AIR-TO-WATER REVERSIBLE HEAT PUMPS CXAF

290 – 700 KW
CXAF joins Trane’s growing family of heating solutions.
At Trane, we believe in electrification of heating as an important global contributor to mitigate climate change and reduce carbon footprint.

**CXAF**
Air-to-water Scroll heat pumps
CXAF 280-700 kW

**CXCM**
Air-cooled Scroll indoor heat pumps
CXCM 62-327 kW

**FLEX**
Air-cooled Scroll heat pumps
FLEX 38-3000 kW

**CONQUEST**
Air-cooled Scroll heat pumps
CONQUEST CXA/CXAX/CXAM 14-327 kW

**XSTREAM**
Water-cooled Screw heat pumps
XSTREAM RTWD/RTWF 231-2037 kW

**BALANCE**
Multi-pipe units Scroll and screw
BALANCE CMAB/RTMA 50-880 kW

**CGWH/CGWN**
Water-cooled Scroll heat pumps
CGWH 50-375 kW

**AIRFINITY**
Packaged rooftops Scroll Gas burner, heat pumps, dual fuel
AIRFINITY 38-290 kW

**SINTESIS ADVANTAGE**
Air-to-water Scroll heat pumps
SINTESIS CXAF 280-700 kW
CXAF joins Trane’s Sintesis™ air-cooled chiller and heat pump portfolio. Trane Sintesis™ represents industry leading performance and flexibility. Always striving for a perfect fit, not only to your building and application requirements but also to your sustainability and budget targets.
## WHY SINTESIS™ CXAF?

### CONFIGURABILITY

![Image](image1.png)

*Every building application has specific needs.* That’s why CXAF is built off a modular platform which allows you to configure a unit to your needs without significantly impacting delivery time.

- Efficiency level
- Acoustic packages
- Fan technology
- Hydraulic modules
- Heat recovery

### RELIABILITY

![Image](image2.png)

*Reliability is a Trane guarantee.* CXAF have undergone years of performance testing, even in severe weather conditions, to ensure that every single component is built to last. All units are tested prior to leaving the factory.

- Proven Sintesis™ components
- 3 R&D facilities
- Factory compliant with latest ISO standards
- Eurovent certification

### EFFICIENCY

![Image](image3.png)

*Low consumption, reliable performance and comfort* are our key design criteria. Trane Engineering has optimized the defrost management and redesigned the refrigeration circuit to achieve best-in-class performance.

- Up to 20% improved efficiency vs. legacy products
- Class A or B in heating
- Exceeding ErP 2016 requirements in heating
- Already compliant with ErP 2021 in cooling

### SUSTAINABILITY

![Image](image4.png)

At Trane, we believe in electrification of heating as an important global contributor to mitigate climate change and reduce carbon footprint.

- Air-sourced renewable technology
- Lower carbon footprint compared to fossil fuel technologies
- Less equipment needed to heat or cool a building
CXAF is built on Trane’s well-known Sintesis™ platform, which means it re-uses many of the same components and technologies with a proven reliability record. This guarantees a smooth operation and reliable comfort for your building users, while also facilitating the life of service technicians and keeping maintenance costs to a minimum.

**Fin & Tube heat exchanger**
Modular design in ‘V’ shape for maximum performance in a small footprint

**Hydraulic module**
Fully integrated for easy transportation and installation

**Tracer UC800**
Reliable controller platform with proven algorithms to ensure smooth operations and optimum defrost control

**Hat Booster**
Dedicated refrigerant circuit fully designed and manufactured by Trane for superior heating performance

**KEY CXAF FEATURES**

- Multi-speed outdoor fans
  Available with AC, EC and EC Axitop technologies
- Brazed plate heat exchanger
  Compact and proven design, used on CGAF platform
- Variable volume DSH scroll compressors
  Optimized for higher seasonal efficiency
- **EUROVENT CERTIFIED PERFORMANCE**
  [www.eurovent-certification.com](http://www.eurovent-certification.com)
- **Conto Termico 2.0**
  ErP Compliant
- **Ingersoll Rand.**
CXAF PRODUCT LINE-UP
SE AND HEAT VERSIONS

276 – 425 kW

<table>
<thead>
<tr>
<th>Size</th>
<th>Number of circuits</th>
<th>Compressors per circuit</th>
<th>Number of fans</th>
</tr>
</thead>
<tbody>
<tr>
<td>080</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>090</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
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<td>110</td>
<td>2</td>
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</tr>
<tr>
<td>130</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
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</table>

