NO FIRE

FM APPROVED SANDWICH PANELS

construct with peace of mind

fire armet P1R
A RINAC Product

FM APPROVED

RINAC
RINAC INDIA LIMITED
Cooling with a warm touch

Firearmet sandwich panels are made of CFC-free high-quality poly-isocynurate foaming material with an average density of 42 [kg/m3] firmly sandwiched between metal surfaces for factory buildings, dry warehouses and cold warehouses. Firearmet panels are manufactured using state-of-the-art, unique, and eco-friendly foaming technology for achieving excellent insulation and Fire resistance using Elastopir.

Firearmet panels are manufactured under strict quality controlled conditions as per the ISO standards/in accordance to European standard EN 14509.

Firearmet has been developed to meet growing demands for composite panels with improved fire-protection properties, thus making it possible to build industrial buildings as well as cold stores that are both energy-efficient and safe.

Firearmet provides superior fire rating and extra-high temperature stability.

Elastopir

- **Superb fire resistance**

- **Excellent mechanical and thermal properties**

- **Provides very low lambda value matched by no other conventional insulation material**

- **Durable with good dimensional stability**

- **Pre-fabricated panels enable fast and easy installation with intelligent joint system**

Firearmet panels has under gone series of rigorous tests by FM Global and is certified under FM Approval Class: 4880, 4881 and 4471

FM standard 4880

- Large scale Corner test passed
- Class1 fire rating
- Suitable for Partition and ceiling
- Applicable for any height

FM standard 4881

- Large scale Corner test passed
- Class1 fire rating
- Suitable for External walls
- Hail storm resistance
- Hurricane resistance

FM standard 4471

- Interior combustibility as per FM4880
- Exterior Combustibility as per FM 4881
- Wind resistance
- Hail storm resistance
- Water leak proof and suitable for Foot traffic

Reaction to fire

The method of testing shows how a building product reacts when exposed to high heat in the form of a direct flame, radiant heat or high temperatures. Reaction to fire tests can be performed using a variety of test methods, including the SBI method (Single Burning Item). Parameters such as smoke formation, heat release and any flame spread are measured to determine the product's fire characteristics. The following classifications for combustibility are assigned based on the limit values achieved by the tested product:

A1 or A2 for a non-combustible material

B, C, D, E for a combustible material, where B is lowest combustibility.

A1 is the highest class and is not combined with any additional class. The other classes are always combined with the following additional classes which indicate the product's ability to produce smoke and flaming droplets and particles.

S1 - the structural element may produce a very limited amount of combustion gases

S2 - the structural element may produce a limited amount of combustion gases

S3 - no requirement for limited production of smoke

D0 - flaming droplets and particles may not be produced by the structural element

D1 - a limited amount of flaming droplets and particles may be produced by the structural element

International standards use the following classifications for internal building surfaces:

Class I = B-s1, d0

Class II = C-s2, d0

Class III = D-s2, d0

Applications

- External walls, Partition walls and Ceiling
- Roofing
- Wall, Ceiling and Floor insulation for cold storages, including Blast/Quick freezer application

Features and benefits

- Infill : Polyisocyanurate Foam (PIR)

- Lamination : Pre-Painted Galvanised Steel (PPGS) / Stainless Steel (SS), or a combination of both

- Thickness of the lamination: 0.5 [mm]

- Panel width : 1000mm

- Panel length : Any transportable length

- Colour : RAL 9002 standard [Other colours optional]

- PIR has lowest thermal conductivity and retention ability

- Energy efficient

- Saves significant quantity of CO2 emission

- Perfect moisture barrier

- Fire rated core insulation

These panels are suitable for following applications where high level of fire resistance, performance and structural stability against natural hazards for :

a) External walls, Partition walls and Ceiling of any buildings;

b) Roof of a building

c) Wall, Ceiling and Floor for cold storages and including Blast/Quick freezer application.

Rigid poly-isocynurate has lowest thermal conductivity which makes the retention of heat more efficient, facilitates effective temperature controlled condition in a room. The closed cell structure matrix of the insulation core guarantees the highest thermal performance over the life time of the building. This property of Firearmet panel actively contribute to great energy saving and ultimately saves significant quantity of CO2 emission.

Water Absorption : The water vapour permeability of insulation is very low due to its closed cell structure. Permeability is further reduced by the metal skin of a panel which acts as a perfect moisture barrier.

