balief CORPORATION
An ISO 9001:2015 Certified Company

MAKE IN INDIA

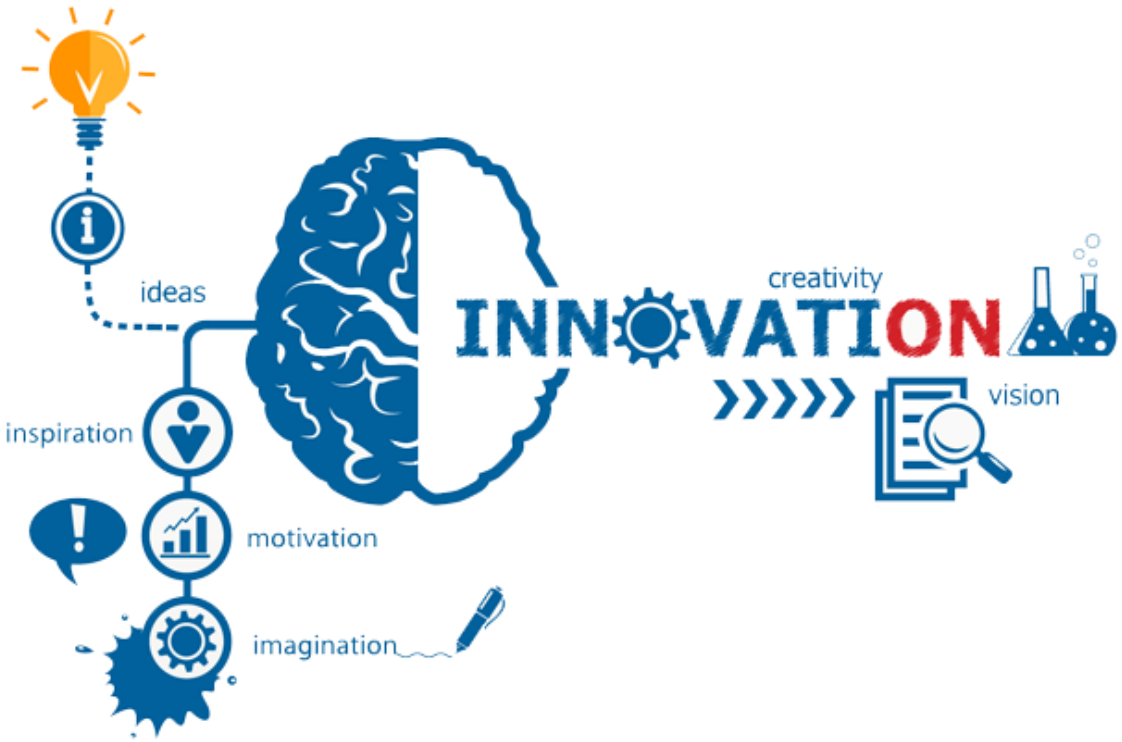
PDPU IIC INNOVATION & INCUBATION CENTRE NIDHI TBI

BALIEF CORPORATION ACHIEVMENTS

Pratik Patel

(Founder and Director)

About Us



Balief Corporation is an ISO 9001:2015 certified company engaged in Special purpose machine manufacturing and R&D sector. Balief caters to special and unique requirements in the field of Thermal engineering, power, HVAC, water & air treatment and laboratory equipment by offering design, R&D and manufacturing solutions. These expertise helps you fulfil your requirements that hard to accomplish with current market offerings. Balief has a diverse product portfolio. To meet unique requirements, Balief offers R&D, design and testing services to innovate and create new products. **This has led to filing of 10 patents till date.**

The Balief team is a small yet focused group of people with domain specific knowledge and expertise. The team consists of both young and enterprising technocrats and industry and academic experts with decades of experience in their respective fields. Which led to develop good product for HVAC segment like Heat pump, chiller, Air cooler, Dehumidifier etc.… Balief Corporation also has products like ETP plant, Dry & wet scrubber, Bag filter, conical vacuum dryer etc.

