

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

Assignment ID: PATI800510

|   |   |
|---|---|
| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                            |
| <b>NATURE OF CONVEYANCE:</b>  | SECURITY INTEREST                         |
| <b>CONVEYING PARTY DATA</b>   |   |
| <b>Name</b>   | <b>Execution Date</b>                     |
| Copeland Industrial LP  | 02/03/2025                                |
| <b>RECEIVING PARTY DATA</b>   |   |
| <b>Company Name:</b>  | Royal Bank of Canada, as Collateral Agent |
| <b>Street Address:</b>  | 155 Wellington Street West                |
| <b>Internal Address:</b>  | 8th Floor                                 |
| <b>City:</b>  | Toronto                                   |
| <b>State/Country:</b>   | CANADA                                    |
| <b>Postal Code:</b>   | M5JV 3K7                                  |
| <b>PROPERTY NUMBERS Total: 6</b>  |   |
| <b>Property Type</b>  | <b>Number</b>                             |
| Application Number:   | 18675800                                  |
| Application Number:   | 18675818                                  |
| Application Number:   | 18796746                                  |
| Application Number:   | 18833302                                  |
| Application Number:   | 18833306                                  |
| Application Number:   | 17869323                                  |
| <b>CORRESPONDENCE DATA</b>  |   |
| <b>Fax Number:</b>  | 2127514864                                |
| <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i> |   |
| <b>Phone:</b>   | 2129061209                                |
| <b>Email:</b>   | jess.bajada-bartlett@lw.com               |
| <b>Correspondent Name:</b>  | Mrs. Jessica Bajada-Bartlett              |
| <b>Address Line 1:</b>  | 1271 Avenue of the Americas               |
| <b>Address Line 4:</b>  | New York, NEW YORK 10020                  |
| <b>ATTORNEY DOCKET NUMBER:</b>  | 049275-0234                               |
| <b>NAME OF SUBMITTER:</b>   | Jessica Bajada-Bartlett                   |
| <b>SIGNATURE:</b>   | /Jessica Bajada-Bartlett/                 |
| <b>DATE SIGNED:</b>   | 02/04/2025                                |

**Total Attachments: 12**

source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page1.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page2.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page3.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page4.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page5.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page6.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page7.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page8.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page9.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page10.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page11.tiff  
source=Copeland - TL Patent Security Agreement [2024] [Eecuted)#page12.tiff

## PATENT SECURITY AGREEMENT

**Patent Security Agreement**, dated as of February 3, 2025 (the “**Patent Security Agreement**”), by Copeland LP, Copeland Comfort Control LP, Copeland Cold Chain LP, Copeland Industrial LP, and Copeland Scroll Compressors LP (each a “**Grantor**” and, collectively, the “**Grantors**”), in favor of Royal Bank of Canada, in its capacity as Collateral Agent for the Secured Parties pursuant to the Credit Agreement (in such capacity, the “**Collateral Agent**”).

### WITNESSETH:

WHEREAS, each Grantor is party to a Security Agreement dated as of May 31, 2023 (as amended, amended and restated, supplemented or otherwise modified from time to time, the “**Security Agreement**”) in favor of the Collateral Agent pursuant to which each Grantor is required to execute and deliver this Patent Security Agreement.

NOW, THEREFORE, in consideration of the premises and to induce the Collateral Agent, for the benefit of the Secured Parties, to enter into the Credit Agreement, each Grantor hereby agrees with the Collateral Agent as follows:

SECTION 1. Defined Terms. Unless otherwise defined herein, terms defined in the Security Agreement and used herein have the meaning given to them in the Security Agreement.