Fire Performance : Like all organic building materials, wood, paper, plastics, paints, Rigid insulation is also combustible, although its ignitability and rate of burn depend largely on the fire resistance properties of the material used . Insulated panels with fire rated cores have performed well in actual fires and do not contribute significantly to the fire load in the building.

fire armet PIR
A RINAC Product

FM APPROVED

RINAC
RINAC INDIA LIMITED
Cooling with a warm touch

Firearmet
FM 4880 - Internal Wall & Ceiling

Steel faced insulated composite panels are designed to provide a fast, efficient and cost effective cold room construction system. The system comprises of CFC free polyisocyanurate panels normally faced on both sides with pre-coated galvanised steel sheet whose edges are vertically lipped by 24[mm]. The panels have single/double tongue and grooved joints to provide a secure and consistent joint. These are sealed with silicon for a continuous anti-bacterial barrier.

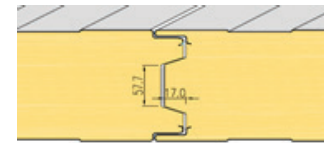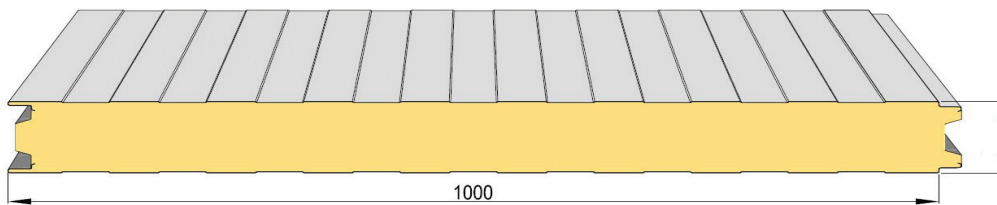**Panel Width: 1023 mm | Construction Width: 1000 mm**

THERMAL PROPERTIES* Lambda Value: 0.020W/m.K

Core Thickness (mm)	75	100	150
U-value (w/m².K)	0.27	0.2	0.14

PANEL WEIGHT* Density of Panel: 42±2 Kg/m3

Core Thickness (mm)	75	100	150
Weight (Kg/m2)	11.4	12.5	14.6

*Other thickness will be provided on request

1000

52.7   27.0

Optional face profile
Plane face profile & Micro Rib faces profile

PANEL FACING STANDARD

White lacquered pre-coated galvanized steel with removable protection film

- Thickness   : 0.5mm including finish
- Colour   : White 9002 (RAL). Other colours on request
- Lacquer   : Total coating thickness of 32 micron
- Joinery   : 75, 100 and 150mm with double tongue and grove
- Use   : For internal and exterior applications (non-aggressive environment)
- Fire rating   : FM Standard 4880 Approved

SPAN GUIDE - FIREARMET WALL & CEILING

Maximum allowed span for uniform characteristic load [kN/m2] - 75mm thk Panel

Span Length [m]		3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
Single Span	L/100	3.24	2.40	1.81	1.39	1.09	0.86	0.70	0.57	0.47	0.39	0.33	0.28
	L/150	2.16	1.60	1.21	0.93	0.73	0.58	0.46	0.38	0.31	0.26	0.22	0.19
	L/200	1.62	1.20	0.90	0.70	0.54	0.43	0.35	0.28	0.23	0.19	0.16	0.14
Two Span	L/100	2.24	1.67	1.26	0.96	0.74	0.57	0.44	0.34	0.26	0.20	0.16	0.12
	L/150	1.25	0.88	0.63	0.45	0.32	0.22	0.15	0.09	0.05			
	L/200	0.75	0.49	0.32	0.19	0.11	0.04						
Multi Span	L/100	2.04	1.46	1.06	0.77	0.56	0.41	0.30	0.21	0.15	0.10	0.07	0.04
	L/150	1.05	0.69	0.45	0.28	0.17	0.09						
	L/200	0.55	0.31	0.15	0.04								

