Lync Heat Pump Water Heating Solutions

February 24th, 2022

Presented By:
Brian Cummings, Product Manager

Lync by WATTS

Nearly 275 Years of Industry Expertise

Founded 1874

Founded 1949

Founded 1961

Available Technology Evolves

Individual HVAC/P Equipment

- Heater
- Storage
- Tempering
- Treatment

Packaged DHW Skids

- Pre-designed system
- Off-site build
- Components acquired & assembled by independent packagers

2021

Lync Engineered Solutions

Multi-component design approach fully utilizes equipment capabilities

Uniformed manufacturer engineering and application assurance

Single source sales & technical assistance support

Lync Portfolio

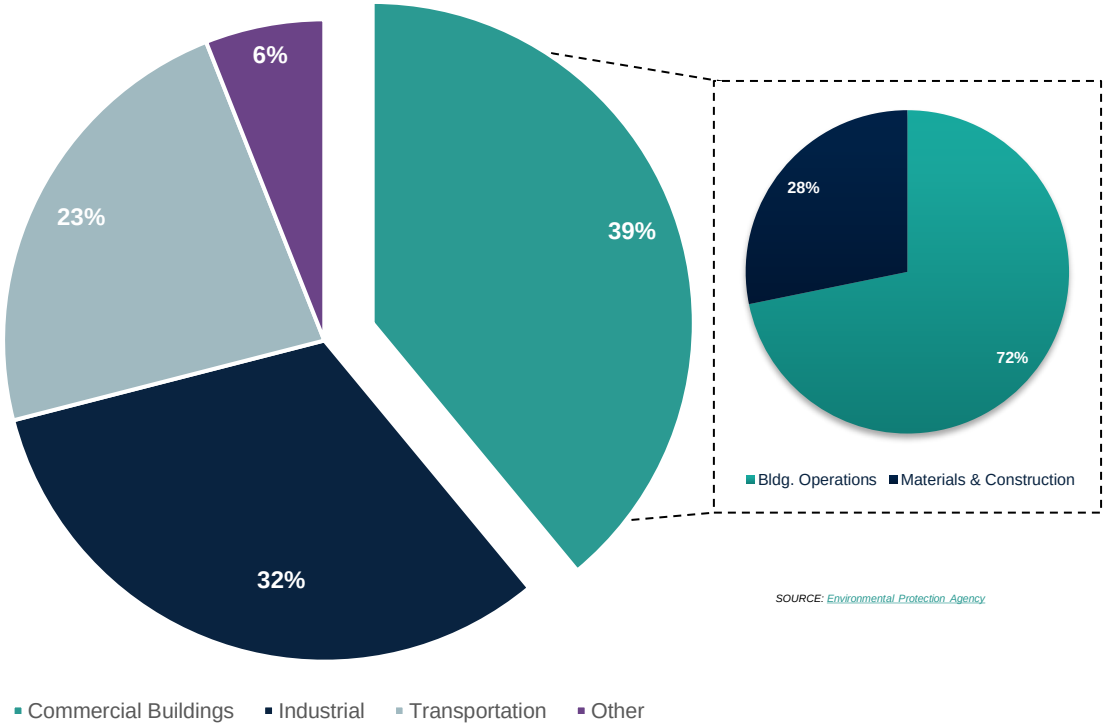
Lync

- Water Quality Solutions
  - WQ-AS
  - WQ-SF
  - WQ-UV
  - WQ-RS
- Water Heating Solutions
  - LC-Q
  - LC-N
- Heat Pumps
  - Aegis W
  - Aegis A
- Leak Detection
  - Trident
- Water Wellness
  - Element

THEDETECTIONGROUP®
Wireless Water Leak Detection

The Case for Heat Pumps

What's Driving Efficient Buildings?



SOURCE: Environmental Protection Agency

SOURCE: Center for Climate & Energy Solutions
State Climate Policy Network

What's Driving Electrification?

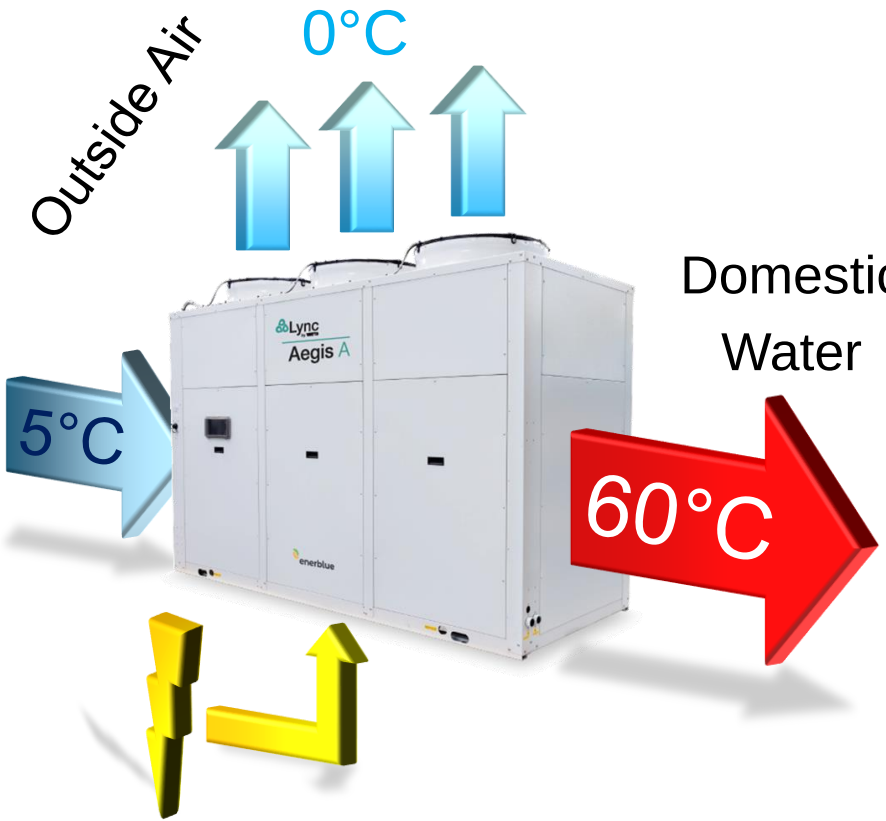
Electrical Power

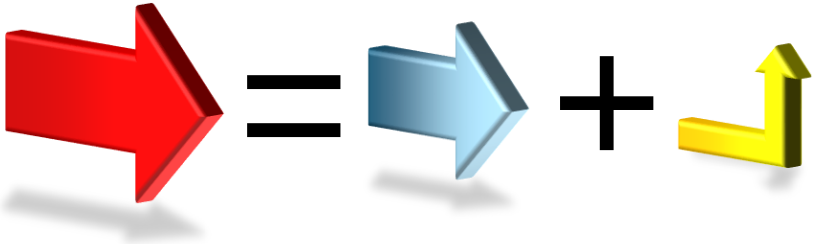
- Generated from diverse sources
- Highly transportable
- Largely future-proof

Electric Water Heaters

Watts offers a full line of electric water heaters and they are a part of the solution as well.

Heat Pumps





$$COP = \frac{Heat\ Out}{Electricity\ In}$$

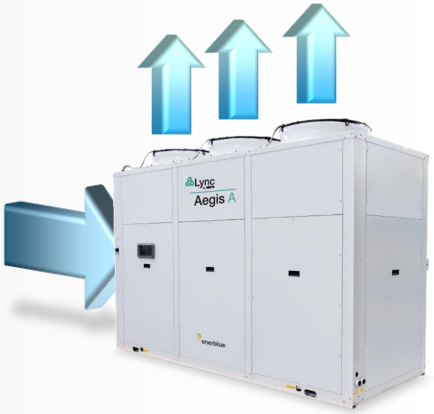
Thermal Energy Sources

Air Source

-20°C to 55°C

Lync by WATTS

Aegis A



Water Source

-10°C to 20°C

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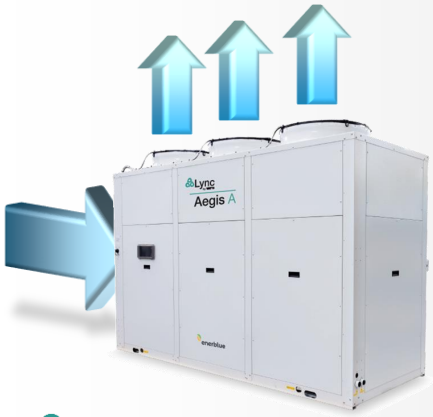
Aegis W

Heat Recovery



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Aegis C

A Brief History of Refrigerants

Natural
First Generation

ODP
Ozone Depletion Potential

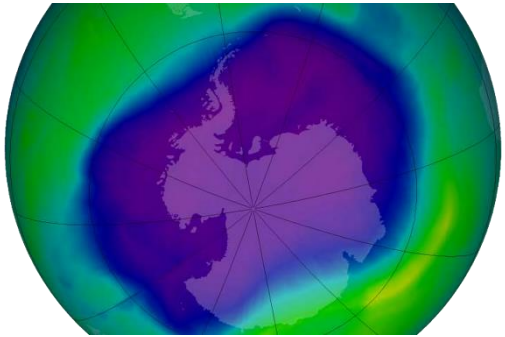
GWP
Global Warming Potential

1930

CFC
Chlorofluorocarbons

1994

2024

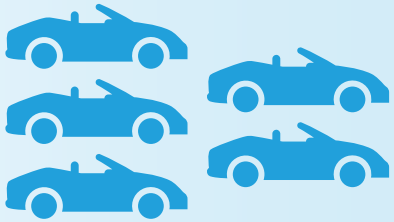


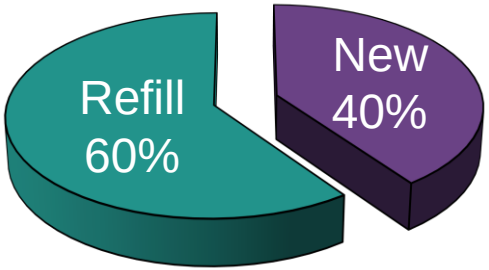
HFC
Hydrofluorocarbons

How Bad are Refrigerants?