SECTION 2. Grant of Security Interest in Patent Collateral. As security for the payment or performance, as the case may be, in full of the Secured Obligations, including the Guaranty (as defined in the Credit Agreement), each Grantor hereby assigns and pledges to the Collateral Agent, for the benefit of the Secured Parties, and hereby grants to the Collateral Agent for the benefit of the Secured Parties, a security interest (the “**Security Interest**”) in, all right, title or interest in or to any and all of the following assets and properties now owned or at any time hereafter acquired by such Grantor or in which such Grantor now has or at any time in the future may acquire any right, title or interest:

- (a) all Patents of the Grantor, including those listed on Schedule I attached hereto,
- (b) all income, fees, royalties, damages, claims and payments now and hereafter due and/or payable with respect thereto, including damages and payments for past, present or future infringements or other violations thereof,
- (c) the right to sue for past, present and future infringements and other violations thereof, and
- (d) all other rights, priorities and privileges accruing thereunder or pertaining thereto throughout the world.

SECTION 3. The Security Agreement. The Security Interest granted pursuant to this Patent Security Agreement is granted in conjunction with the Security Interest granted to the Collateral Agent pursuant to the Security Agreement and each Grantor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the Security Interest in the Patents made and granted hereby are more fully set forth in the Security Agreement. In the event that any provision of this Patent Security Agreement is deemed to conflict with the Security Agreement, the provisions of the Security Agreement shall control unless the Collateral Agent shall otherwise determine.

SECTION 4. Termination. Upon the termination of the Security Agreement in accordance with Section 6.11 thereof, the Collateral Agent shall, at the expense of the Grantors, execute, acknowledge, and

deliver to the Grantors an instrument reasonably requested by the Grantors in writing in recordable form releasing the Lien on and Security Interest in the Patents under this Patent Security Agreement.

SECTION 5. Counterparts. This Patent Security Agreement may be executed in any number of counterparts, all of which shall constitute one and the same instrument, and any party hereto may execute this Patent Security Agreement by signing and delivering one or more counterparts. Delivery of an executed signature page to this Patent Security Agreement by facsimile or other electronic transmission shall be effective as delivery of a manually signed counterpart of this Patent Security Agreement.

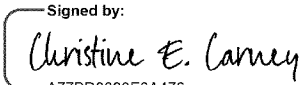
SECTION 6. Intercreditor Agreements. Notwithstanding any provision to the contrary contained herein, the terms of this Patent Security Agreement, the Liens created under the Security Agreement and the rights and remedies of the Collateral Agent hereunder are subject to the terms of each applicable Intercreditor Agreement. In the event of any conflict or inconsistency between the terms of this Patent Security Agreement and an Intercreditor Agreement, the terms of that Intercreditor Agreement shall govern.

SECTION 7. Governing Law. THIS PATENT SECURITY AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

[Signature pages follow.]

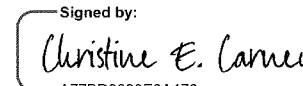
COPELAND LP, as a Grantor

By COPESUB GP 2, LLC, its General Partner

By: Signed by:  
  
A77BD0890E3A476...  
Name: Christine Carney  
Title: Vice President, Chief Legal Officer &  
Secretary

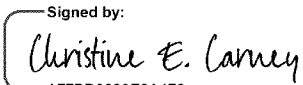
COPELAND SCROLL COMPRESSORS LP, as a Grantor

By COPESUB GP 2, LLC, its General Partner

By: Signed by:  
  
A77BD0890E3A476...  
Name: Christine Carney  
Title: Vice President, Chief Legal Officer &  
Secretary

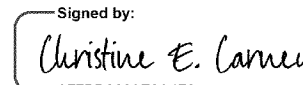
COPELAND INDUSTRIAL LP, as a Grantor

By COPESUB GP 2, LLC, its General Partner

By: Signed by:  
  
A77BD0890E3A476...  
Name: Christine Carney  
Title: Vice President, Chief Legal Officer &  
Secretary

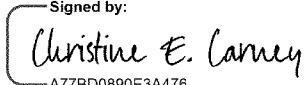
COPELAND COMFORT CONTROL LP, as a Grantor

By COPESUB GP 1, LLC, its General Partner

By: Signed by:  
  
A77BD0890E3A476...  
Name: Christine Carney  
Title: Vice President, Chief Legal Officer &  
Secretary