Balief Corporation Patent Details

Sr. No.	Patent Reference Number	Type of Patent	Title of Patent
01	202021043090	Provisional Patent	Humidification - Dehumidification (HDH) water Desalination System
02	333806-001	Design Patent	Water Chiller
03	333806-002	Design Patent	Venturi Wet and Dry Scrubber
04	333806-003	Design Patent	Wet Scrubber
05	333807-001	Design Patent	Humidification - Dehumidification (HDH) water Disallination System
06	333807-002	Design Patent	Heat Pump for Water Heating
07	333807-003	Design Patent	Compact Heat Pump for Water Heating and Cooling
08	333807-004	Design Patent	Humidifier for ETP Plant
09	333807-005	Design Patent	Conical Vacuum Dryer
10	335018-001	Design Patent	Humidification-Dehumidification and Flash Chamber Desalination System

Personal Details

Personal Information

Name	:	Pratik Patel
Qualification	:	M.Tech Thermal Engineering (Silver Medalist)
College	:	Pandit Deendayal Petroleum University (PDPU), Gandhinagar
Designation	:	Founder and Director at 'BALIEF CORPORATION'
Mobile Number	:	+91-8200890851

Also Connected As

Technical Mentor at "Innovation and Incubation Centre (IIC) PDPU, Gandhinagar"

PDPU IIC INNOVATION & INCUBATION CENTRE NIDHI TBI

Personal Details

Connected As	**Technical Mentor at "Innovation and Incubation Centre (IIC) PDPU, Gandhinagar"**

PDPU IIC INNOVATION & INCUBATION CENTRE
NIDHI TBI

Balief Corporation Team

Name	Pratik Patel
Designation	Founder and Director at ‘BALIEF CORPORATION’
Mobile No.	+91-8200890851
Email ID	baliefcorporation@gmail.com

Mr. Devansh Patel
Operational Head

Mr. Vishal Prajapati
Production In charge

Mr. Saurabh Patel
Design Engineer

Mr. Dhruv Raval
Jr. Engineer

Humidification – Dehumidification Water Desalination System

Patent Details		Inventors	Dr. Rajesh Patel
Application No.	202021043090		Mr. Pratik Patel
Date	05/10/2020	Applicants	Dr. Rajesh Patel
Status	Provisional Specification Filed		Mr. Pratik Patel

❑ Key Features

- Downward water spray based humidifier is used for minimum resistance to air flow and increase direct contact heat transfer. Humidifier also includes mist eliminator for separate water particles from air and only allow humid air for dehumidifier.
- Utilization of a hot exhaust air from VCR (Vapor Compression Refrigeration) cycle for heating air supplied to humidifier which has significantly improved coefficient of performance of the system by reducing power consumption required for air heating.
- Purify any type of waste water (e.g. sea water, muddy water) without volatile impurities to distilled water.
- Provides distilled water, potable water, hot & cold air stream with a single VCR system.

Water Chiller

Patent Details	
Application No.	333806-001
Date	01/10/2020
Status	Design patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- A chiller uses a vapor compression mechanical refrigeration system that connects to the process water system through a device called an evaporator. Refrigerant circulates through an evaporator, compressor, condenser and expansion device of a chiller. A thermodynamic process occurs in each of above components of a chiller. The evaporator functions as a heat exchanger such that heat captured by the process coolant flow transfers to the refrigerant. As the heat-transfer takes place, the refrigerant evaporates, changing from a low-pressure liquid into vapor, while the temperature of the process coolant reduces.

❑ **Applications:** 1. Pharma Industries

2. Chemical Industries

3. Plastic Industries

Combined Wet and Dry Scrubber

Patent Details	
Application No.	333806-002
Date	01/10/2020
Status	Design patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- Scrubbers are effective air pollution control devices for removing particles and/or gases from industrial exhaust streams. A Dry scrubber cleans the air by cartridge filters and a Wet Scrubber operates by introducing the dirty gas stream with a scrubbing liquid – typically water. Particulates or gases are collected in the scrubbing liquid. Depending on the industrial exhaust stream, scrubbers should decide. But in the pharma industry the scrubber requirements will vary with products. So for that application we have developed one system with both the scrubber and they can select scrubber as per product's requirement.