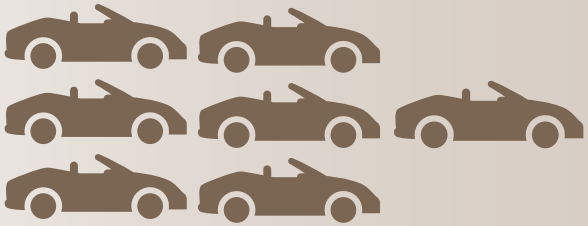
One car emits 10,000 lbs. of CO_2 per year

GWP = 1,430





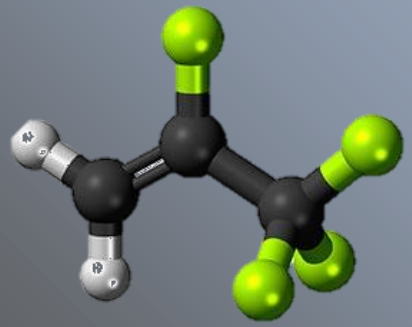
GWP = 2,088



10% of global warming to date is from refrigerants in the atmosphere.

Where Do We Go From Here?

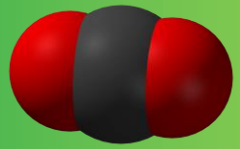
HFO
Hydrofluoroolefins



R-1234yf

2,3,3,3
Tetrafluoropropene

CO_2

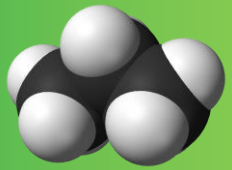


R-744a

Ammonia

R-717a

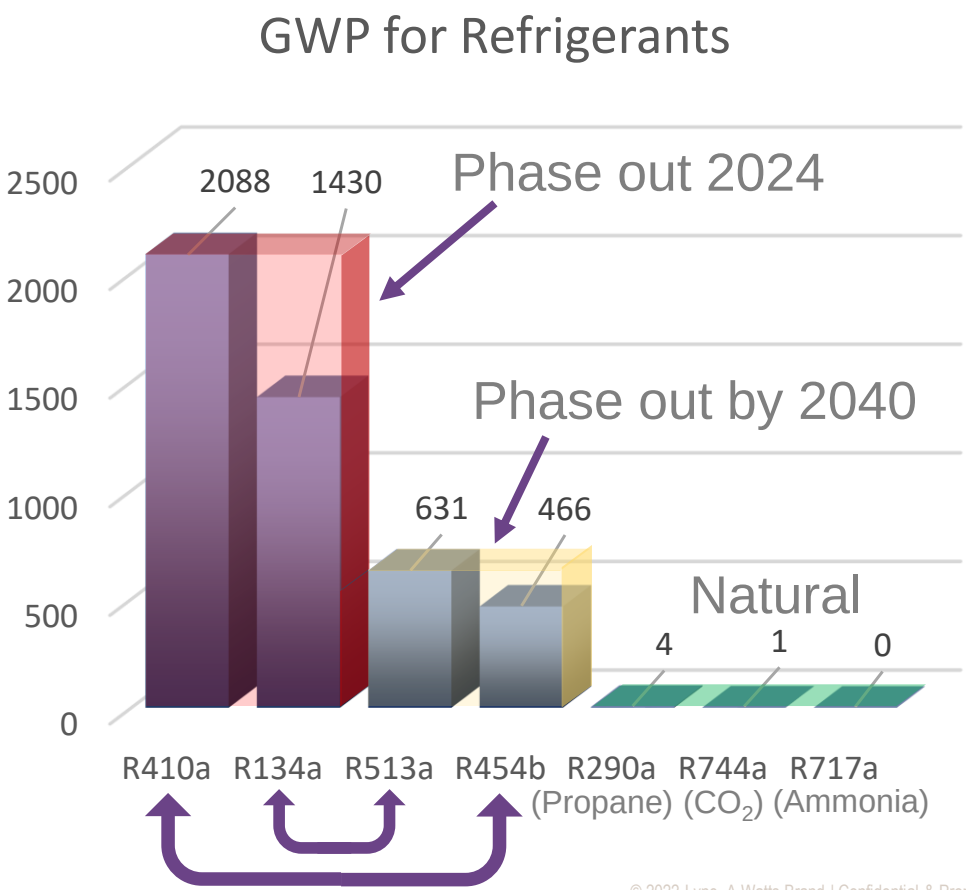
Propane



R-290a

Natural
Refrigerants

Refrigerant GWP



CO_2 Advantages:

- Nontoxic
- Nonflammable
- ODP = 0
- GWP = 1

Introducing Aegis

Lync by WATTS

Aegis W

Aegis A

Commercial heat pumps for domestic hot water

70 – 150 kW (250,000 – 500,000 BTH)