480 – 543 kW

<table>
<thead>
<tr>
<th>Size</th>
<th>Number of circuits</th>
<th>Compressors per circuit</th>
<th>Number of fans</th>
</tr>
</thead>
<tbody>
<tr>
<td>140</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>150</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>165</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

602 – 700 kW

<table>
<thead>
<tr>
<th>Size</th>
<th>Number of circuits</th>
<th>Compressors per circuit</th>
<th>Number of fans</th>
</tr>
</thead>
<tbody>
<tr>
<td>180</td>
<td>2</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>190</td>
<td>2</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

**10 base models, 3 cabinet sizes**

- **Length** 4520 mm
- **Width** 2200 mm
- **Height** 2526 mm

- **Length** 5645 mm
- **Width** 2200 mm
- **Height** 2526 mm

- **Length** 6770 mm
- **Width** 2200 mm
- **Height** 2526 mm
<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Fan</th>
<th>Ambient</th>
<th>Application</th>
<th>Sound</th>
<th>Hydraulics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>AC</td>
<td>Standard</td>
<td>Comfort</td>
<td>SN</td>
<td>Without</td>
</tr>
<tr>
<td>HEat</td>
<td>EC</td>
<td>Low ambient cooling</td>
<td>Process</td>
<td>LN</td>
<td>Single pump</td>
</tr>
<tr>
<td>XE*</td>
<td>EC + Axitop</td>
<td>Nordic*</td>
<td>PHR*</td>
<td>XLN</td>
<td>Dual pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HT*</td>
<td>NNSB</td>
<td>Buffer tank</td>
</tr>
</tbody>
</table>

* Available Summer 2019

**Wide range of options to fit your needs without compromise**
Trane Engineering has built on years of experience with CXAM, CXAX and CXAO heat pumps to bring forward the latest innovation in refrigeration circuit design.

The characteristic Sintesis™ ‘V’ shaped heat exchanger has been optimized to accelerate the defrost cycle, improving the unit reliability by minimizing compressor cycling and maintaining comfort for building user.

An innovative suction line gas heat exchanger (SLGHE), designed and built by Trane, combined with an electronic expansion valve and a meticulously tested software algorithm, allows the CXAF unit to achieve high performances in heating mode. The heat exchanger, located at the compressor inlet, increases subcooling and minimizes superheating in the evaporator, boosting the coil capacity through a higher enthalpy gain, without an impact on power consumption. Thus, the COP and SCOP increase on average by 12% compared to units without the Trane SLGHE system.

Additionally, the SLGHE system prevents any liquid from entering into the compressor, improving unit reliability.
## CXAF ACOUSTIC OPTIONS

<table>
<thead>
<tr>
<th>Option</th>
<th>Sound reduction</th>
<th>Description</th>
</tr>
</thead>
</table>
| LN       | - 3 dB(A)       | • Compressor jackets  
• Piping insulation                                                           |
| Extra Low noise | - 4 dB(A) | • Compressor sound enclosure  
• Piping insulation                                                            |
| Night noise setback | - 2 dB(A) | • Automatic lower fan speed based on external signal (e.g. occupancy sensor) |
## CXAF PRODUCT DATA
### SE AND HEAt VERSIONS

**CXAF Standard Efficiency (SE)**

<table>
<thead>
<tr>
<th>Net heating capacity (1) (kW)</th>
<th>190</th>
<th>180</th>
<th>165</th>
<th>150</th>
<th>140</th>
<th>130</th>
<th>110</th>
<th>100</th>
<th>090</th>
<th>080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total power input in heating  (kW)</td>
<td>209</td>
<td>196</td>
<td>179</td>
<td>166</td>
<td>156</td>
<td>139</td>
<td>127</td>
<td>109</td>
<td>98</td>
<td>86</td>
</tr>
<tr>
<td>COP net (1) (kW/kW)</td>
<td>3.04</td>
<td>3.07</td>
<td>3.02</td>
<td>3.06</td>
<td>3.09</td>
<td>3.05</td>
<td>3.08</td>
<td>3.17</td>
<td>3.17</td>
<td>3.20</td>
</tr>
<tr>
<td>Eurovent class heating</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Seasonal space efficiency, ℎ, (%)</td>
<td>126%</td>
<td>126%</td>
<td>126%</td>
<td>125%</td>
<td>125%</td>
<td>126%</td>
<td>125%</td>
<td>131%</td>
<td>132%</td>
<td>132%</td>
</tr>
</tbody>
</table>