COPELAND COLD CHAIN LP, as a Grantor

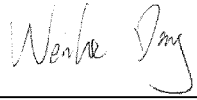
By COPESUB GP 1, LLC, its General Partner

Signed by:  
  
By: \_\_\_\_\_  
Name: Christine Carney  
Title: Vice President, Chief Legal Officer &  
Secretary

[SIGNATURE PAGE TO PATENT SECURITY AGREEMENT]

**PATENT**  
**REEL: 070100 FRAME: 0144**

ROYAL BANK OF CANADA, as Collateral Agent

By:   
Name: Weizhe Dong  
Title: Deal Manager

**Schedule I**  
**to**  
**PATENT SECURITY AGREEMENT**  
**PATENTS AND PATENT APPLICATIONS**

**U.S. Patents and Patent Applications**

| <b>Title</b>   | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                |
|--|--------------------------|---------------------------|----------------------|-----------------------------|
| Thermal Barriers For Compressor Discharge Chambers Or Cavities   | United States of America | 63/557,131                |                      | Copeland LP                 |
| Demand Defrost   | United States of America | 18/442,728                |                      | Copeland Cold Chain LP      |
| Multiple-Compressor System   | United States of America | 18/621,082                |                      | Copeland LP                 |
| BEARING AND UNLOADER ASSEMBLY FOR COMPRESSORS  | United States of America | 18/438,026                |                      | Copeland LP                 |
| Low Power Detection and Power Loss Management for Devices with Limited Available Power   | United States of America | 18/596,928                |                      | Copeland Comfort Control LP |
| Compressor Assemblies Including Lower Covers Having Mounting Feet Skirts Configured For Increasing Mounting Feet Stiffness And Resistance To Crack Formation | United States of America | 18/584,133                |                      | Copeland LP                 |
| THREE-WAY HEAT EXCHANGE MODULE WITH CONTROLLED FLUID FLOW  | United States of America | 18/585,344                |                      | Copeland LP                 |
| Hybrid Heat-Pump System  | United States of America | 18/440,449                |                      | Copeland LP                 |
| Mechanism to Increase Impeller Optimum Range: Economization & VIGV   | United States of America | 18/613,762                |                      | Copeland LP                 |
| Foil Bearing Assembly Including Bidirectional Anti-Rotation Features and Compressor Including Same   | United States of America | 18/617,018                |                      | Copeland LP                 |
| Vapor Compression System With An Atomization Mechanism   | United States of America | 18/625,635                |                      | Copeland LP                 |
| Compressor Having Capacity Modulation System   | United States of America | 63/635,270                |                      | Copeland LP                 |
| Indoor Air Quality Sensor Calibration Systems And Methods  | United States of America | 18/639,935                |                      | Copeland LP                 |
| Climate Control Systems For Use With High Glide Working Fluids And Methods For Operation Thereof   | United States of America | 18/647,850                |                      | Copeland LP                 |



| <b>Title</b>   | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                   |
|--|--------------------------|---------------------------|----------------------|--------------------------------|
| Open Air-Cycle Ventilating Heat Pump   | United States of America | 18/652,183                |                      | Copeland LP                    |
| Conditioning System Including Vapor Compression System and Evaporative Cooling System                  | United States of America | 18/653,095                |                      | Copeland LP                    |
| Surge Control Systems and Methods for Dynamic Compressors  | United States of America | 18/657,199                |                      | Copeland LP                    |
| Climate-Control System With Sensible and Latent Cooling  | United States of America | 18/671,326                |                      | Copeland LP                    |
| AUTO-POSITIONING VOLUME SLIDE CONTROL FOR SCREW COMPRESSOR   | United States of America | 18/675,800                |                      | Copeland Industrial LP         |
| Auto-positioning Volume slide control with feedback for single screw compressor                        | United States of America | 18/675,818                |                      | Copeland Industrial LP         |
| Refrigeration System Having High-Efficiency Loop   | United States of America | 18/741,002                |                      | Copeland LP                    |
| RECIPROCATING COMPRESSOR AND FLUID INJECTION SYSTEM  | United States of America | 18/750,378                |                      | Copeland LP                    |
| Compressor Having Shutdown Valve Assembly  | United States of America | 18/753,630                |                      | Copeland LP                    |
| MONITORING ENVIRONMENTAL CONDITIONS OF STORAGE UNITS FOR VACCINES AND OTHER CLIMATE SENSITIVE PRODUCTS | United States of America | 18/755,080                |                      | Copeland Cold Chain LP         |
| Systems and Methods For Wirelessly Configuring Climate Control System Controls                         | United States of America | 18/764,442                |                      | Copeland Comfort Control LP    |
| Compressor Scroll Design Optimization with Variable Performance Single Phase Induction Motor           | United States of America | 18/768,718                |                      | Copeland Scroll Compressors LP |
| Low ratio oil injection port for applications without the requirement of an oil pump                   | United States of America | 18/796,746                |                      | Copeland Industrial LP         |