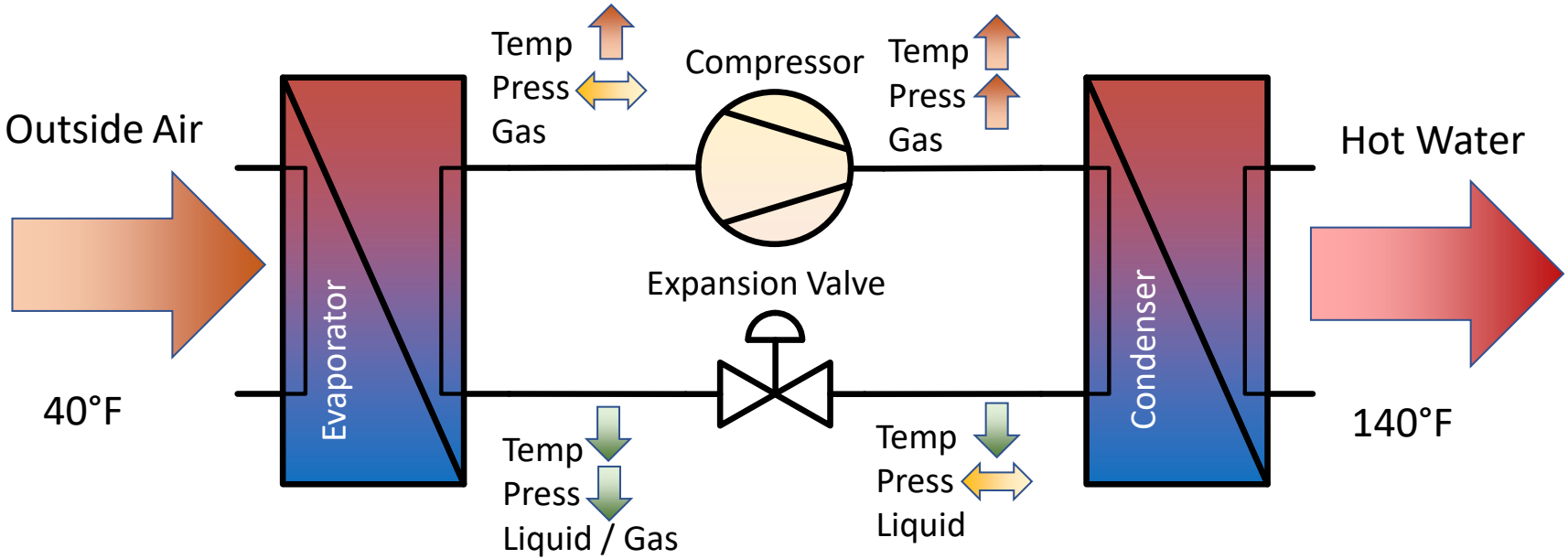
Water and Air source units

-20°C minimum outdoor air temperature

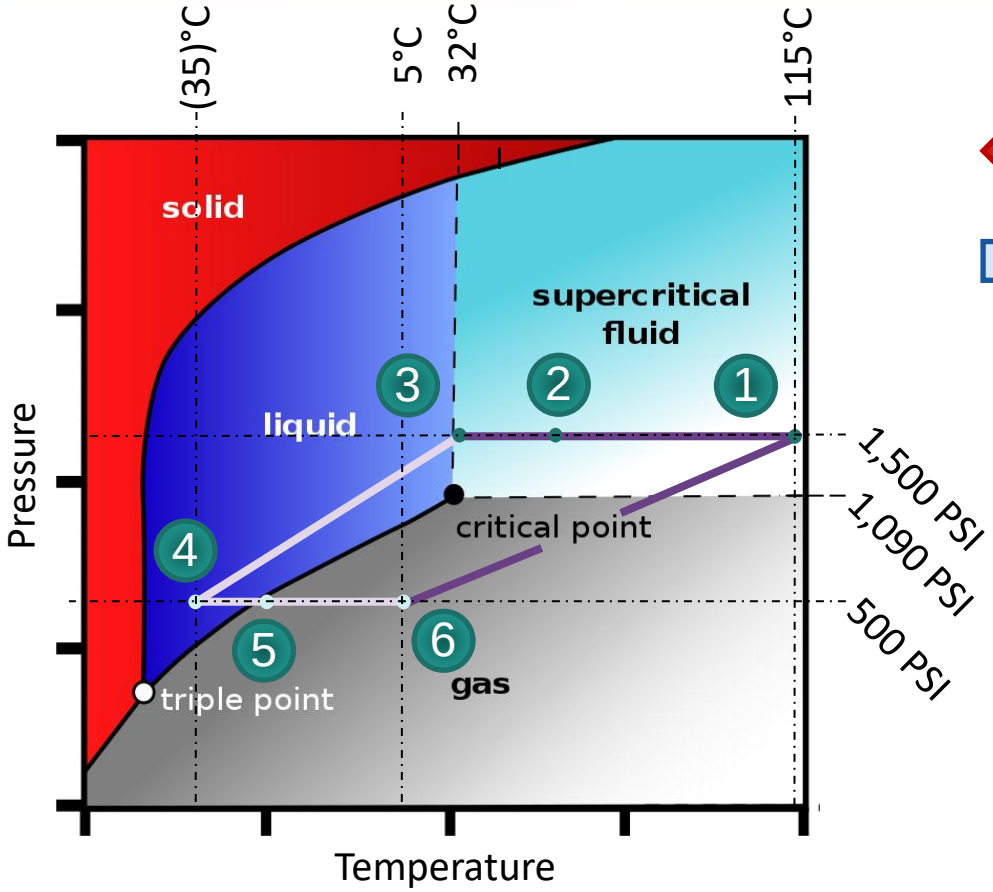
85°C maximum hot water output

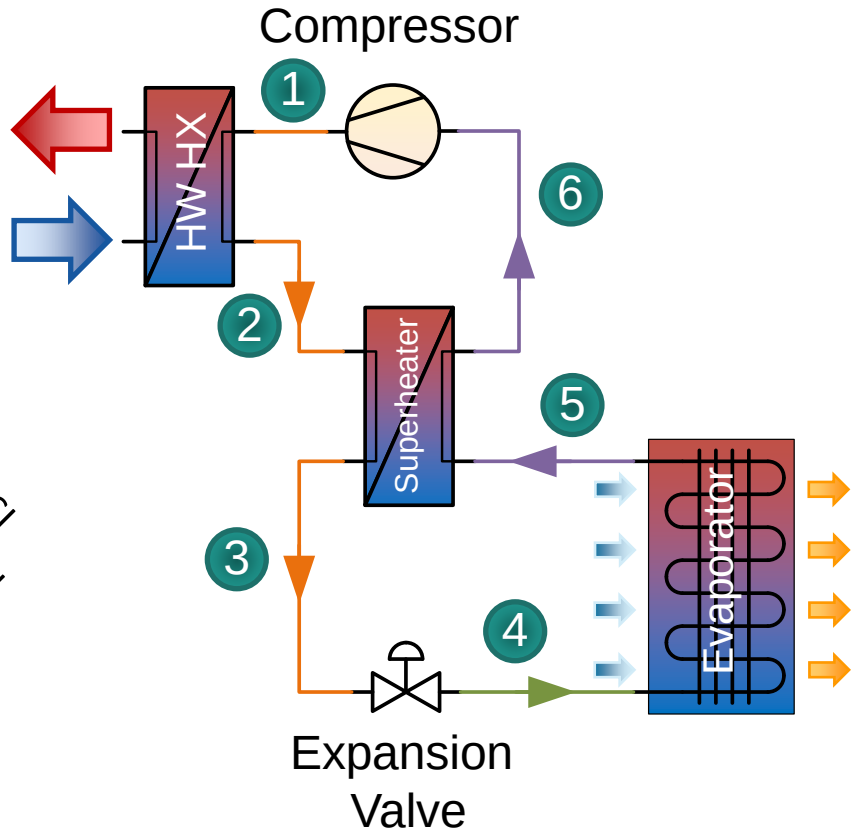
Highest yearly average COP

Normal Heat Pump

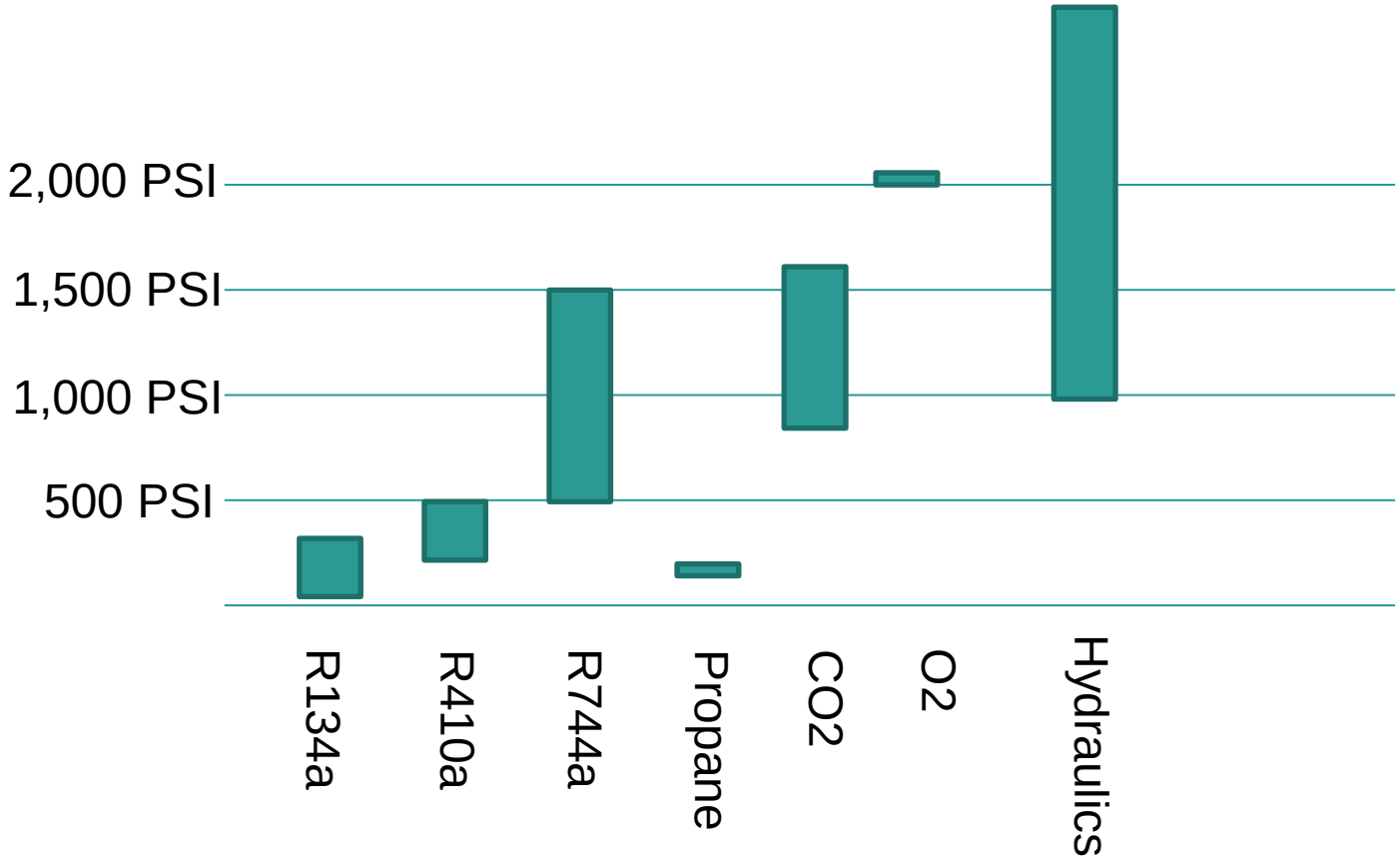