**Statistics**

- Heating COP: 3.04 - 3.22
- Net Heating Capacity: 636 - 669 kW
- Total Power Input: 209 - 208 kW
- Seasonal Space Efficiency: 126% - 134%

**Cooling**

<table>
<thead>
<tr>
<th>Net cooling capacity (2) (kW)</th>
<th>190</th>
<th>180</th>
<th>165</th>
<th>150</th>
<th>140</th>
<th>130</th>
<th>110</th>
<th>100</th>
<th>090</th>
<th>080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total power input net (2) (kW)</td>
<td>227</td>
<td>209</td>
<td>195</td>
<td>180</td>
<td>164</td>
<td>152</td>
<td>134</td>
<td>117</td>
<td>102</td>
<td>87</td>
</tr>
<tr>
<td>EER net (2) (kW/kW)</td>
<td>2.74</td>
<td>2.81</td>
<td>2.71</td>
<td>2.77</td>
<td>2.85</td>
<td>2.74</td>
<td>2.84</td>
<td>2.86</td>
<td>2.99</td>
<td>3.16</td>
</tr>
<tr>
<td>Eurovent class cooling</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Seasonal space efficiency, ℎ, (%)</td>
<td>163%</td>
<td>163%</td>
<td>161%</td>
<td>161%</td>
<td>160%</td>
<td>162%</td>
<td>167%</td>
<td>173%</td>
<td>172%</td>
<td></td>
</tr>
</tbody>
</table>

**Statistics**

- Cooling EER: 2.74 - 2.73 kW/kW
- Net Cooling Capacity: 621 - 619 kW
- Total Power Input: 227 - 227 kW
- Seasonal Space Efficiency: 163% - 170%

**CXAF High Heat Efficiency (HEat)**

<table>
<thead>
<tr>
<th>Net heating capacity (1) (kW)</th>
<th>190</th>
<th>180</th>
<th>165</th>
<th>150</th>
<th>140</th>
<th>130</th>
<th>110</th>
<th>100</th>
<th>090</th>
<th>080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total power input in heating  (kW)</td>
<td>208</td>
<td>195</td>
<td>178</td>
<td>165</td>
<td>143</td>
<td>139</td>
<td>126</td>
<td>108</td>
<td>97</td>
<td>86</td>
</tr>
<tr>
<td>COP net (1) (kW/kW)</td>
<td>3.22</td>
<td>3.25</td>
<td>3.21</td>
<td>3.23</td>
<td>3.29</td>
<td>3.25</td>
<td>3.30</td>
<td>3.43</td>
<td>3.48</td>
<td>3.56</td>
</tr>
<tr>
<td>Eurovent class heating</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Seasonal space efficiency, ℎ, (%)</td>
<td>134%</td>
<td>132%</td>
<td>130%</td>
<td>129%</td>
<td>130%</td>
<td>136%</td>
<td>133%</td>
<td>144%</td>
<td>145%</td>
<td>146%</td>
</tr>
</tbody>
</table>

**Statistics**

- Heating COP: 3.22 - 3.22 kW/kW
- Net Heating Capacity: 669 - 619 kW
- Total Power Input: 208 - 227 kW
- Seasonal Space Efficiency: 134% - 170%

**Cooling**

<table>
<thead>
<tr>
<th>Net cooling capacity (2) (kW)</th>
<th>190</th>
<th>180</th>
<th>165</th>
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<td>227</td>
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<td>152</td>
<td>133</td>
<td>116</td>
<td>101</td>
<td>87</td>
</tr>
<tr>
<td>EER net (2) (kW/kW)</td>
<td>2.73</td>
<td>2.80</td>
<td>2.71</td>
<td>2.77</td>
<td>2.86</td>
<td>2.75</td>
<td>2.85</td>
<td>2.88</td>
<td>3.00</td>
<td>3.18</td>
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<td>Eurovent class cooling</td>
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<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Seasonal space efficiency, ℎ, (%)</td>
<td>170%</td>
<td>169%</td>
<td>167%</td>
<td>167%</td>
<td>169%</td>
<td>166%</td>
<td>169%</td>
<td>172%</td>
<td>179%</td>
<td>177%</td>
</tr>
</tbody>
</table>

**Statistics**

- Cooling EER: 2.73 - 2.73 kW/kW
- Net Cooling Capacity: 619 - 619 kW
- Total Power Input: 227 - 227 kW
- Seasonal Space Efficiency: 170% - 170%

With AC fans (for other options, refer to literature)