| <b>Title</b>   | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                |
|--|--------------------------|---------------------------|----------------------|-----------------------------|
| Freeze protection for wireless HVAC system .   | United States of America | 18/802,203                |                      | Copeland Comfort Control LP |
| SPARK IGNITION MODULE AND METHODS  | United States of America | 18/773,016                |                      | Copeland Comfort Control LP |
| Systems And Methods For Adjusting Mitigation Thresholds                                  | United States of America | 18/773,983                |                      | Copeland LP                 |
| Variable Inlet Guide Vane Apparatus and Compressor Including Same                        | United States of America | 18/806,303                |                      | Copeland LP                 |
| Reciprocating Compressor And Fluid Injection System                                      | United States of America | 18/809,546                |                      | Copeland LP                 |
| RECIPROCATING COMPRESSOR AND FLUID INJECTION SYSTEM                                      | United States of America | 18/809,678                |                      | Copeland LP                 |
| SYSTEM AND METHOD FOR HEATING OR COOLING EMPLOYING HEAT PUMP                             | United States of America | 18/833,302                |                      | Copeland Industrial LP      |
| SYSTEM AND METHOD FOR HEATING OR COOLING EMPLOYING HEAT PUMP                             | United States of America | 18/833,306                |                      | Copeland Industrial LP      |
| ENERGY MANAGEMENT AND SMART THERMOSTAT LEARNING METHODS AND CONTROL SYSTEMS              | United States of America | 17/823,150                |                      | Copeland Comfort Control LP |
| Buck-Converter-Based Drive Circuits For Driving Motors Of Compressors And Condenser Fans | United States of America | 17/849,564                | 12,136,872           | Copeland LP                 |
| Self-Positioning Volume Slide Valve for Screw Compressor                                 | United States of America | 17/869,323                | 12,055,145           | Copeland Industrial LP      |
| Scroll Compressor With Center Hub  | United States of America | 17/886,047                | 11,846,287           | Copeland LP                 |
| Systems and Methods For Providing Compressor Cooling                                     | United States of America | 17/930,807                | 12,188,701           | Copeland LP                 |
| Mass Flow Interpolation Systems and Methods for Dynamic Compressors                      | United States of America | 17/933,237                |                      | Copeland LP                 |
| Wirelessly Configuring Climate Control System Controls                                   | United States of America | 17/947,807                |                      | Copeland Comfort Control LP |

