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प्रतिलिप्यधिकार कार्यालय, भारत सरकार | Copyright Office, Government Of India

दिनांक/Dated:03/10/2024

1. पंजीकरण संख्या/Registration Number

L-154768/2024

2. आवेदक का नाम, पता तथा राष्ट्रीयता  
Name, address and nationality of the applicant

DR. DIGVIJAY PATIL , NUTAN MAHARASHTRA INSTITUTE OF ENGINEERING & TECHNOLOGY-410507 INDIAN

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3. कृति के प्रतिलिप्यधिकार में आवेदक के हित की प्रकृति  
Nature of the applicant's interest in the copyright of the work

OWNER

4. कृति का वर्ग और वर्णन  
Class and description of the work

LITERARY/ DRAMATIC WORK HEAT EXCHANGERS ARE ESSENTIAL DEVICES TO TRANSFER HEAT BETWEEN TWO OR MORE FLUIDS.

5. कृति का शीर्षक  
Title of the work

THE VITAL ROLE OF HEAT EXCHANGERS IN ENHANCING ENERGY EFFICIENCY AND PROCESS CONTROL

6. कृति की भाषा  
Language of the work

ENGLISH

7. रचयिता का नाम, पता और राष्ट्रीयता तथा यदि रचयिता की मृत्यु हो गई है, तो मृत्यु की तिथि  
Name, address and nationality of the author and if the author is deceased, date of his decease

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8. कृति प्रकाशित है या अप्रकाशित  
Whether the work is published or unpublished

UNPUBLISHED

9. प्रथम प्रकाशन का वर्ष और देश तथा प्रकाशक का नाम, पता और राष्ट्रीयता  
Year and country of first publication and name, address and nationality of the publisher

N.A.

10. बाद के प्रकाशनों के वर्ष और देश, यदि कोई हों, और प्रकाशकों के नाम, पते और राष्ट्रीयताएँ  
Years and countries of subsequent publications, if any, and name addresses and nationalities of the publishers

N.A.



