

PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT6038453

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
JIAN MING ZHANG	03/07/2020
JAMES P. CROLIUS	03/26/2020
SCOTT A. MUNNS	03/26/2020
RECEIVING PARTY DATA	
Name:	TRANE INTERNATIONAL INC.
Street Address:	800-E BEATY STREET
City:	DAVIDSON
State/Country:	NORTH CAROLINA
Postal Code:	28036
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16420932
CORRESPONDENCE DATA	
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NAME OF SUBMITTER:	BRYAN A. WONG
SIGNATURE:	/bryan a. wong/
DATE SIGNED:	03/30/2020
Total Attachments: 4	
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ASSIGNMENT

WHEREAS, we, Jian Ming Zhang, having an address of Laiyin Road 1200 Songjiang, Shanghai 200001 (CN), Lifan Li, having an address of Suzhou Donglu No.88, Taicang, Jiangsu 215400 (CN), James P. Crolius, having an address of Nwe04 Willow Way East, La Crosse, Wisconsin 54601 (US) and Scott A. Munns, having an address of 1082 Green Street, Onalaska, Wisconsin 54650 (US), made certain new and useful inventions and improvements for which we filed a US Non-provisional application on 16/420932, that has application no. 16/420932 and which is entitled METHODS FOR ESTIMATING REFRIGERANT CHARGE FOR HVACR SYSTEMS.

AND WHEREAS, TRANE INTERNATIONAL INC., a corporation organized and existing under and by virtue of the laws of Delaware, and having an office and place of business at 800-E Beaty Street, Davidson, North Carolina 28036 (hereinafter "Assignee") is desirous of acquiring the entire right, title and interest in and to said inventions, improvements and application and in and to the Letters Patent to be obtained therefor;

NOW THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we have sold, assigned, and transferred, and by these presents do sell, assign and transfer unto said Assignee, its successors or assigns, the entire right, title and interest for all countries in and to all inventions and improvements disclosed in the aforesaid application, and in and to any applications which have been or shall be filed, including all nonprovisionals, applications filed under the Patent Cooperation Treaty, divisions, continuations, or renewals thereof, all Letters Patent which may be granted therefrom, and all reissues or extensions of such patents, and in and to any and all applications which have been or shall be filed in any foreign countries for Letters Patent on the inventions and improvements, including an assignment of all rights under the provisions of the International Convention, and all Letters Patent of foreign countries which may be granted therefrom; and we do hereby authorize and request the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent for the aforesaid inventions and improvements to the Assignee as the assignee of the entire right, title and interest in and to the same, for the use of the Assignee, its successors and assigns.

AND, for the consideration aforesaid, we do hereby agree that we and our executors and legal representatives will make, execute and deliver any and all other instruments in writing including any

and all further application papers, affidavits, assignments and other documents, and will communicate to said Assignee, its successors and representatives all facts known to us relating to said improvements and the history thereof and will testify in all legal proceedings and generally do all things which may be necessary or desirable more effectually to secure to and vest in said Assignee, its successors or assigns the entire right, title and interest in and to the improvements, inventions, applications, Letters Patent, rights, titles, benefits, privileges and advantages hereby sold, assigned and conveyed, or intended so to be.

AND, furthermore we covenant and agree with said Assignee, its successors and assigns, that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been made to others by us and that full right to convey the same as herein expressed is possessed by us.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 7th day of

March, 2020.

Jian Ming Zhang

Inventor: Jian Ming Zhang

130223198009010346

National ID number

IN TESTIMONY WHEREOF, I have hereunto set my hand this _____ day of

_____, 20____.

Inventor: Lihai Li

National ID number

IN TESTIMONY WHEREOF, I have hereunto set my hand this 26th day of

March, 2020



Inventor: James P. Crobus

IN TESTIMONY WHEREOF, I have hereunto set my hand this _____ day of

_____, 20____

Inventor: Scott A. Munns

Inventor: Lifan Li

National ID number

IN TESTIMONY WHEREOF, I have hereunto set my hand this _____ day of
_____, 20_____.

Inventor: James P. Crolius

IN TESTIMONY WHEREOF, I have hereunto set my hand this 26 day of
March, 2020.

Scott A. Munns

Inventor: Scott A. Munns