Maximum allowed span for uniform characteristic load [kN/m2] - 100mm thk Panelz

Span Length [m]		4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
Single Span	L/100	2.89	2.27	1.80	1.45	1.18	0.97	0.81	0.68	0.57	0.49	0.42	0.36
	L/150	1.93	1.51	1.20	0.96	0.78	0.65	0.54	0.45	0.38	0.32	0.28	0.24
	L/200	1.45	1.13	0.90	0.72	0.59	0.48	0.40	0.34	0.29	0.24	0.21	0.18
Two Span	L/100	2.08	1.64	1.30	1.04	0.84	0.68	0.55	0.44	0.36	0.29	0.24	0.19
	L/150	1.14	0.86	0.65	0.50	0.38	0.28	0.21	0.15	0.11	0.07	0.04	
	L/200	0.67	0.47	0.33	0.22	0.14	0.08	0.04					
Multi Span	L/100	1.89	1.45	1.12	0.87	0.68	0.53	0.41	0.32	0.25	0.19	0.15	0.11
	L/150	0.97	0.70	0.50	0.36	0.25	0.17	0.10	0.06				
	L/200	0.51	0.32	0.19	0.10								

Maximum allowed span for uniform characteristic load [kN/m2] - 150 mm thk Panel

| Span Length [m]		5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0
Single Span	**L/100**	2.85	2.36	1.97	1.66	1.41	1.20	1.04	0.90	0.78	0.68	0.60	0.53
	L/150	1.90	1.58	1.32	1.11	0.94	0.80	0.69	0.60	0.52	0.45	0.40	0.35
	L/200	1.43	1.18	0.99	0.83	0.70	0.60	0.52	0.45	0.39	0.34	0.30	0.26
Two Span	**L/100**	2.14	1.78	1.49	1.26	1.06	0.90	0.76	0.65	0.55	0.47	0.40	0.34
	L/150	1.17	0.94	0.77	0.62	0.51	0.41	0.33	0.27	0.21	0.17	0.13	0.10
	L/200	0.68	0.53	0.40	0.31	0.23	0.16	0.11	0.07				
Multi Span	**L/100**	1.99	1.63	1.34	1.11	0.92	0.76	0.64	0.53	0.45	0.37	0.31	0.26
	L/150	1.05	0.83	0.65	0.51	0.40	0.32	0.24	0.19	0.14	0.10	0.07	0.05
	L/200	0.57	0.42	0.31	0.22	0.15	0.09	0.05					

Firearmet
FM 4881- External Walls

The panels are connected with a special notch. Sandwich panels in plain and micro-ribbed, surfaces are available to you. With its distinctive surface profiling and concealed fixing joint design, this panel really stands out from traditional panel systems in terms of its structural stability and strength. The panels are lightweight and quick to install using hidden lock system.
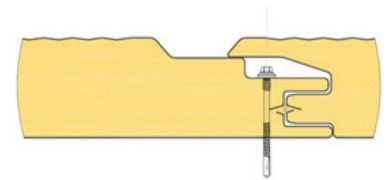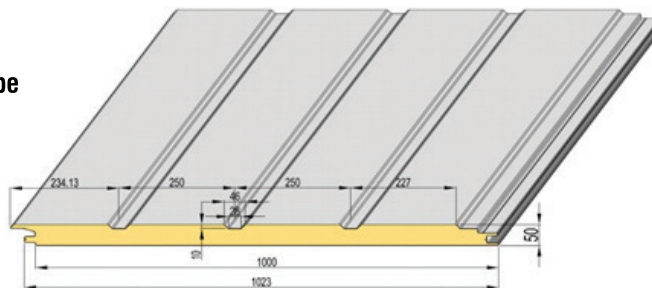
Insta-Build Mystic [FS]
Secret Lock Flat Surface Type Panels
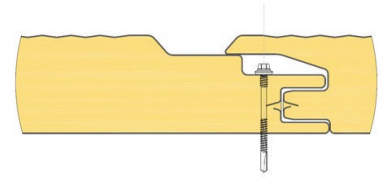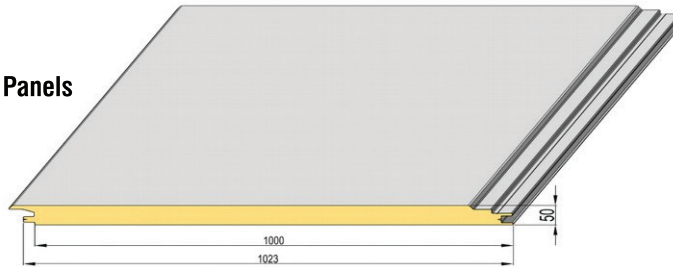
Insta-Build Mystic[SG]
Secret Lock Single Groove Type
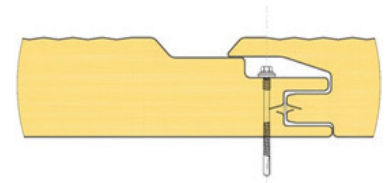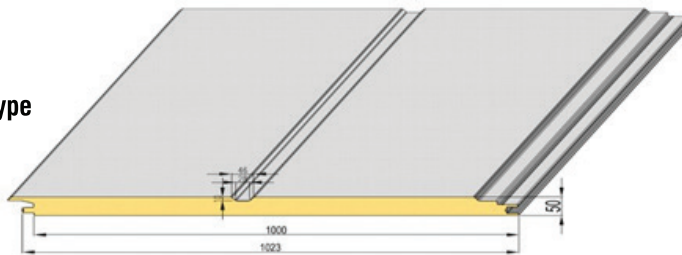
Insta-Build Mystic[MG]
Secret Lock Multi Groove Type