❑ **Applications:** 1. Pharma Industries

2. Chemical Industries

3. Ceramic Industries

Industrial Wet Scrubber

Patent Details	
Application No.	333806-003
Date	01/10/2020
Status	Design patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- A Wet Scrubber operates by introducing the dirty gas stream with a scrubbing liquid – typically water. Particulates or gases are collected in the scrubbing liquid. Wet Scrubbers are generally the most appropriate air pollution control device for collecting both particulate and gas in a single system. It may use to remove powder particles from exhaust air in pharma industries and ceramic industries.
- Exemplary performances with low energy demand
- Easy operation and maintenance
- Reliable and economical design

❑ **Applications:** 1. Pharma Industries

2. Chemical Industries

3. Ceramic Industries

Humidification – Dehumidification Water Desalination System

Patent Details	
Application No.	333807-001
Date	01/10/2020
Status	Design Patent

Applicants	
	Mr. Pratik Patel
	Dr. Rajesh Patel

❑ Key Features

- Downward water spray based humidifier is used for minimum resistance to air flow and increase direct contact heat transfer. Humidifier also includes mist eliminator for separate water particles from air and only allow humid air for dehumidifier.
- Utilization of a hot exhaust air from VCR (Vapor Compression Refrigeration) cycle for heating air supplied to humidifier which has significantly improved coefficient of performance of the system by reducing power consumption required for air heating.
- Purify any type of waste water (e.g. sea water, muddy water) without volatile impurities to distilled water.
- Provides distilled water, potable water, hot & cold air stream with a single VCR system.

Heat Pump for Water Heating

❑ Applications

- Domestic Water Heating
- Swimming Pool Water Heating
- Hospitals
- Bungalows
- Hotels
- Pharma Industry
- Chemical Industry
- Food Industry

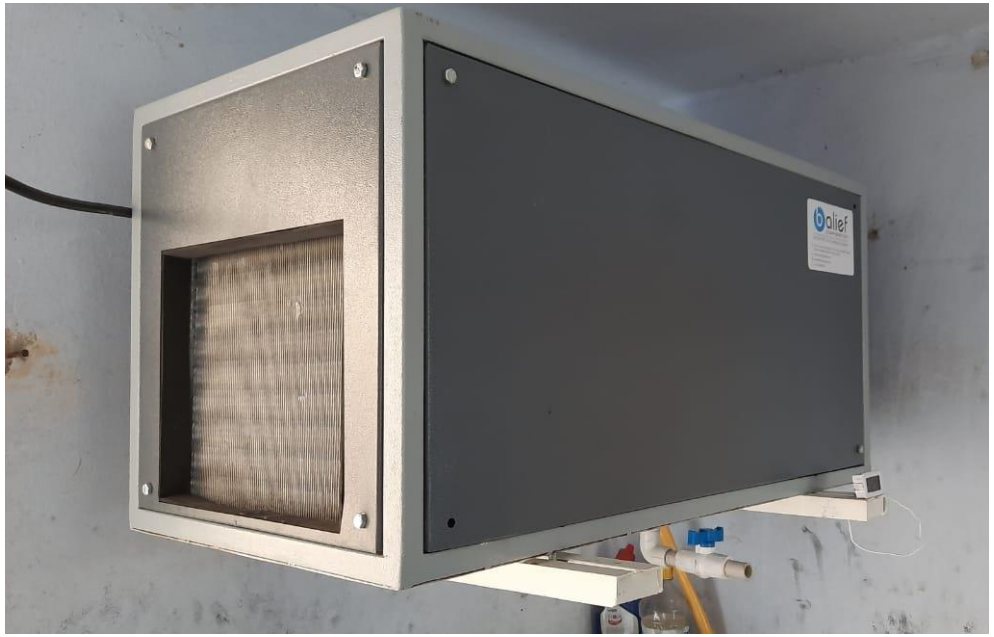
Patent Details	
Application No.	333807-002
Date	01/10/2020
Status	Design Patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- Very low operating cost - 70% lower to an Electric Water Heater High energy efficiency – Coefficient of performance (COP) can be as high as 4
- Compact size and ease of installation. Can be installed in any convenient location
- Continuous hot water supply - Uninterrupted operation during night time, on rainy days and even on cold days. Works in any kind of weather and all seasons
- Can be scaled to meet requirements from individual villas to large commercial installations
- Reliable and durable - Can last for years with little or no maintenance Simple Operation - Temperature and time options can be preset on the intelligent digital controller