Transcritical Operation

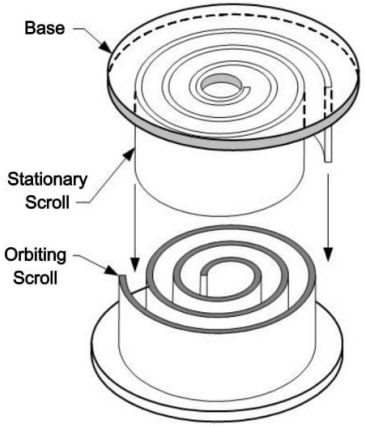


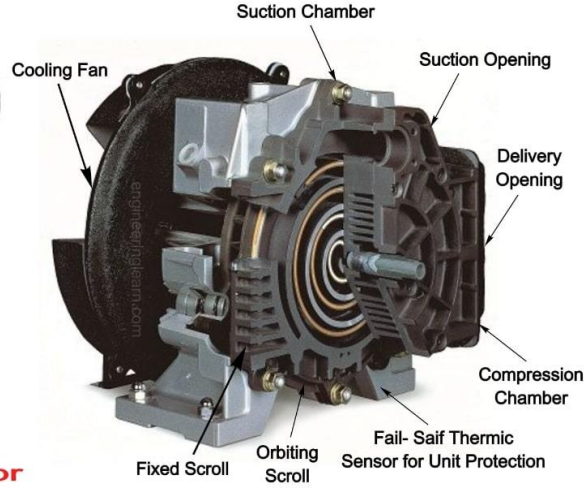


Pressure

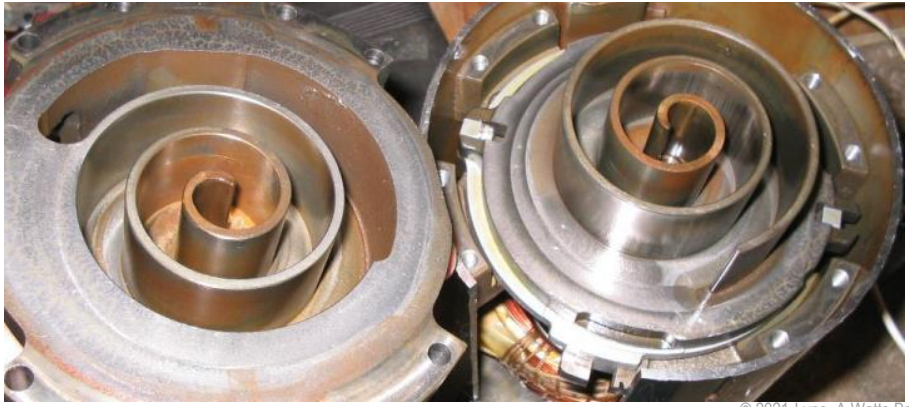


Scroll Compressor

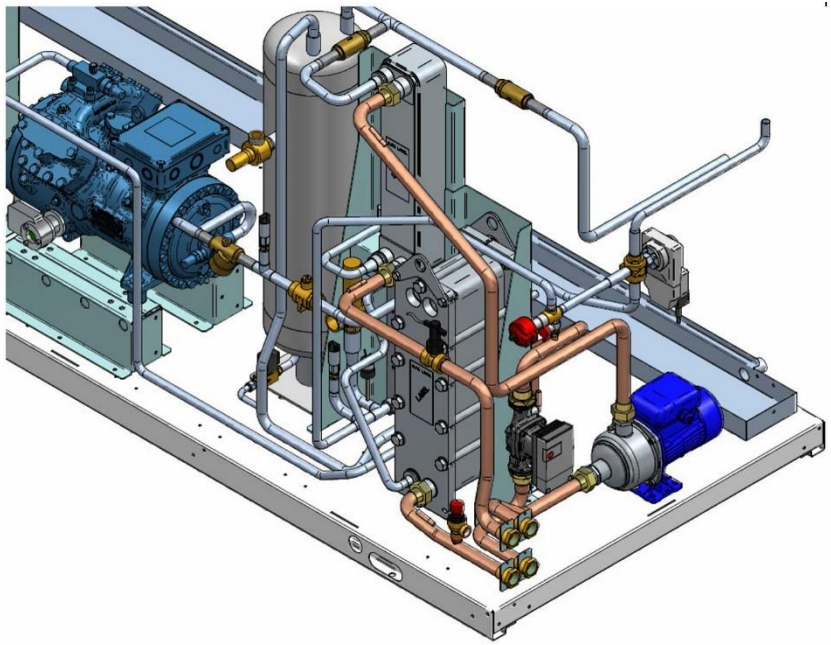




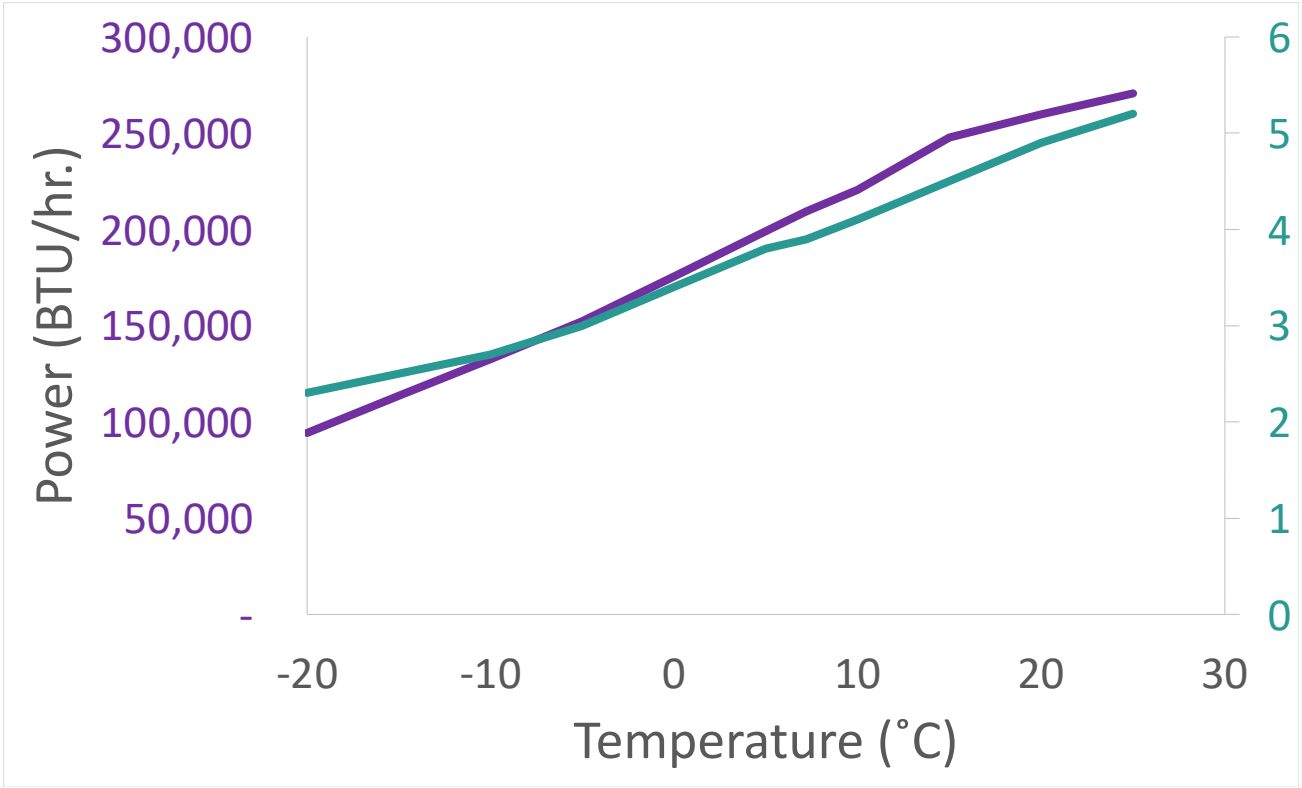
Scroll Compressor



Reciprocating Compressor