| <b>Title</b>   | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                |
|--|--------------------------|---------------------------|----------------------|-----------------------------|
| Method to Detect Ignitor Open Error and Inducer and Ignitor Relay Faults                                     | United States of America | 18/377,678                | 12,060,944           | Copeland Comfort Control LP |
| Wirelessly Configuring Climate Control System Controls   | United States of America | 18/380,493                |                      | Copeland Comfort Control LP |
| Scroll Compressor With Center Hub  | United States of America | 18/381,884                | 12,188,470           | Copeland LP                 |
| Method To Charge Multiple Refrigerants With Desired Concentrations   | United States of America | 18/382,464                |                      | Copeland LP                 |
| Systems and Methods For Assembling Liquid Desiccant Air Conditioner Panels Using Flexible Alignment Features | United States of America | 18/390,475                |                      | Copeland LP                 |
| Liquid Desiccant Air Conditioner Modules Having Aerodynamic Features   | United States of America | 18/390,941                |                      | Copeland LP                 |
| Liquid Desiccant Air Conditioner Modules Having Interlocking Panels for Controlling Airflow                  | United States of America | 18/390,948                |                      | Copeland LP                 |
| Liquid Desiccant Air Conditioner Modules Having a Liquid Desiccant Mist Trap                                 | United States of America | 18/391,384                |                      | Copeland LP                 |
| Multi-Stage Liquid Desiccant Dehumidification Systems and Methods  | United States of America | 18/391,439                |                      | Copeland LP                 |
| Compressor With Shutdown Assembly  | United States of America | 18/394,474                |                      | Copeland LP                 |
| Liquid Desiccant Regeneration Systems and Methods Including Air Diffuser                                     | United States of America | 18/409,327                |                      | Copeland LP                 |
| Motor Cooling Flow Alarm   | United States of America | 18/416,259                |                      | Copeland LP                 |
| Scroll Assemblies and Compressors Including the Same   | United States of America | 18/481,802                |                      | Copeland LP                 |
| Three-Way Heat Exchange Module Having Uniform Fluid Distribution   | United States of America | 18/482,454                |                      | Copeland LP                 |
| AntiRotation Reed Valve Systems And Methods For Compressors  | United States of America | 18/485,712                | 12,180,967           | Copeland LP                 |

| <b>Title</b>  | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                |
|---|--------------------------|---------------------------|----------------------|-----------------------------|
| Compressor Having Compression Subassembly And Methods Of Assembling The Same  | United States of America | 18/485,911                |                      | Copeland LP                 |
| Climate Control Systems Having A Liquid-To-Suction Heat Exchanger, An Accumulator, And A Receiver For Variable Liquid Storage Of High Glide Working Fluids And Methods For Operation Thereof. | United States of America | 18/507,523                |                      | Copeland LP                 |
| Foil Bearing Assembly Including Perforated Inner Foil Assembly and Compressor Including Same  | United States of America | 18/509,780                |                      | Copeland LP                 |
| Systems and Methods For Supplying Stored Heat To A Vapor Compressor   | United States of America | 18/516,307                |                      | Copeland LP                 |
| Adaptive Undervoltage Protection for 3-Phase Loads using Singe Current Sensor   | United States of America | 18/529,297                |                      | Copeland Comfort Control LP |
| Compressor With Funnel Assembly   | United States of America | 18/530,916                | 12,180,966           | Copeland LP                 |
| Heat Pump Systems With Capacity Modulation  | United States of America | 18/533,121                | 12,173,708           | Copeland LP                 |
| Compressor And Valve Assembly   | United States of America | 18/541,828                | 12,163,523           | Copeland LP                 |
| HVAC Control Assemblies And Corresponding Methods Of Configuring Pinout Of Connectors For HVAC Control Assemblies   | United States of America | 18/545,331                |                      | Copeland Comfort Control LP |
| HVAC Control Assemblies And Corresponding Methods Of Automatic Detection Of Furnace Applications  | United States of America | 18/545,342                |                      | Copeland Comfort Control LP |
| Full Round CWT Cover  | United States of America | 18/602,626                |                      | Copeland LP (ECT)           |
| Remote Sensor Ornamental Design   | United States of America | 29/916,038                | D1,026,680           | Copeland Comfort Control LP |
| Systems and Methods For Assembling Liquid Desiccant Heat Exchange Structures Using Controlled Multilayer Welding  | United States of America | 63/612,925                |                      | Copeland LP                 |
| CO2 Low Ambient Control   | United States of America | 63/615,936                |                      | Copeland LP                 |