Panel Width: 1050mm | Construction Width: 1000mm

THERMAL PROPERTIES Lambda Value: 0.02W/m.K

Core Thickness (mm)	50
U-value (w/m².K)	0.41

PANEL WEIGHT Density of Panel: 42±2 Kg/m3

Core Thickness (mm)	50
Weight (Kg/m2)	11.4

PANEL FACING STANDARD

White lacquered pre coated galvanized steel with removable protection film.

- Thickness   : 0.5mm including finish
- Colour   : White 9002(RAL). Other colours on request.
- Lacquer   : Total coating thickness of 32 micron
- Use   : For internal and exterior applications (non-aggressive environment)
- Certification : FM Standard 4881 Approved Class 1 exterior wall system Panels

APPEARANCE
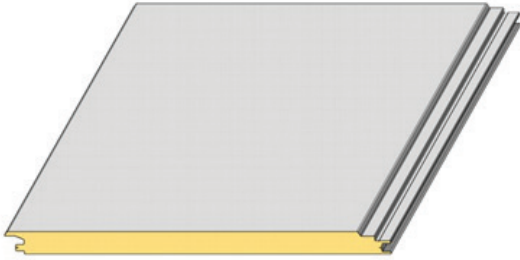
Plain faces
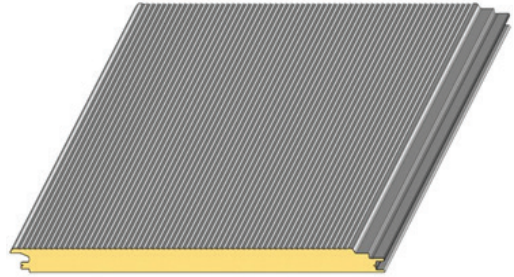
Micro rib faces

Firearmet Mystic[SG] - Secret Lock Single Groove Type

Plain faces

Micro rib faces

Firearmet Mystic[SG] - Secret Lock Multi Groove Type
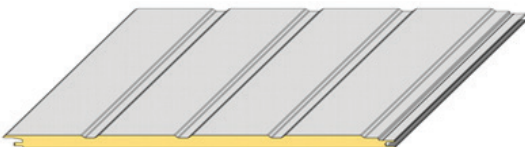
Plain faces
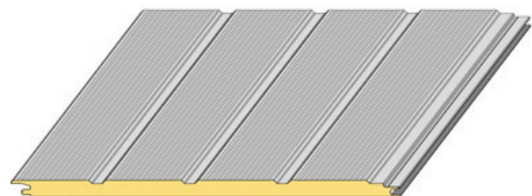
Micro rib faces

