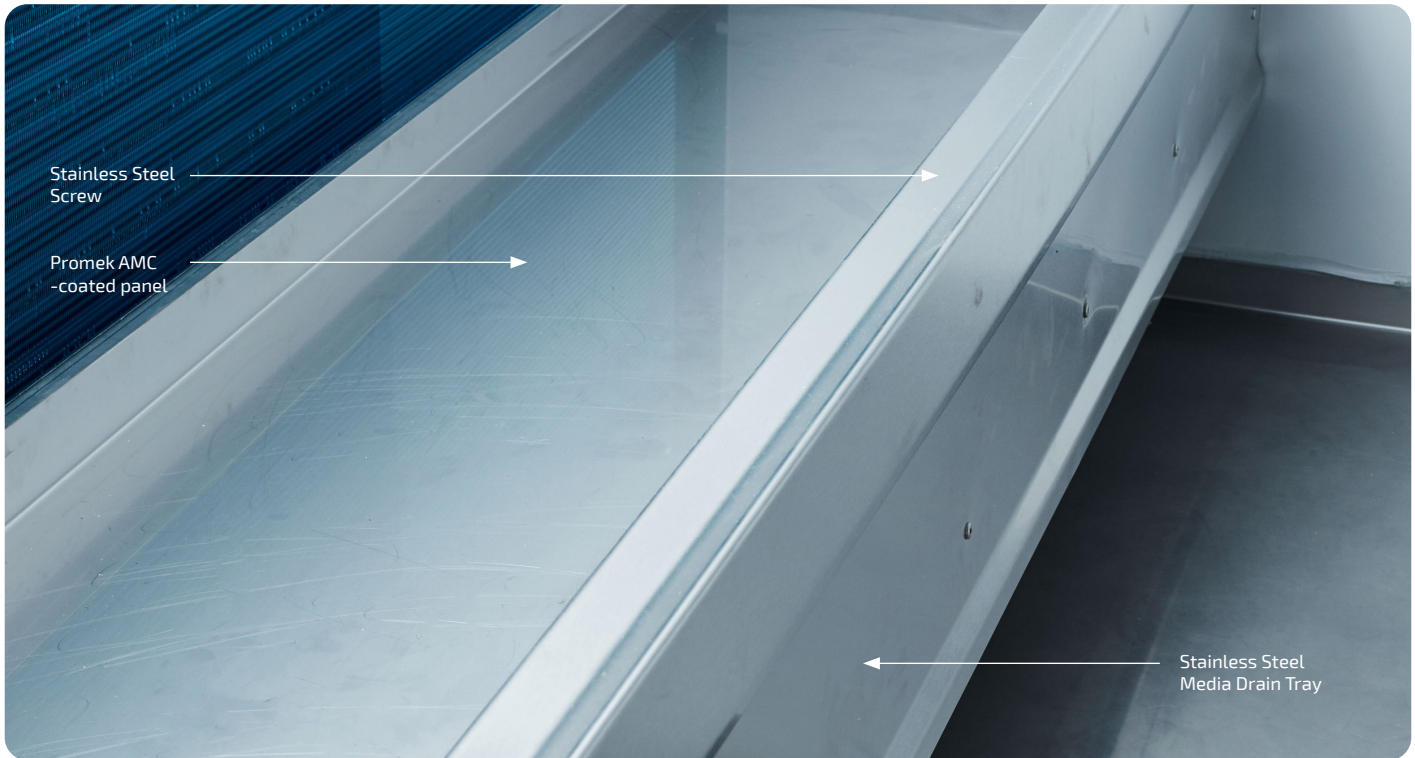
Polypropylene Heat Exchange Media is used for energy recovery to provide absolute separation of air and helps to reduce indoor humidity levels. Polypropylene sensible media has excellent properties that withstand condensation and corrosive air, for example, air with a high chlorine content. Applications include bathroom/toilet exhaust and indoor swimming pool.



Source: Armcor (<https://armcor.com.au/components/heat-recovery-media/>)

4.0 Drain Trays, Fixings and Fittings

All drain trays, mechanical fixings and fittings in Armcor units use 316 Stainless Steel. It is a highly heat-resistant grade and offers high resistance against corrosion and pitting. Suitable applications include environments exposed to moisture and corrosive chemicals.



Inside Armcor unit with Promek AMC coating and stainless-steel drain tray and screws

5.0 Fans

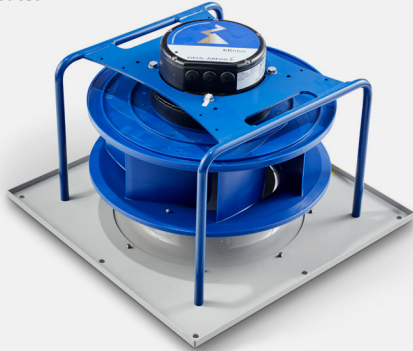
Armcor units which have applications in corrosion-prone environments use H2+S KTL coated fans. H2+S KTL coated fans have a permissible relative humidity of 100% and are tested to a salt spray exposure of up to 720h. All fans undergo electrophoretic painting by dipping which results in a uniform coating thickness down to the smallest cavities, corners and capillary openings and offers excellent corrosion protection. KTL dip painting offers optimal surface refinement for all metals, insulation effect preventing electrical attraction of the workpieces and very high impact resistance. It is in accordance with the ISO 9001 and ISO 14001 standards. Applications include swimming pools and coastal areas.

Fan component materials

Component	Material
Electronics housing	Die-cast aluminium
Impeller	Sheet aluminium
Support plate & inlet nozzle	Sheet steel, galvanized
Support bracket	Steel, painted black
Coat	H2+S KTL

CORROSION PROTECTION

EC Centrifugal Fans
H2+S KTL coated



EC Centrifugal Fans
H2+S KTL non-coated



Source: ebmpapst (<https://www.ebmpapst.com/au/en/home.html>)

6.0 Optional External Corrosion Protection

6.1 External Coating

Units which are prone to corrosion externally undergo a polyurethane coating process. The polyurethane layer protects the units from various types of defects such as corrosion, weathering, abrasion and other deteriorating processes and has outstanding durability.



Externally coated panel



Externally non-coated panel



Externally coated Armcor unit



Fresh Air Indoors

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