Compact Heat Pump for Water Heating and Cooling



Patent Details	
Application No.	333807-003
Date	01/10/2020
Status	Design Patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- Compact in size. Can be installed in any convenient location
- Very low operating cost - 70% lower to an Electric Water Heater High energy efficiency – Coefficient of performance (COP) can be as high as 4
- Compact size and ease of installation. Continuous hot water supply - Uninterrupted operation during night time, on rainy days and even on cold days. Works in any kind of weather and all seasons
- Can be scaled to meet requirements from individual villas to large commercial installations
- Reliable and durable - Can last for years with little or no maintenance Simple Operation - Temperature and time options can be preset on the intelligent digital controller

❑ **Applications** 1. Domestic Water Heating 2. Hospitals 3. Bungalows 4. Hotels

Humidifier for ETP Plant

Patent Details	
Application No.	333807-004
Date	01/10/2020
Status	Design Patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- It used to throw waste water to environment by humidification of the air. In Effluent Treatment Plant (ETP) the last remaining industrial waste water is not possible to recycle. So we need to boil it or throw to environment by humidifier. So humidifier will humidified the air and throw this remaining waste water to environment with very less power consumption.
- Low Power Consumption
- Compact in Size
- Less Moving Part
- Less Maintenance and Operating Cost

❑ Applications

- ETP Plants

Conical vacuum Dryer

Patent Details	
Application No.	333807-005
Date	01/10/2020
Status	Design Patent

Applicants
Mr. Pratik Patel
Dr. Rajesh Patel

❑ Key Features

- Balief Corporation conical vacuum dryer is a vacuum contact closed system. Which has indirect heating of the product. (E.g. hot oil, hot water) It is particularly suited for drying pharmaceutical, food, chemical, hazardous and toxic products to a very low final moisture content. The product quality after the drying process is reproducible and as good as that of the initial product, whereas the driving forces required are very low. The achievable, high end vacuum ensures low drying temperatures which is a clear advantage when drying temperature-sensitive products.
- High containment level, almost 100% solids and solvent recovery
- Wide product flexibility as well suited for multiproduct application
- Improve of the product quality and reduction of the drying time by use of an effective ribbon design
- Inbuilt scraping system available for sticky materials
- Reliable drive systems with proven sealing system