SPAN GUIDE - FIREARMET BUILDING PANELS

External facing thickness: 0.5mm & Internal facing thickness: 0.5mm

Maximum allowed span for uniform characteristic load [kN/m2] – 50mm thk Panel

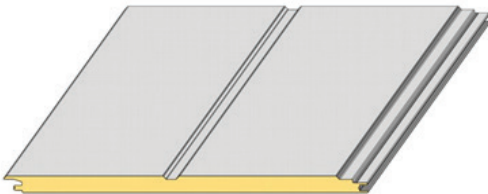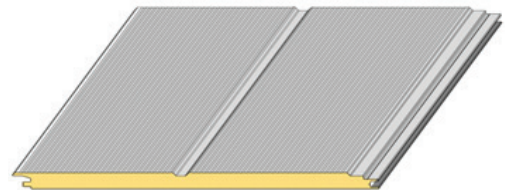| Span Length [m]		1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Single Span	**L/100**	5.75	3.65	2.43	1.68	1.20	0.88	0.66	0.51	0.40	0.32	0.26
	L/150	3.84	2.43	1.62	1.12	0.80	0.59	0.44	0.34	0.27	0.21	0.17
	L/200	2.88	1.82	1.22	0.84	0.60	0.44	0.33	0.25	0.20	0.16	0.13
Two Span	**L/100**	3.81	2.40	1.60	1.10	0.76	0.54	0.38	0.27	0.19	0.13	0.08
	L/150	2.26	1.35	0.84	0.53	0.33	0.20	0.11	0.05			
	L/200	1.49	0.83	0.46	0.25	0.11						
Multi Span	**L/100**	3.58	2.17	1.36	0.87	0.55	0.35	0.21	0.12	0.06		
	L/150	2.01	1.11	0.61	0.32	0.14						
	L/200	1.23	0.58	0.23	0.04							

fire armet P2D
*A RIN*A*C Product*

◇ FM APPROVED

RINAC
RINAC INDIA LIMITED
Cooling with a warm touch

Firearmet
FM 4471 - Roofing

Roof Panels from Rinac combines aesthetic, innovative design, with high strength, durability, excellent thermal/ Fire resistant properties. Insulated Roof Panels are trapezoidal insulated panel for roofs. These panels are erected to form roofs of a building system. The panels are joined at their sides with a unique jointing systems. The panels are installed similarly to the method used for normal roof sheeting. Pre-fabricated panels ensure quick and easy installation and minimal on-site wastage. Excellent thermal ratings reduce energy usage and costs associated with heating and cooling.

Panel Width: 1080mm | Construction width: 1000 mm

THERMAL PROPERTIES*   Lambda Value: 0.02 W/m.K

Base Thickness (mm)	30	50	100	
U-value (w/m².K)	0.5	0.35	0.2	

PANEL WEIGHT *   Density of Panel: 42±2 Kg/m3

Core Thickness (mm)	30	50	100	
Weight (Kg/m2)	11	11.8	14	

*Other thickness will be provided on request
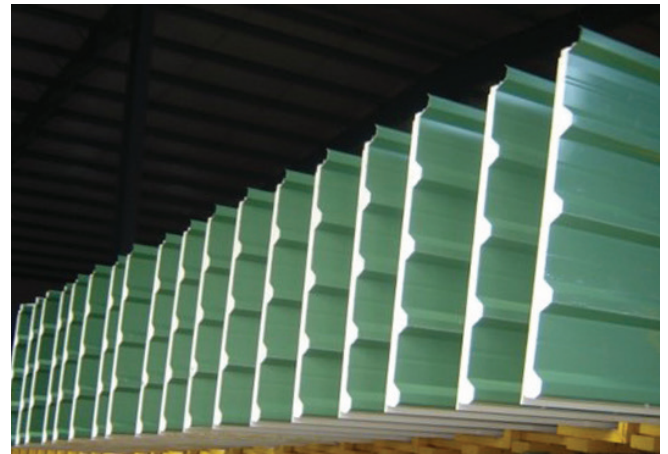
PANEL FACING STANDARD

White lacquered pre coated galvanized steel with removable protection film.

