Heating and cooling

Basic needs in many industries

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Drivers & trends

- Fast-growing markets will serve as key growth engines
- Rising energy costs, need for energy efficiency
- Modernisation & replacement
- Environmental concerns demand for energy efficiency
Global heat exchanger market 2009

Total HE 9,600 M€

- Shell & Tube 29%
- Others 11%
- Cooling Towers 16%
- Air Coolers 22%
- Plate HE 22%

Plate HE 2,100 M€

- Brazed 17%
- Gasketed 62%
- Welded 21%

Source: GIA market report 2010
Design pressure and temperature

Shell & tube

Packinox

AlfaDisc

AlfaRex

Compabloc

Brazed

Semi-welded

Gasketed

AlfaNova

Spiral

Pressure (barg)

Temp (°C)

-300 -160 -120 -50 0 160 225 350 400 550 600 700

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The advantages of the plate heat exchanger

- Low investment cost
- Low installation cost
- Low space requirement
- Low maintenance cost
- Flexible design
- High reliability

Which means PHE is increasingly taking market share
Heat exchanger types
The technology shift

2009
- Shell & Tube: 29%
- Cooling Towers: 16%
- Air Coolers: 22%
- Plate & Frame: 22%
- Others: 11%

2015
- Shell & Tube: 26%
- Cooling Towers: 16%
- Air Coolers: 23%
- Plate & Frame: 23%
- Others: 12%

... and this is expected to continue

Source: GIA Market report 2010
Plate heat exchangers
Different versions

- Welded: 17%
- Brazed: 21%
- Gasketed: 62%

Welded
Brazed
Gasketed

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Gasket plate heat exchangers

Market 1,300 M€

Source: GIA Market report 2010
Plate heat exchangers
– flow principle
Applications

District/Central cooling

Wet crude oil treatment

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Brazed plate heat exchangers

Market 450 M€

Source: GIA Market report 2010
The brazed & bonded plate heat exchanger

* For higher temperature duties

Fusion bonded

Copper brazed

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Typical applications

Heat Pump

Refrigeration

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Welded heat exchangers

Market 350 M€

Source: GIA Market report 2010

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Semi welded PHE – usage

* When one medium is hostile to gasket materials
Applications

HVAC cooling  Gas compression  Supermarket cooling
Compabloc – welded and accessible

* For higher pressure duties
Applications

Gas processing

Chemical processing
For higher pressure and temperature duties
Applications

Refinery

Petrochemical plant

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Spiral heat exchangers

For duties containing fluids with particles

- A fully welded heat exchanger for tough process duties.
- Has an open channel, suitable for slurries and fluids containing particles.
- Is adaptable, to suit condensing duties.
Applications

Steel plant

Paper mill

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Air heat exchangers

Continuous Development

- 1976 Artec Start
- 1990 Artec acquired
- 2007 Helpman acquired
- 2007 Fincoil acquired
- 2008 AHE production in Bulgaria
- 2008 AHE production in India
- 2010 AHE expansion in Russia

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How it works

Applications

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Shell & tube for refrigeration

HVAC

Marine

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Focus on R&D

* Investment (2009): MSEK 654 = 2.5% of sales
* 290 engineers and technicians
* 35-40 new products annually
* More than 300 patents related to own products

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