❑ **Applications** 1. Pharma Industry 2. Chemical Industry

Combined HDH and Flash Chamber System

Patent Details	
Application No.	335018-001
Date	01/10/2020
Status	Design Patent

Applicants
Dr. Hitesh Panchal
Mr. Pratik Patel

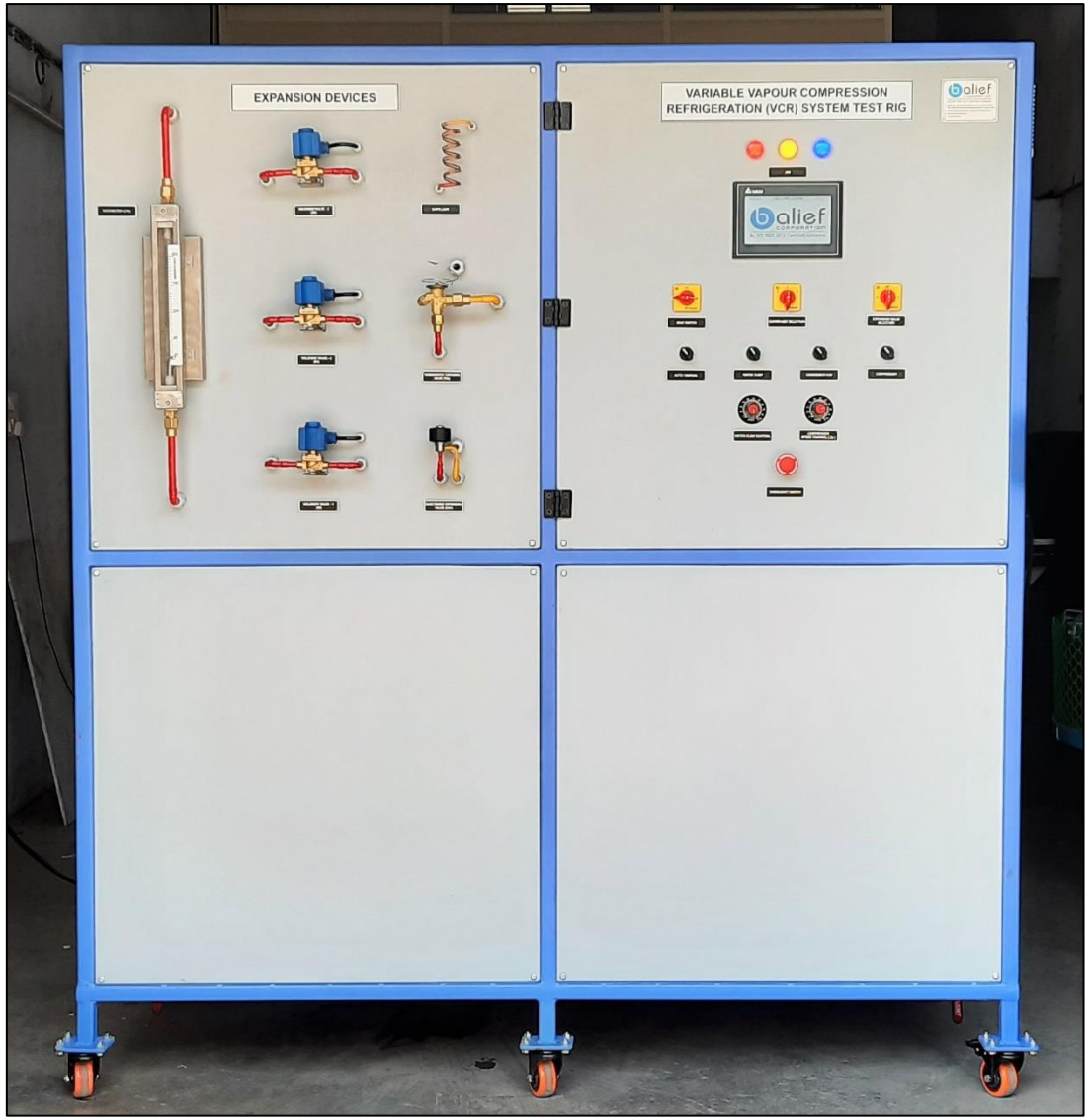
❑ Key Features

- Humidification dehumidification (HDH) is a small to medium capacity desalination method. Humidification is the process in which the moisture or water vapor or humidity is added to the air. Dehumidification means removing the moisture from the air. In Flash Chamber desalination system hot water is sprayed into vacuum flash chamber, it will generate low pressure and temperature steam. This steam is condensed by cold water in shell and tube heat exchanger.
- This system Consists both HDH and Flash chamber Desalination System
- This unique system developed first time in India.