- Thickness   : 0.5mm including finish
- Colour   : White 9002 (RAL). Other colours on request
- Lacquer   : Total coating thickness of 32 micron
- Use   : For internal and exterior applications (non-aggressive environment)
- Certification : FM Standard 4471 Approved Class 1 Roof Panels
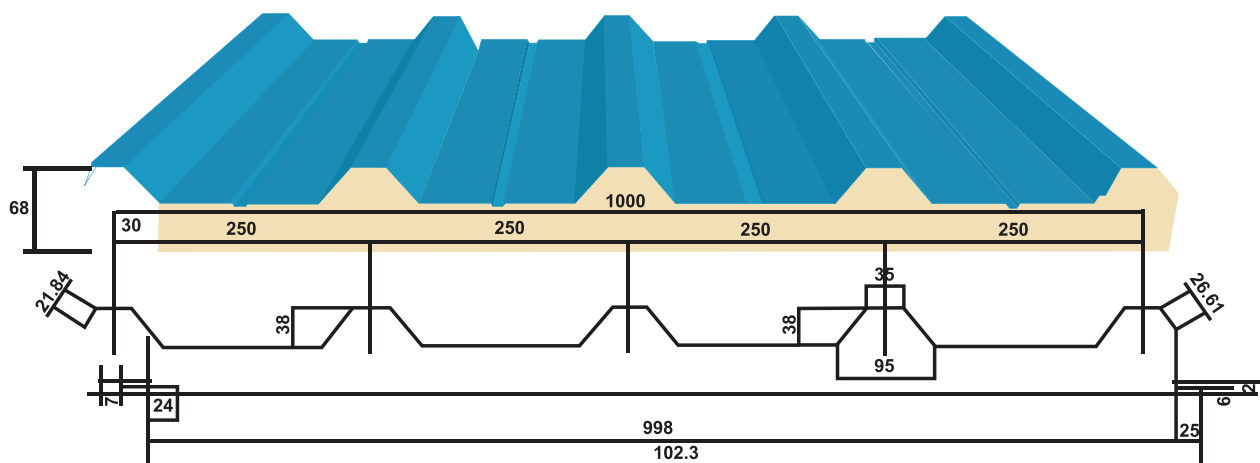
SPAN GUIDE FOR ROOF PANELS

External facing thickness: 0.5 mm & Internal facing thickness: 0.5 mm

Maximum allowed span for uniform characteristic load [kN/m2] - 30mm thk Panel

Span Length [m]		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
	L/100	27.91	8.27	3.49	1.79	1.03	0.65	0.44	0.31	0.22
Single Span	L/150	18.60	5.51	2.33	1.19	0.69	0.43	0.29	0.20	0.15
	L/200	13.95	4.13	1.74	0.89	0.52	0.33	0.22	0.15	0.11

Maximum allowed span for uniform characteristic load [kN/m2] - 50mm thk Panel

Span Length [m]		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	L/100	5.99	3.07	1.77	1.12	0.75	0.53	0.38	0.29	0.22
Single Span	L/150	3.99	2.04	1.18	0.75	0.50	0.35	0.26	0.19	0.15
	L/200	2.99	1.53	0.89	0.56	0.37	0.26	0.19	0.14	0.11

Maximum allowed span for uniform characteristic load [kN/m2] - 100mm thk Panel

Span Length [m]		2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
	L/100	6.78	3.92	2.47	1.66	1.16	0.85	0.64	0.49	0.39	0.31
Single Span	L/150	4.52	2.62	1.65	1.10	0.78	0.57	0.42	0.33	0.26	0.21
	L/200	3.39	1.96	1.24	0.83	0.58	0.42	0.32	0.25	0.19	0.15

CLIENTELE

AIR INDIA sats

DELHI INDIRA GANDHI INTERNATIONAL AIRPORT | GMR

METRO

Reliance Industries Limited

Hindustan Unilever Limited

Safal

Coca-Cola

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR

PEPSICO India

PATANJALI Prakriti ka Aashirwad

Infosys

Nestlé

cochin international airport

Agility A New Logistics Leader

WIPRO Applying Thought

syngenta

ITC Limited

PIONEER. A DuPont Company

MONSANTO

CARGO SERVICE CENTER

KAPPEC

JAIN

BINGO!

fieldfresh

heritage Heritage Health Foods.

Shell

URC Building Values

Menzies AVIATION
Menzies Aviation Bobba (B'lore) Pvt. Ltd.

fire armel
A RINAC Product
FM APPROVED

RINAC INDIA LIMITED
Cooling with a warm touch

Godrej

Reliance RETAIL

amazon

KFC

Del Monte Quality

THE LEELA
PALACES ~ HOTELS ~ RESORTS
The Essence of India

Pizza Hut

TAJ
Hotels Resorts and Palaces

MOTHER DAIRY
happy food happy people

Marriott
HOTELS · RESORTS · SUITES

LAZZA

LSG Sky Chefs

THE HOST OF CULTURAL CAPITAL
Casino
SINCE 1980
CASINO HOTELS LTD.
A FOUR STAR BUSINESS CLASS HOTEL

SAJ FLIGHT SERVICES (P) LTD
Pioneering India's Aviation Catering
SAJ
Symbol of Excellance

zomato

THE GRAND
Hotels · Palaces · Resorts

TAJSATS
AIR CATERING

HATCH TO HEALTH

shalimar
Group

The Ambassador Group

THE WATERBASE LIMITED

PORNA Chicken
· Fresh | Tender | Delicious ·

deviseafoods

Flipkart

Srinivasa Farms

CASTLEROCK

OVOBEL FOODS LIMITED

ProTAC Foods International

RICH'S

abad fisheries
private limited

KFDC Ltd.