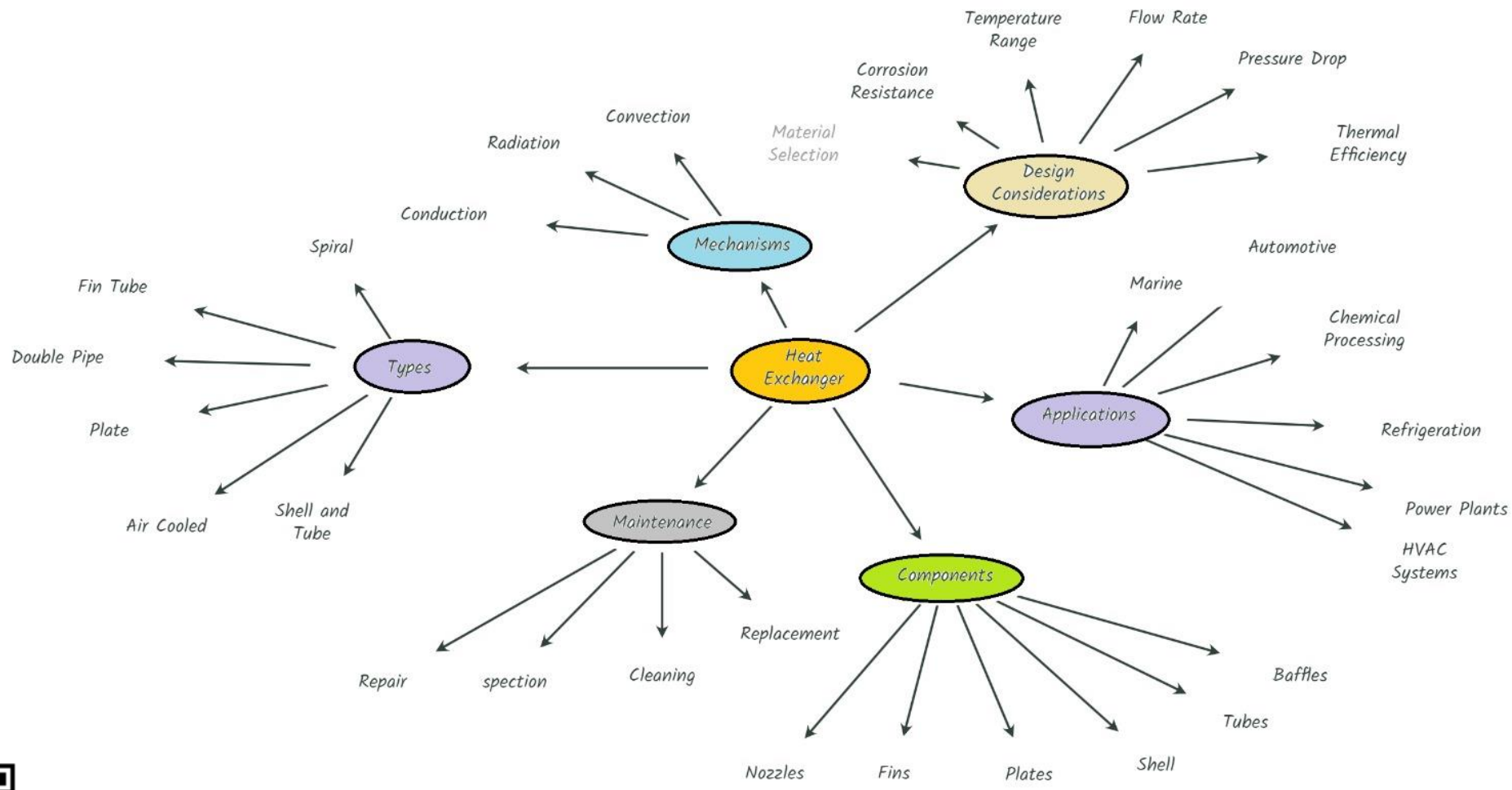
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11. कृति में प्रतिलिप्यधिकार सहित विभिन्न अधिकारों के स्वामियों के नाम, पते और :  
राष्ट्रीयताएं और समनुदेशन और अनुज्ञप्तियों के विवरण के साथ प्रत्येक के  
अधिकार का विस्तार, यदि कोई हो।  
Names, addresses and nationalities of the owners of various rights  
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12. अन्य व्यक्तियों के नाम, पते और राष्ट्रीयताएं, यदि कोई हों, जो प्रतिलिप्यधिकार :  
वाले अधिकारों को समनुदेशित करने या अनुज्ञप्ति देने के लिए अधिकृत हों  
Names, addresses and nationalities of other persons, if any,  
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13. यदि कृति एक 'कलात्मक कृति' है, तो कृति पर अधिकार रखने वाले व्यक्ति का :  
नाम, पता और राष्ट्रीयता सहित मूल कृति का स्थान। (एक वास्तुशिल्प कृति  
के मामले में कृति पूरी होने का वर्ष भी दिखाया जाना चाहिए)  
If the work is an 'Artistic work', the location of the original work,  
including name, address and nationality of the person in possession  
of the work. (In the case of an architectural work, the year of  
completion of the work should also be shown).
- N.A.
14. यदि कृति एक 'कलात्मक कृति' है जो किसी भी माल या सेवाओं के संबंध में :  
उपयोग की जाती है या उपयोग किए जाने में सक्षम है, तो आवेदन में  
प्रतिलिप्यधिकार अधिनियम, 1957 की धारा 45 की उप-धारा (i) के प्रावधान के  
अनुसार व्यापार चिह्न रजिस्ट्रार से प्रमाणन शामिल होना चाहिए।  
If the work is an 'Artistic work' which is used or capable of being  
used in relation to any goods or services, the application should  
include a certification from the Registrar of Trade Marks in terms of  
the provision to Sub-Section (i) of Section 45 of the Copyright Act,  
1957.
- N.A.
15. यदि कृति एक 'कलात्मक कृति' है, तो क्या यह डिजाइन अधिनियम 2000 के :  
अंतर्गत पंजीकृत है? यदि हां, तो विवरण दें।  
If the work is an 'Artistic work', whether it is registered under the  
Designs Act 2000, if yes give details.
- N.A.
16. यदि कृति एक 'कलात्मक कृति' है, जो डिजाइन अधिनियम 2000 के तहत :  
एक डिजाइन के रूप में पंजीकृत होने में सक्षम है, तो क्या यह औद्योगिक  
प्रक्रिया के माध्यम से किसी वस्तु पर प्रयुक्त की गई है और यदि हां, तो इसे  
कितनी बार पुनरुत्पादित किया गया है?  
If the work is an 'Artistic work', capable of being registered as a  
design under the Designs Act 2000, whether it has been applied to an  
article though an industrial process and ,if yes ,the number of times  
it is reproduced.
- N.A.
17. टिप्पणी, यदि कोई हो/Remarks, if any :
- डायरी संख्या/Diary Number: 25282/2024-CO/L  
आवेदन की तिथि/Date of Application: 10/08/2024  
प्राप्ति की तिथि/Date of Receipt: 10/08/2024



*(Signature)*  
इकात की संज्ञित  
Registrar of Copyrights





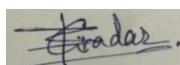
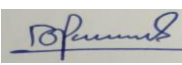



# The Vital Role of Heat Exchangers in Enhancing Energy Efficiency and Process Control



*Parvati*  
उन्नत की मंडल

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Date 03/10/2024

Heat exchangers are essential devices to transfer heat between two or more fluids. They are critical in improving energy efficiency, controlling temperatures, and managing processes across various industries and businesses. There are several types of heat exchangers, each designed for specific applications. These include shell and tube, plate, air-cooled, and double-pipe varieties, each offering distinct advantages and uses. Critical components of heat exchangers include tubes, shells, fins, and gaskets, all of which play integral roles in the heat transfer process. Heat can be transferred through conduction, convection, and radiation, and design considerations such as thermal performance, pressure drop, material selection, and maintenance are crucial for optimal functioning. Heat exchangers are extensively used in various sectors, including industrial, HVAC, automotive, and food and beverage applications, significantly enhancing efficiency and versatility. However, they can be expensive to install and maintain due to their complex nature, requiring careful attention. Recent technological innovations in heat exchangers aim to improve heat transfer efficiency, reduce costs, and integrate advanced monitoring technologies for enhanced performance. As a result, heat exchangers play a vital role in improving energy efficiency and process control across diverse industries, and ongoing innovations are shaping the future of this critical technology.

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 Mr. Vijay Darade	 Dr. Madagonda Biradar	 Mr. Bhushan Pawar
 sh Patil	 Mrs. Nilima Gadge	 Mr. Rohit Jadhao



  
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