Other Achievements

Balief Variable VCR System Test Rig_Acadamic Purpose

❑ A variable VCR system is designed to be “variable” in true sense.



✓ **It consists of**

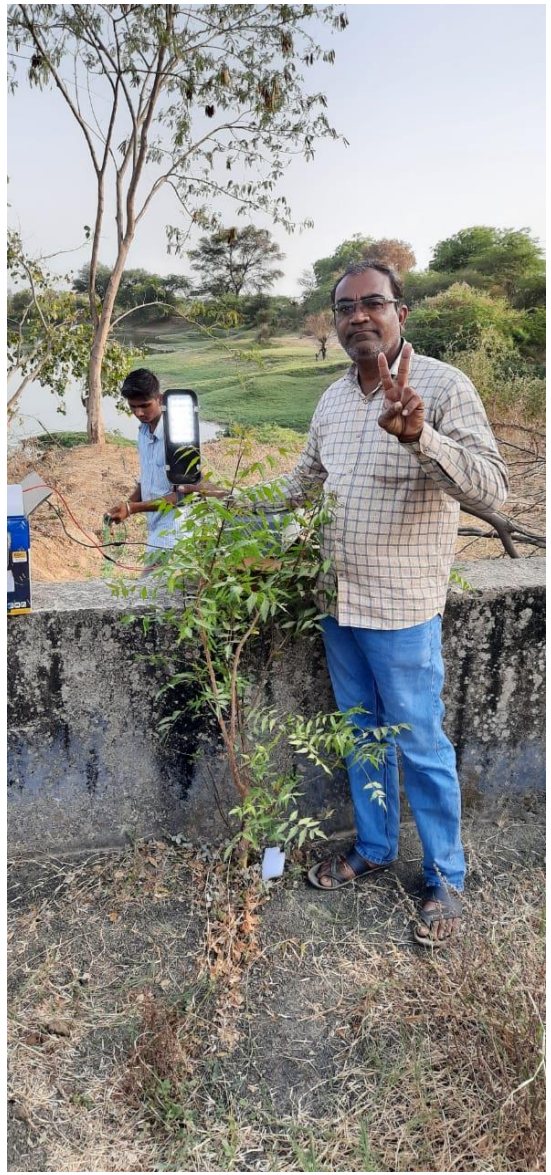
1. Variable speed compressor
2. Two options for cooling load
3. Two types of condenser
4. Three types of expansion device
5. Variable Speed Water Pump

✓ It gives flexibility of operating 12 different VCR systems in a single setup.

✓ Demonstrates latest technological advancements in HVACR field.

✓ Data acquisition and controlling is made seamless with the use of HMI. The entire operation of the VCR system is automated with PLC controls and data logging via USB. The system can also be remotely operated by an Ethernet connection or wireless.

Floating Solar Project From Single Use Waste Plastic



- This project was proposed by GERMI team to GSECL earlier. They got confirmation from GSECL in 2015 for “Design, Development and Demonstration of 10 kw SPV plants with Innovative structure Design” at canal top solar PV plant of GSECL at Sanand.
- In January 2020, PDPU IIC was involved in this project and took the responsibility of execution of the project. GERMI team will provide help in site selection and technical.
- PDPU IIC team take challenges like:

1. Develop a floating dock from single use plastic waste
2. Innovative Design of Dock which may use for any site
3. Automatic solar panel cleaning system

- Startups working from PDPU IIC : 1. Imagine Powertree Private Limited 2. Balief Corporation 3. Saltech Design labs Pvt Ltd

THANK YOU

ADDRESS

BALIEF CORPORATION
22, FORTUNE NORTH INDUSTRIAL PARK,
B/H GAMTHI RESTAURANT, NEAR S.P.
RING ROAD, NANA CHILODA CIRCLE,
AHMEDABAD-382330

CONTACT US

www.baliefcorporation.com
baliefcorporation@gmail.com
+91-8200890851