KARNATAKA FISHERIES DEVELOPMENT CORPORATION

Forstar
The Seashore Supremos

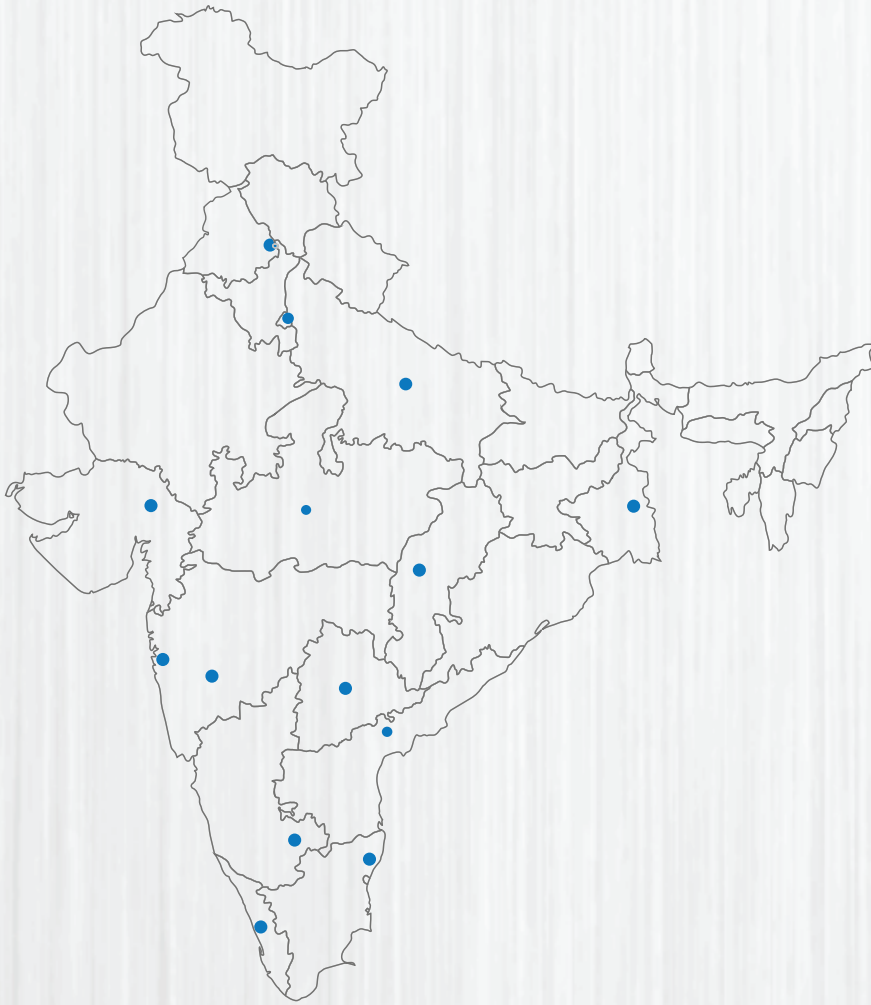Nekkanti Sea Foods
Quality in detail

ULKA SEAFOODS PVT. LTD.

www.rinac.com

We, at Rinac, begin with seamless solutions for cold chain and modular construction. Soon, a relationship develops, empowered by our domain expertise, service excellence, and customising capabilities. As the bond deepens, you will discover that we invest in curiosity, innovation, and ingenuity; constantly questioning perfection, and leveraging our resources to nurture each relationship into a win-win proposition. What's more - warm, pro-active support is always just a call away through our customer care, a dedicated relationship service group.

For more than two and a half decades, Rinac has been the chosen partner for industry leaders, providing an unrivaled range of solutions and superior value. But that's just the tip of the iceberg.

RINAC INDIA LIMITED

Cooling with a warm touch

ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

www.rinac.com

For more information and support, **Call: 1800 4191166** / **Mail: sales@rinac.com**

XXXX:XXX 2021:R000