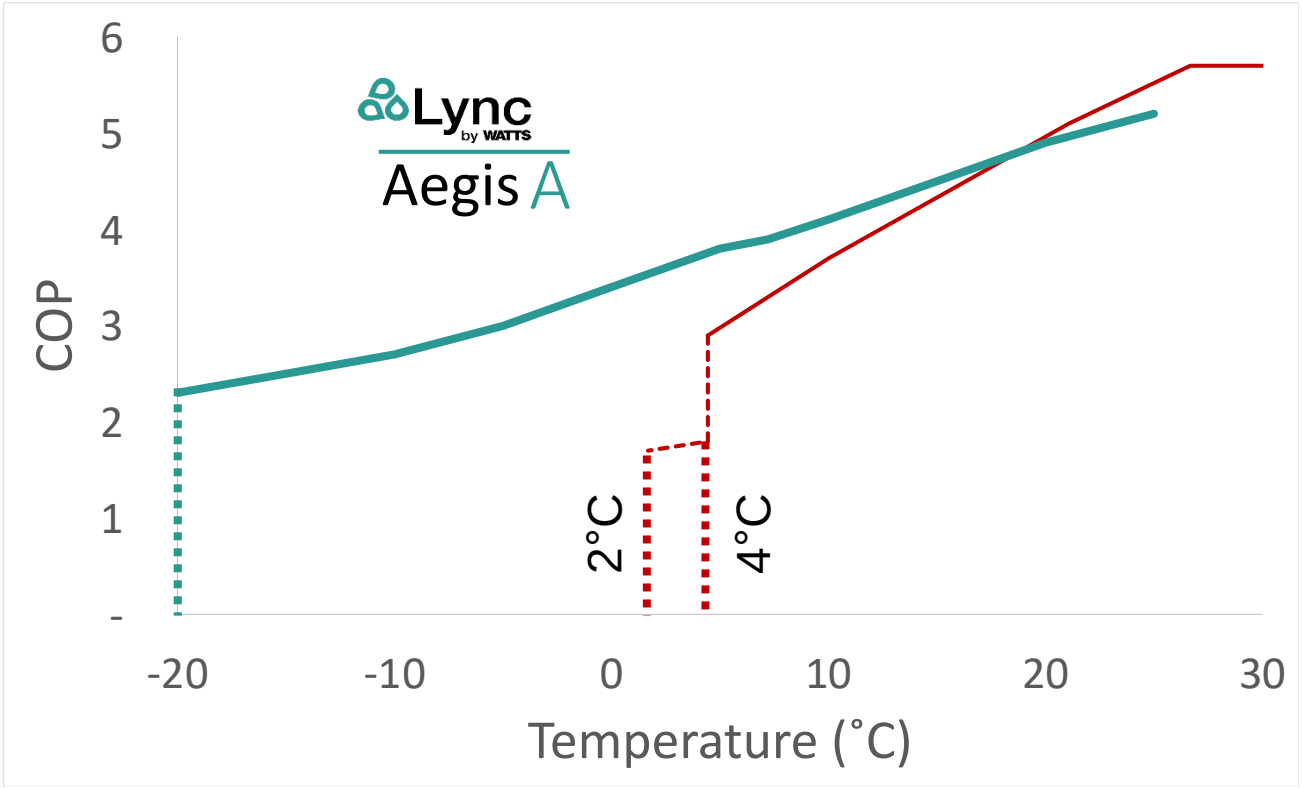


Performance Comparison



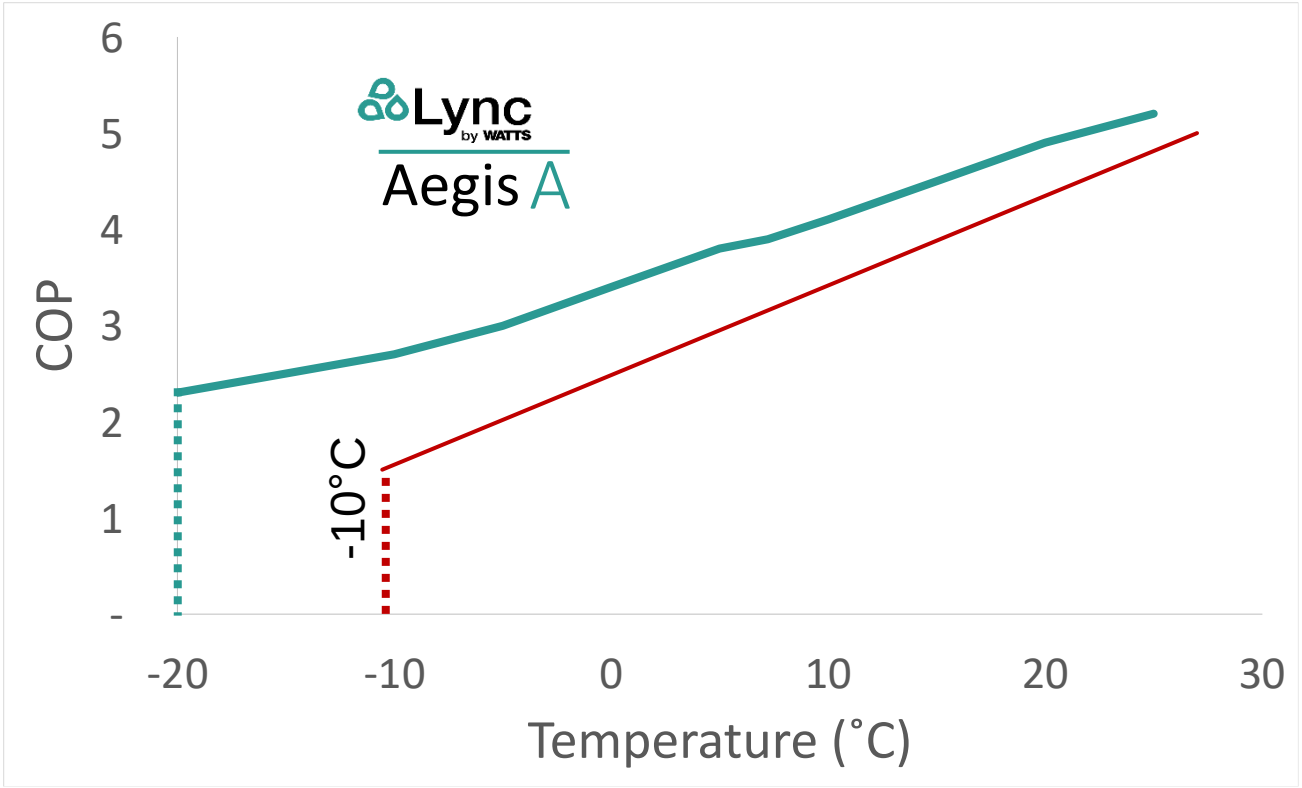
Lync by WATTS
Aegis A

Performance Comparison



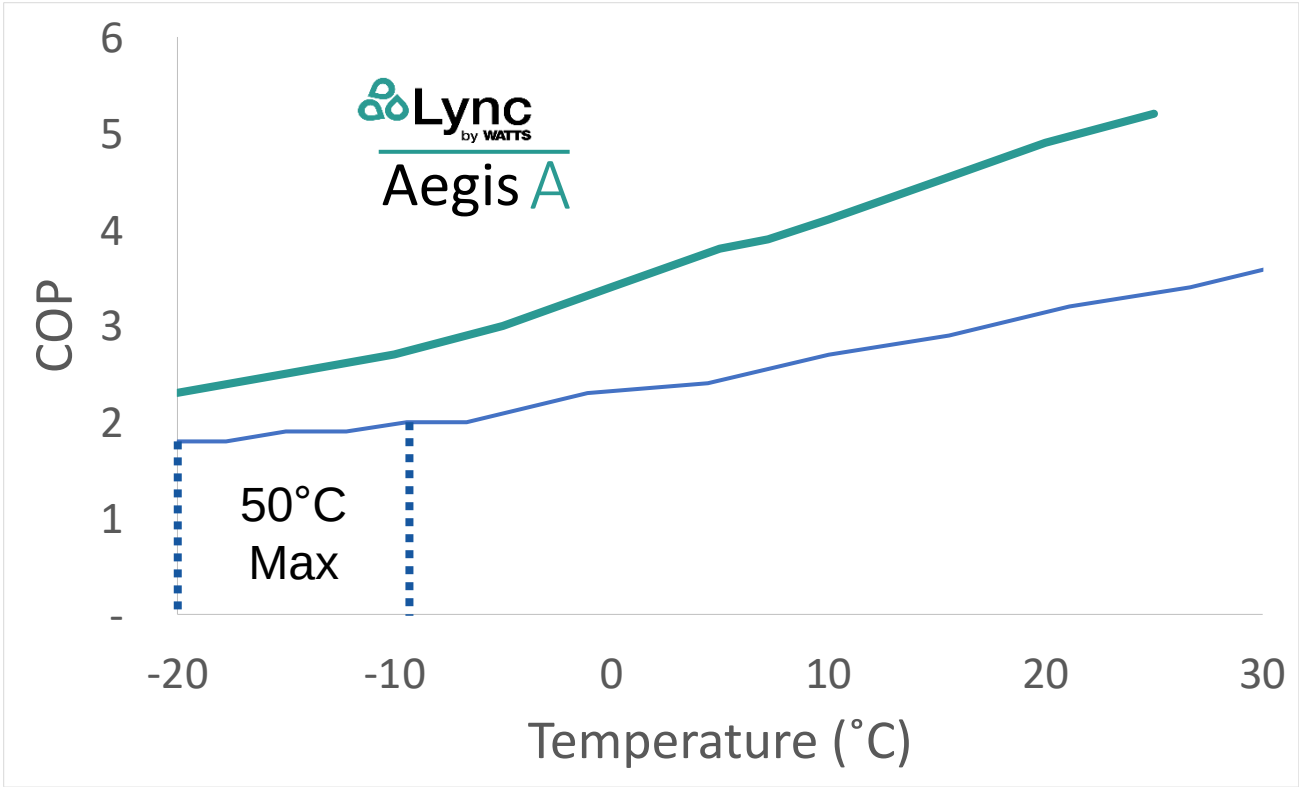
R-134a

Performance Comparison



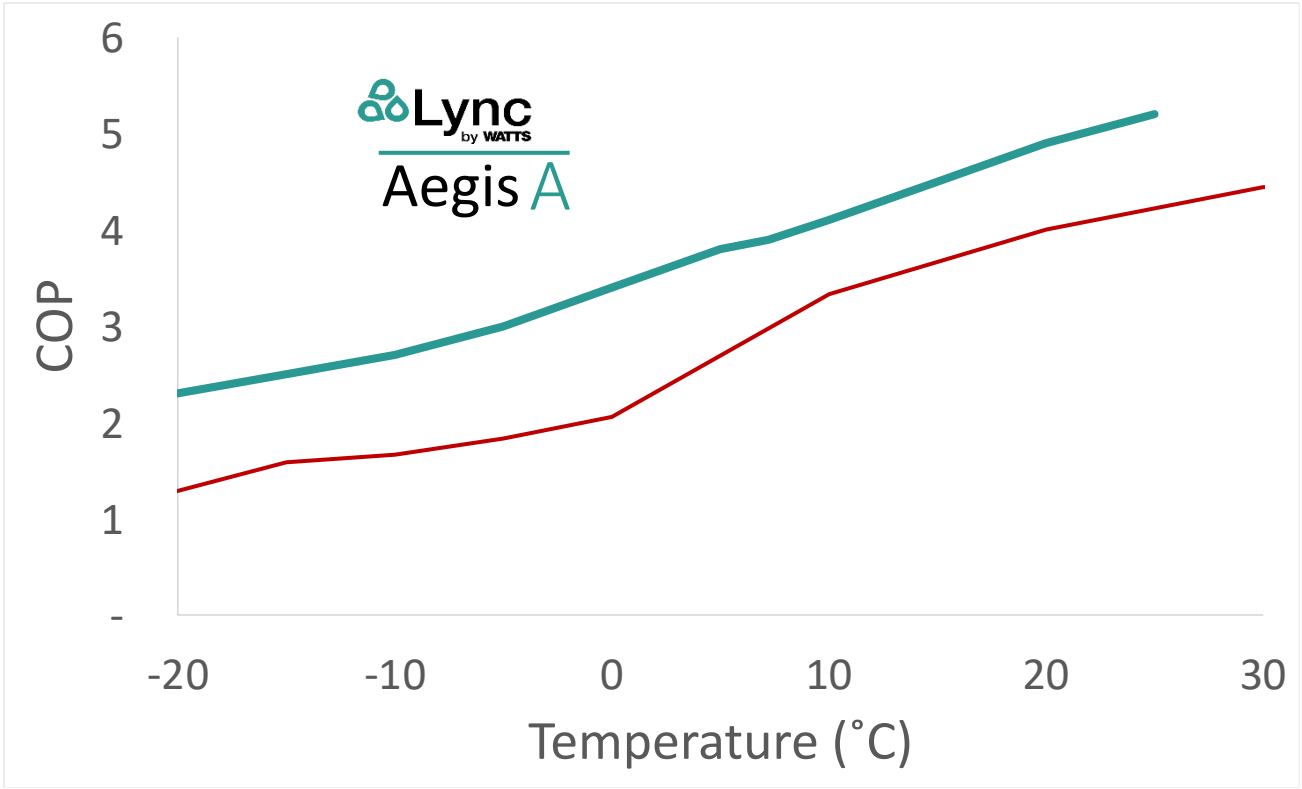
R-513a

Performance Comparison



R-410a

Performance Comparison