| <b>Title</b>  | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b>                |
|---|--------------------------|---------------------------|----------------------|-----------------------------|
| Using Setpoint Changes to Defrost the Evaporator Coil   | United States of America | 63/625,793                |                      | Copeland LP                 |
| Modulating System Heating or Cooling Capacity by Controlling the Critical Temperature of a Blend of Multiple Refrigerant Fluids with Large Critical Temperature Differences | United States of America | 18/931,981                |                      | Copeland LP                 |
| SYSTEM AND METHOD FOR REDUCED ENERGY LOGGER MODE FOR POWERED TRACKERS   | United States of America | 18/933,863                |                      | Copeland Cold Chain LP      |
| Vapor-Liquid Separator and Systems Including Same   | United States of America | 18/933,846                |                      | Copeland LP                 |
| Drive Assemblies and Compressors Including the Same   | United States of America | 18/951,381                |                      | Copeland LP                 |
| Retainer Clip   | United States of America | 29/974,355                |                      | Copeland LP                 |
| Heat Pump Systems With Capacity Modulation  | United States of America | 18/954,717                |                      | Copeland LP                 |
| SYSTEM AND METHOD FOR ULTRA-LOW FIRE GAS HEAT ALGORITHMS  | United States of America | 18/970,036                |                      | Copeland Comfort Control LP |
| Compressor Startup Pressure Ratio   | United States of America | 18/970,272                |                      | Copeland LP                 |
| AntiRotation Reed Valve Systems And Methods For Compressors   | United States of America | 18/970,300                |                      | Copeland LP                 |
| Systems and Methods For Assembling Liquid Desiccant Heat Exchange Structures Using Controlled Multilayer Welding  | United States of America | 18/982,123                |                      | Copeland LP                 |
| CO2 Low Ambient Control   | United States of America | 19/003,803                |                      | Copeland LP                 |
| CO2 Flash Tank Pressure Secondary Control (Using Gas Cooler Setpoint)   | United States of America | 19/003,786                |                      | Copeland LP                 |
| COMPRESSOR INCLUDING MOTOR WITH STATOR COOLING FINS AND REFRIGERATION SYSTEMS INCLUDING SAME  | United States of America | 19/010,841                |                      | Copeland LP                 |

| <b>Title</b>  | <b>Country</b>           | <b>Application Number</b> | <b>Patent Number</b> | <b>Owner</b> |
|---|--------------------------|---------------------------|----------------------|--------------|
| COOLING CIRCUITS FOR COMPRESSORS AND COMPREXSORS INCLUDING SAME                                     | United States of America | 19/010,796                |                      | Copeland LP  |
| Compressor for Refrigeration System Including Internal Coolant Return Line                          | United States of America | 19/010,886                |                      | Copeland LP  |
| COOLING CIRCUITS FOR COMPRESSORS AND COMPRESSORS INCLUDING SAME                                     | United States of America | 19/010,937                |                      | Copeland LP  |
| METHODS AND SYSTEMS FOR CONTROLLING A COMPRESSOR COOLING SYSTEM                                     | United States of America | 19/010,907                |                      | Copeland LP  |
| Centrifugal Compressor with Controlled Tolerance Stack and Methods of Assembling the Same           | United States of America | 19/012,463                |                      | Copeland LP  |
| Using Setpoint Changes to Defrost the Evaporator Coil   | United States of America | 19/032,833                |                      | Copeland LP  |
| Variable Inlet Guide Vane Apparatus And Systems And Methods For Calibrating The Same                | United States of America | 19/034,340                |                      | Copeland LP  |
| Multi-Function Heat Pump with Thermal Storage   | United States of America | 63/734,440                |                      | Copeland LP  |
| Magnetic High Voltage Interlock Loop (HVIL) for Variable Frequency Drives in Transport Applications | United States of America | 18/377,474                |                      | Copeland LP  |
| Three-Way Heat Exchange Module With Controlled Clamping Of Panel Assemblies                         | United States of America | 18/490,984                |                      | Copeland LP  |