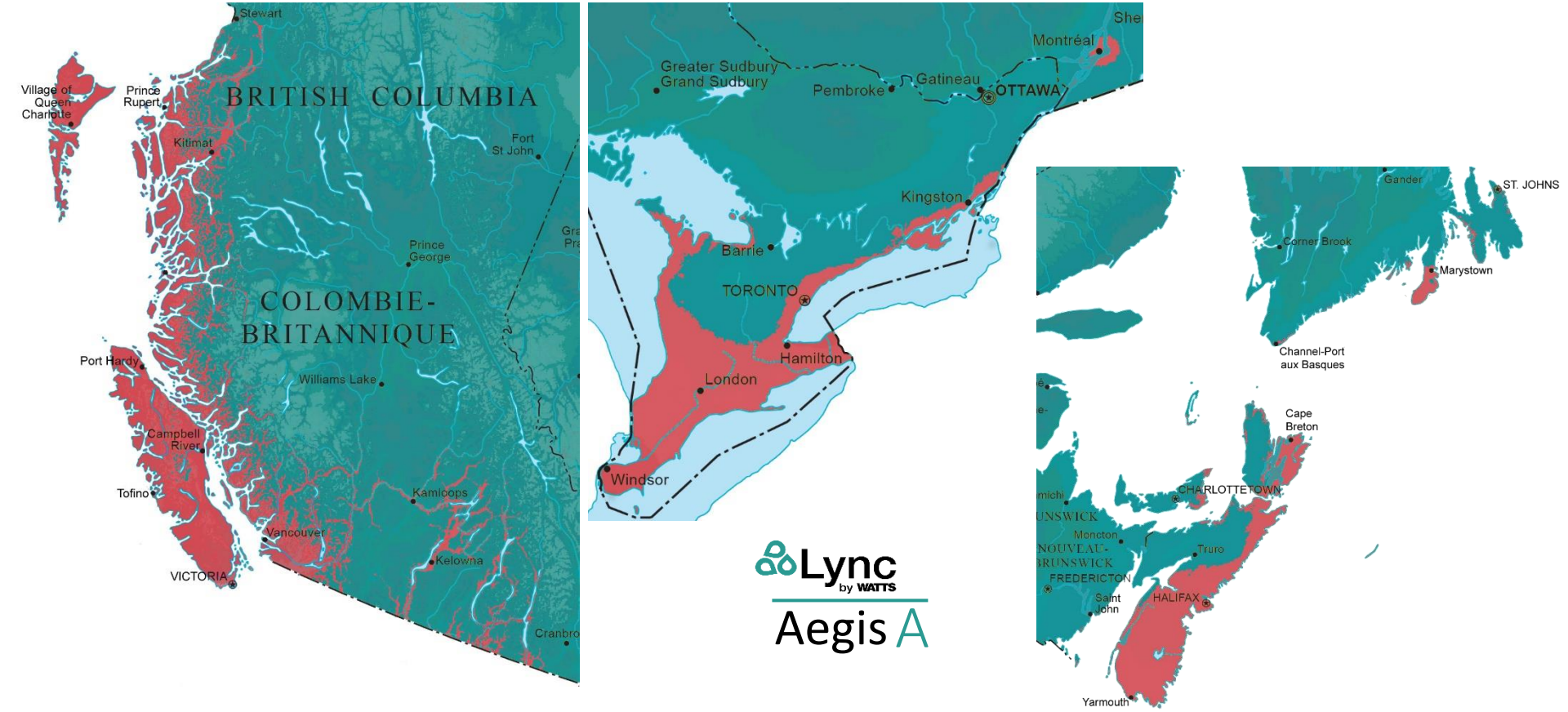
R-744a

Installations Without Backup

Lync by WATTS

Aegis A

Installations Without Backup



Savings

Lync by WATTS

Aegis A

One Aegis A 250 saves up to:

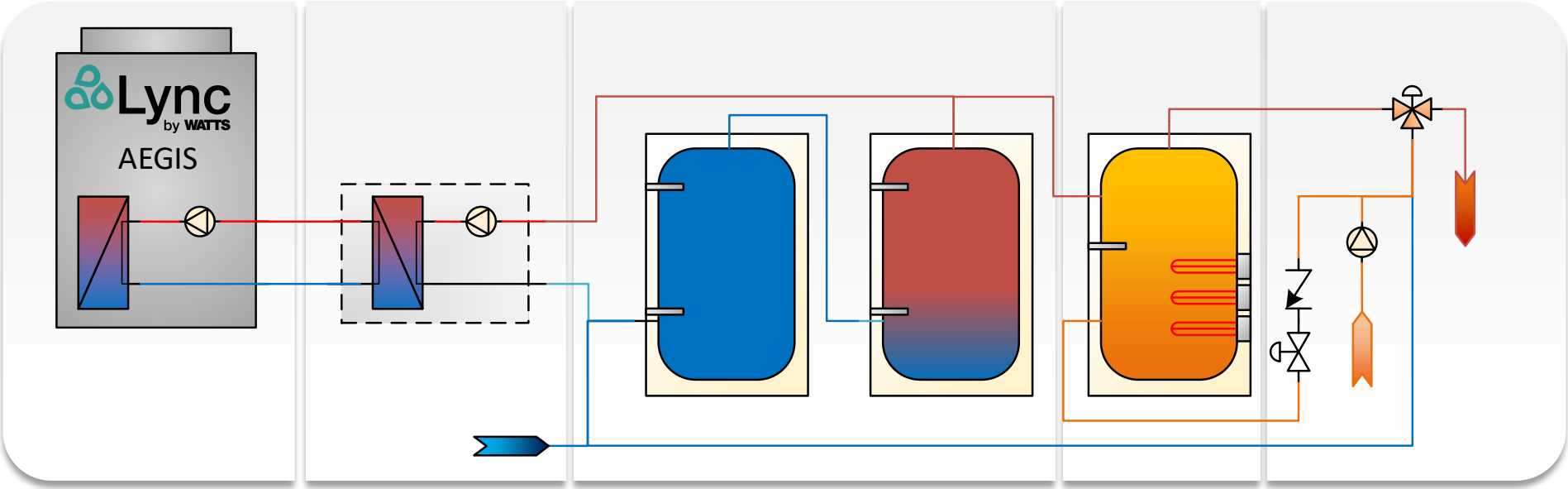
220,000 kWh per year versus electric

$24,000 per year ($0.11/kWh)

? kg CO_2 per annum

Applying AEGIS

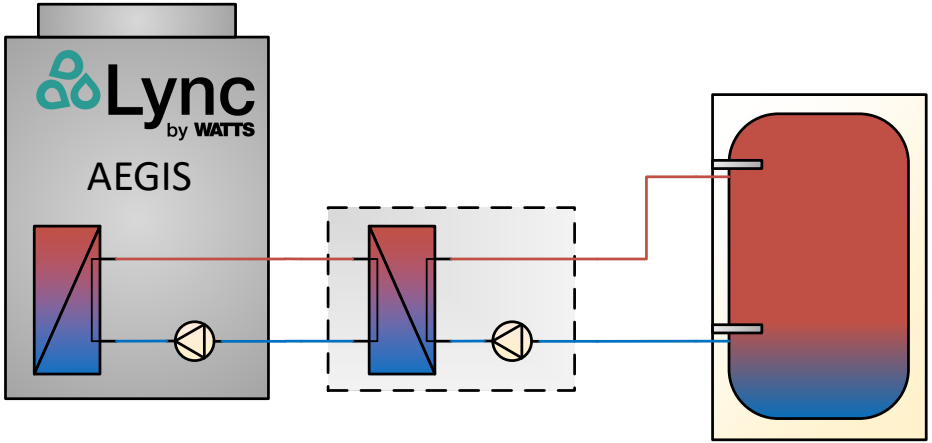
Heat Pump Systems

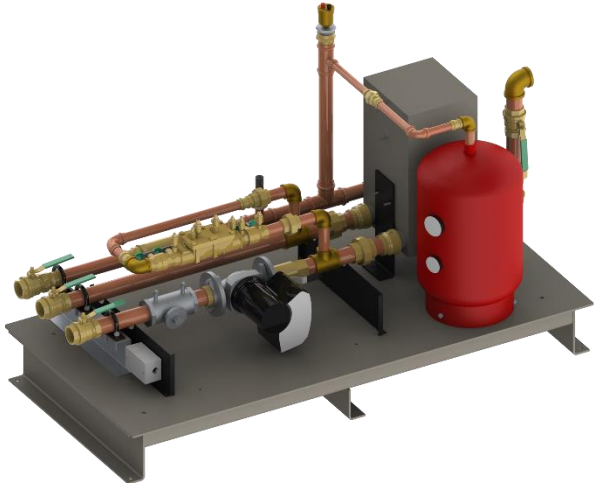


System Components

Lync by WATTS System Solution

External Heat Exchanger Module



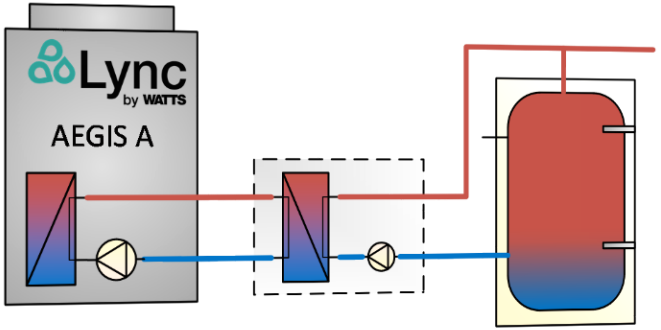


- Prevents buildup of scale on heat pump's heat exchanger
- Glycol loop for freeze protection on outdoor installations
- Provides all components needed in tightly packaged skid

Piping Configurations

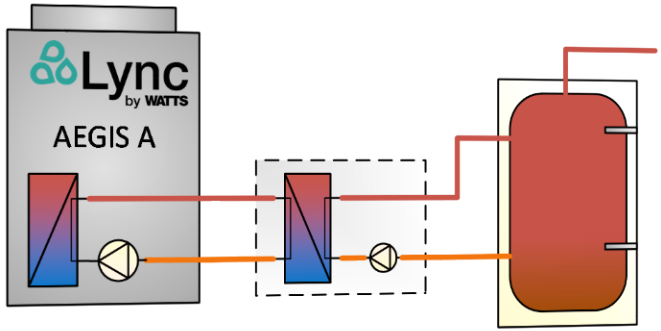
Single Pass

- High ΔT, low flow
- Stratification is key
- Building recirc line needs consideration
- **Lowest return temp, best performance**

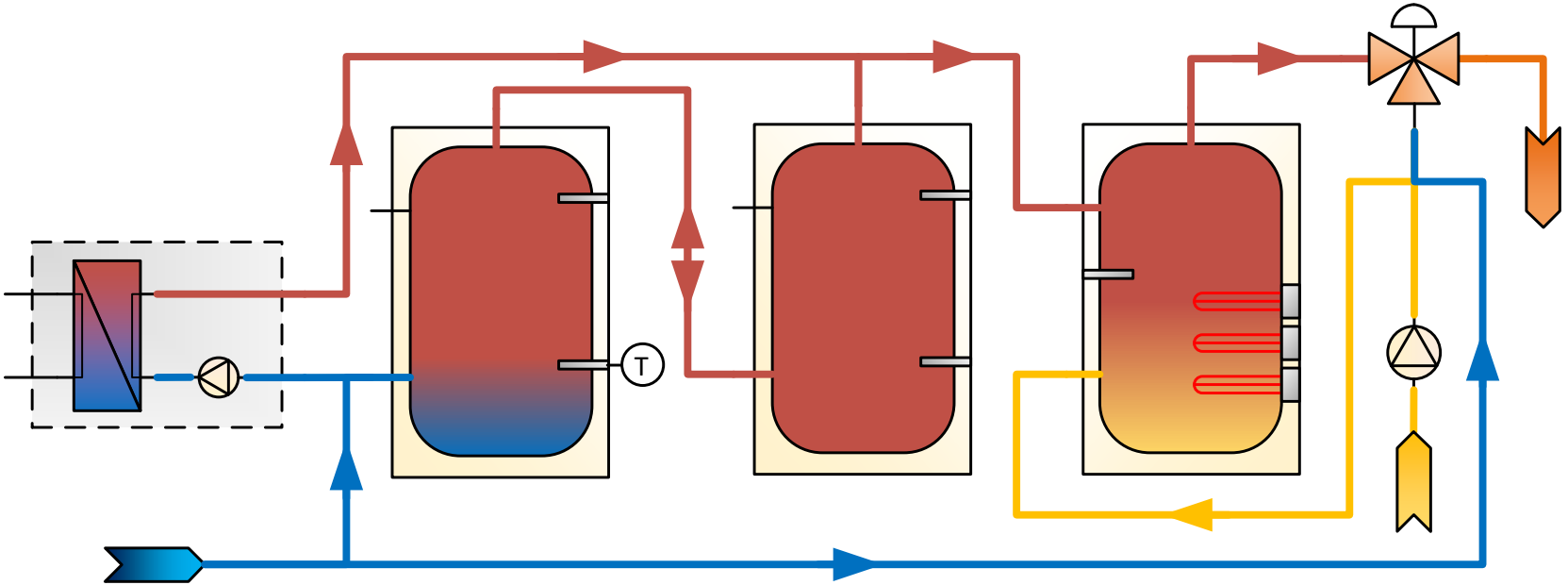


Multi-Pass

- Low ΔT, high flow
- Similar to traditional boiler + tank
- Lower heat pump performance
- Can have a lot of warm water in tanks

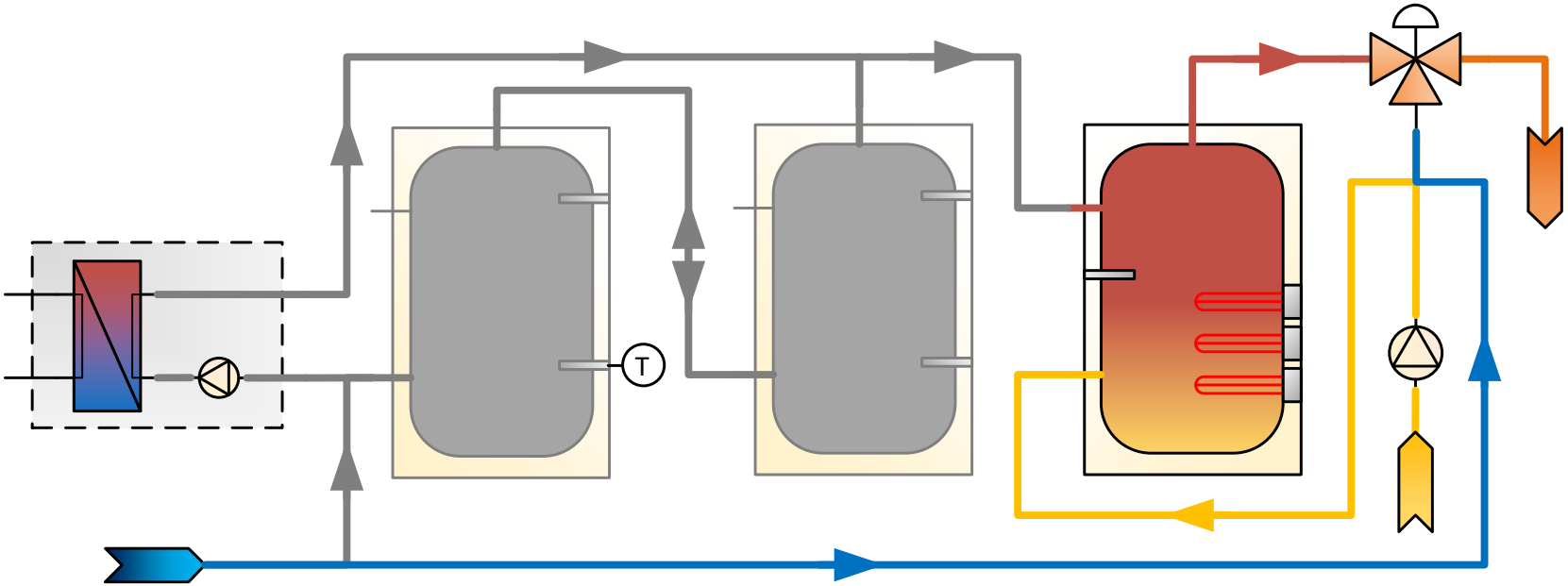


Tank Plumbing



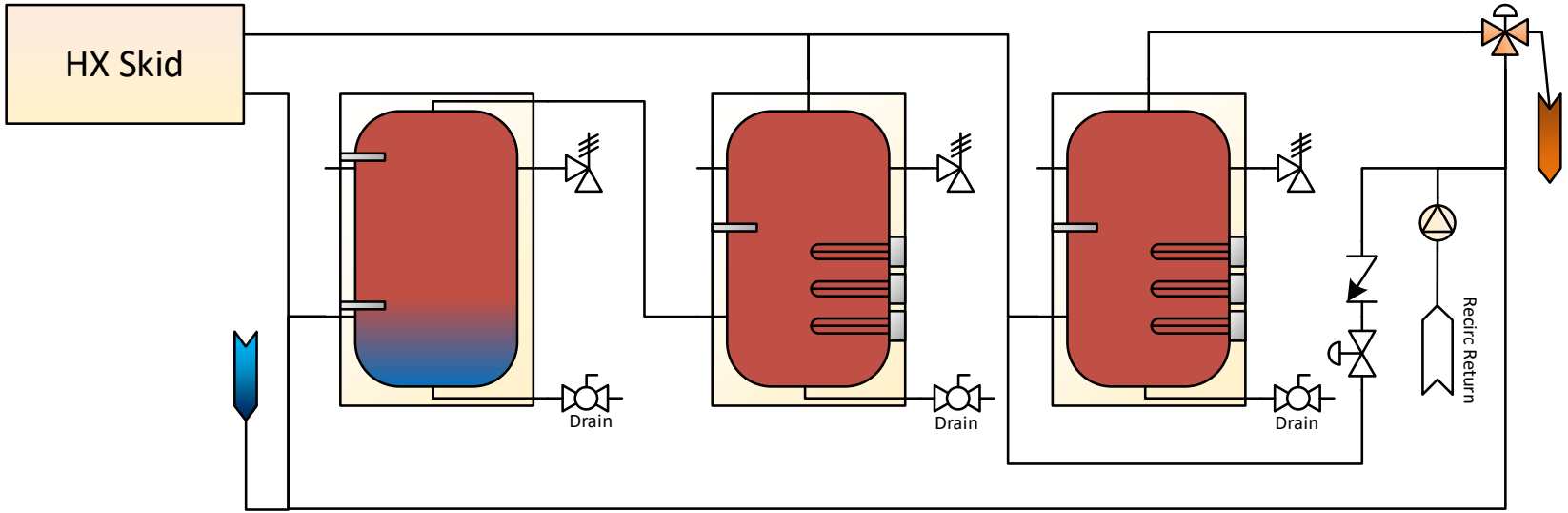
Note: not all components shown

Tank Plumbing



Note: not all components shown

Tank Plumbing



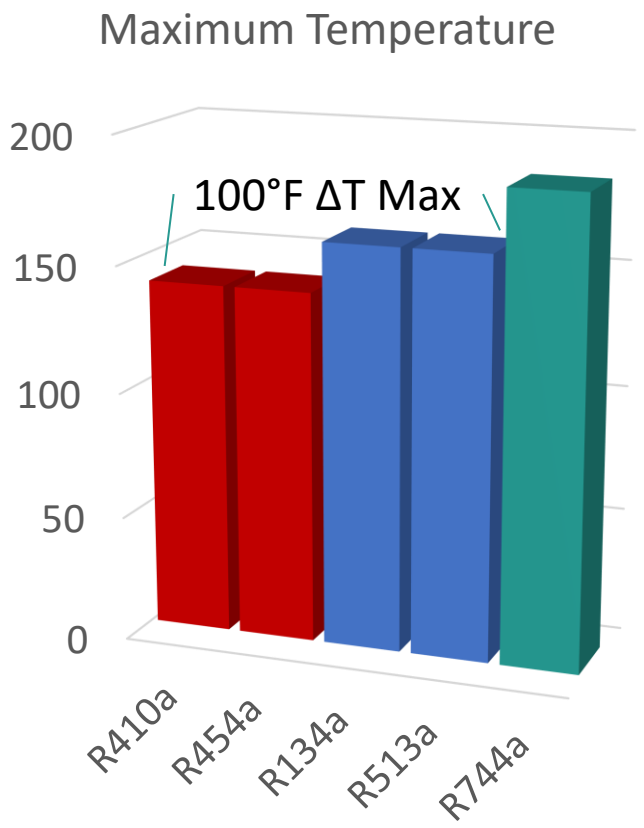
Note: not all components shown

Storage Tank Array

Lync tanks are specifically designed for heat pump applications:

- Duplex stainless-steel vessel
- 25-year warranty
- 250, 500, 750 and 1,000 gallon
- Storge and electric element available
- Indoor or outdoor tanks
- Sensor wells located in correct locations

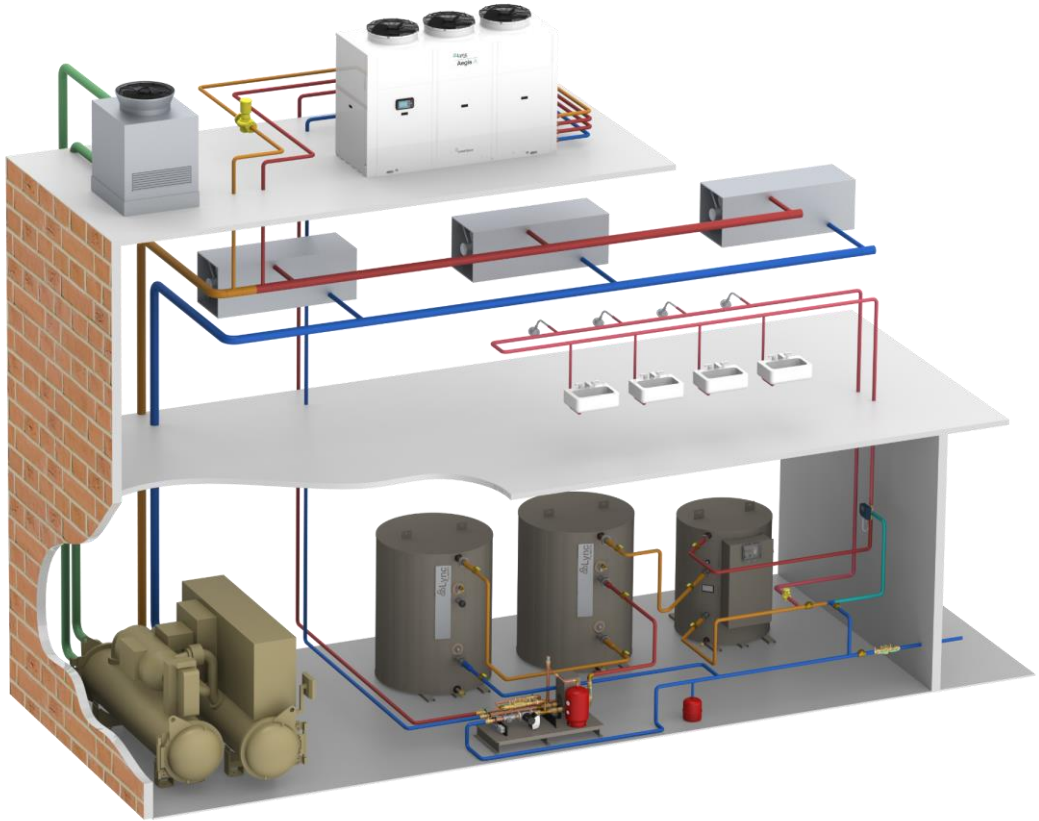
High Temperature Storage



Increasing storage temperature from 140°F to 180°F reduces storage volume by 30%.

- Lync tanks can handle the higher temperatures without affecting life
- R22 insulation vs. R12.5 normal to reduce heat losses

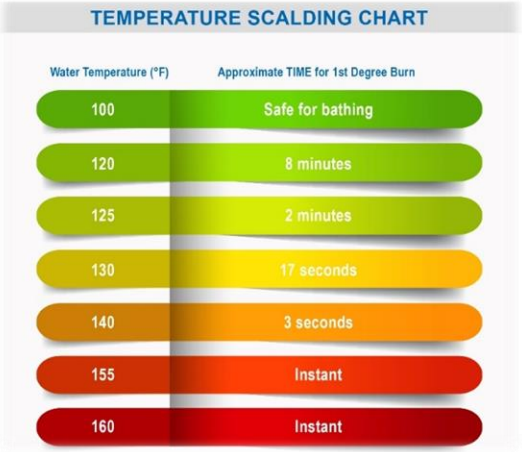
Hybrid Applications



Provides both hot and cold energy

- Reduces load on chillers
- Additional energy savings
- TER: Total Energy Ratio

Digital Mixing Valves



Lync Mixing Valves

- Fast response to changing conditions
- Ideal for higher storage temperatures
- Fail safe design
- Includes capacitator backup if power lost

Lync Advantages

By Specifying Lync:

- Latest refrigerant technology
- Larger, commercial focused units
- Engineering support and design assistance
- Complete system from one supplier
- Commissioned by factory trained personnel
- One-year labor warranty
- Best hot water rep network
- Turnkey services

THANK YOU

Lync by WATTS