

PLUGnCHILL™

NEXT GENERATION COLD CHAIN SOLUTIONS

LATENT THERMAL STORAGE USING NEW AGE PHASE CHANGE MATERIALS



- Freezing the Phase Change Material

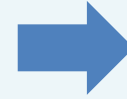
- Heat Exchanger allows PCM to melt slowly when not in use

- Fast melting / discharge when in use

TRANSLATING TECHNOLOGY INTO PERFORMANCE



**PLUG IN SYSTEM FOR 4-6
HOURS TO POWER SOURCE**



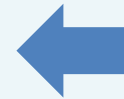
**Patented system enables
charging in 5-6 hours**



**FREEZES THERMAL
STORAGE SYSTEM**



LOADING AND UNLOADING



**ZERO FUEL
CONSUMPTION**

**Design ensures faster
temperature pull down after
each opening**



**CHARGING SYSTEM SWITCHES ON
AND OFF BASED ON
TEMPERATURE IN CONTAINER**

***Patented* technology enables ultra fast charging and superior temperature performance**

KEY ADVANTAGES OF PLUGnCHILL OVER CONVENTIONAL TECHNOLOGY



**SAVE 60% COST
COMPARED TO
DIESEL OPERATED SYSTEMS**



**FAST TEMPERATURE
PULL DOWN**

















**24 Hr BACKUP
DURING VEHICLE BREAKDOWN**



LOW MAINTENANCE BILL

75% LOWER TOTAL COST OF OWNERSHIP – 8.5 FEET TRANSPORT REFRIGERATION UNIT (2-8°C)

PLUGNCHILL	DIRECT DRIVE
 ₹2,42,000 Capital cost	 ₹2,05,000 Capital cost
 4 KWH Electricity consumed	 12.5 Ltr. Diesel consumed*
 ₹10 Unit cost	 ₹56 Unit cost
 ₹1000 Monthly cost	 ₹17,472 Monthly cost
 5 years Life cycle of vehicle	 5 years Life cycle of vehicle
 ₹60,000 Operating cost	 ₹10,48,320 Operating cost
 ₹3,02,000 Lifetime cost	 ₹12,53,320 Lifetime cost

*Diesel Consumption/hour 1.2 liters



Additional chilling @ Rs. 1/kg for increasing shelf life of product significantly

COST PER KG PRODUCT:

Capital cost of PLUGnCHILL = 2,42,000 + VAT
Capital Cost of Insulated container = 1,90,000 + VAT

EMI@ 48 months @11.5% ~ 13,000 per month

Operating cost ~ 1000 per month

Total load per trip = 600 kg

No. Of trips / month = 26















Per kg cost = ~ Rs. 1/ kg

Traditional Unit cost (EMI) = 11,650

Traditional Unit Operating cost= 17,472

Per kg cost = Rs. 1.86 / kg

66% LOWER TOTAL COST OF OWNERSHIP – 8.5 FEET TRANSPORT REFRIGERATION UNIT (-18°C)

PLUGNCHILL	DIRECT DRIVE
 ₹3,12,000 Capital cost	 ₹3,60,000 Capital cost
 16 KWH Electricity consumed	 15.6 Ltr. Diesel consumed*
 ₹10 Unit cost	 ₹56 Unit cost
 ₹4000 Monthly cost	 ₹21,840 Monthly cost
 5 years Life cycle of vehicle	 5 years Life cycle of vehicle
 ₹2,40,000 Operating cost	 ₹13,10,400 Operating cost
 ₹5,52,000 Lifetime cost	 ₹16,70,400 Lifetime cost

*Diesel Consumption/hour 1.5 liters



**Frozen Distribution at an additional
cost of Rs. 1.15/kg**

COST PER KG PRODUCT:

Capital cost of PLUGnCHILL = 3,12,000 + VAT

Capital Cost of Insulated container = 1,90,000 + VAT

EMI@ 48 months @11.5% ~ 14,000 per month

Operating cost = 4000 per month

Total load per trip = 600 kg

No. Of trips / month = 26

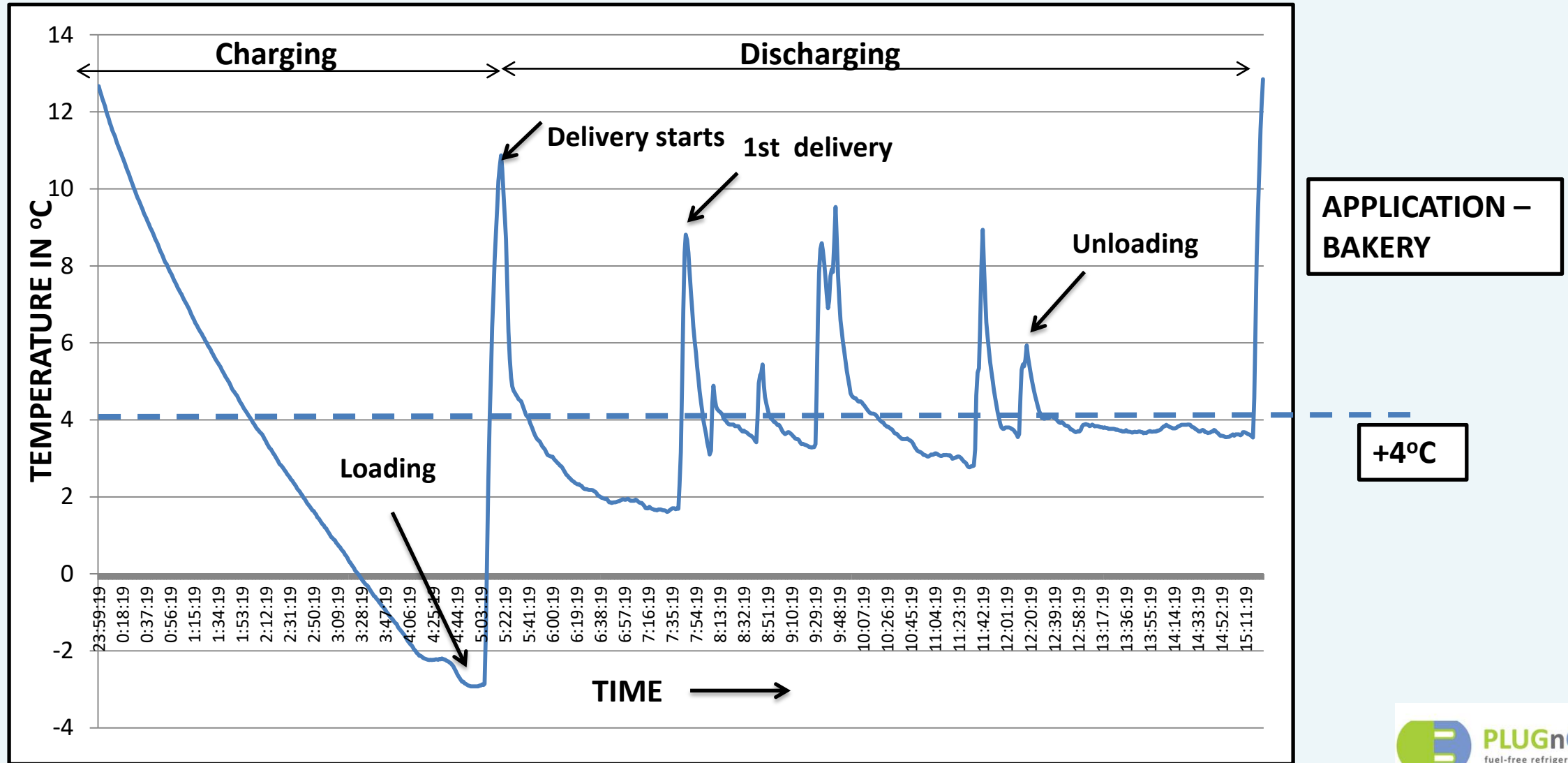
Per kg cost = ~ Rs. 1.15/ kg

Traditional unit cost (EMI) 16,300

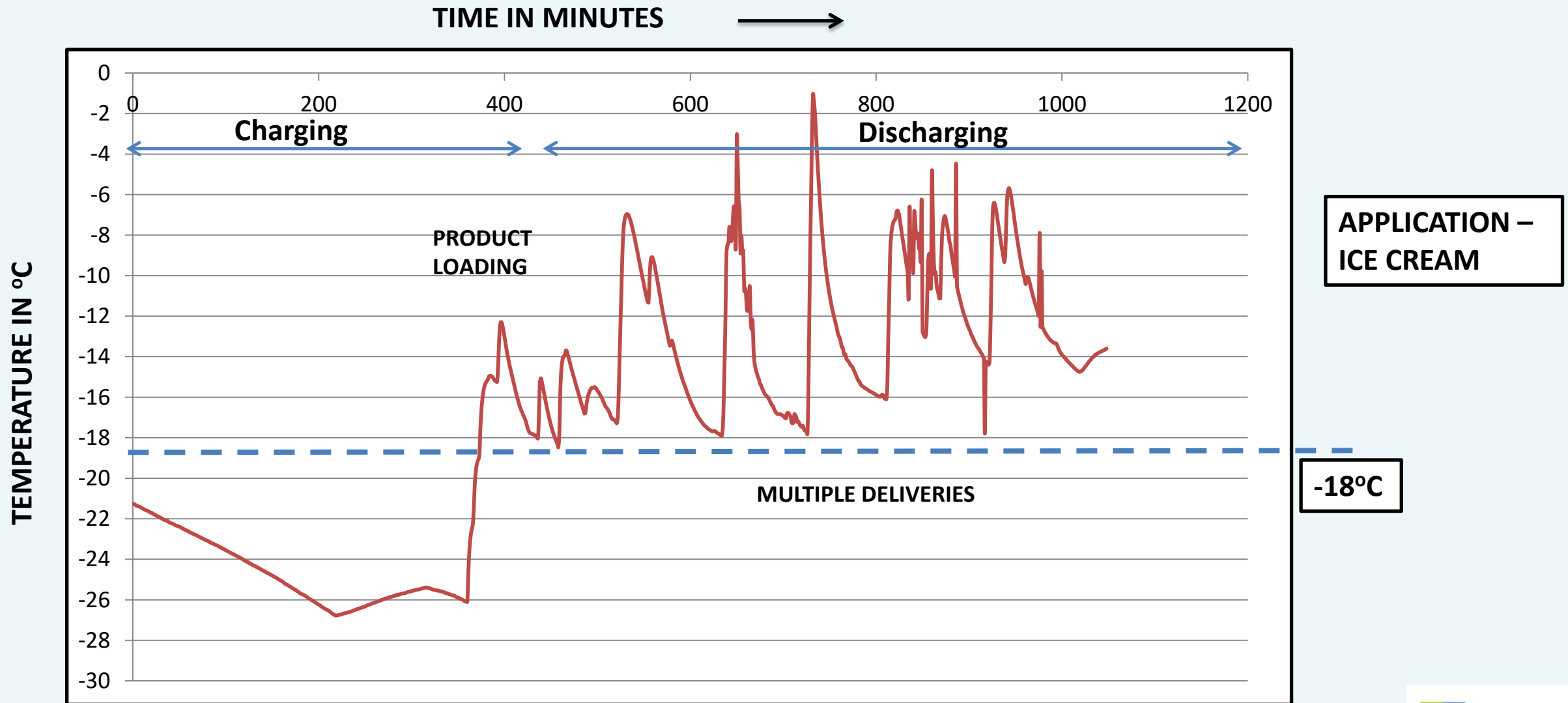
Traditional unit operating cost= 21,840

Per kg cost = ~ Rs. 2.5/kg

FASTER PULL DOWN PERFORMANCE-CHILLED CASE(0-8°C)



FASTER PULL DOWN PERFORMANCE - FROZEN CASE(-18°C)



BACKUP DURING BREAKDOWN



- **Runs on stored Thermal Energy**
- **Not Dependent on vehicle engine like conventional technology**
- **Leeway to make arrangements before food spoilage**

As the TES Plates are already charged the temperatures and the food will be preserved even incase of any unforeseen issue

ADDITIONAL BENIFITS



- **Easier Maintenance – No moveable parts like a belt**

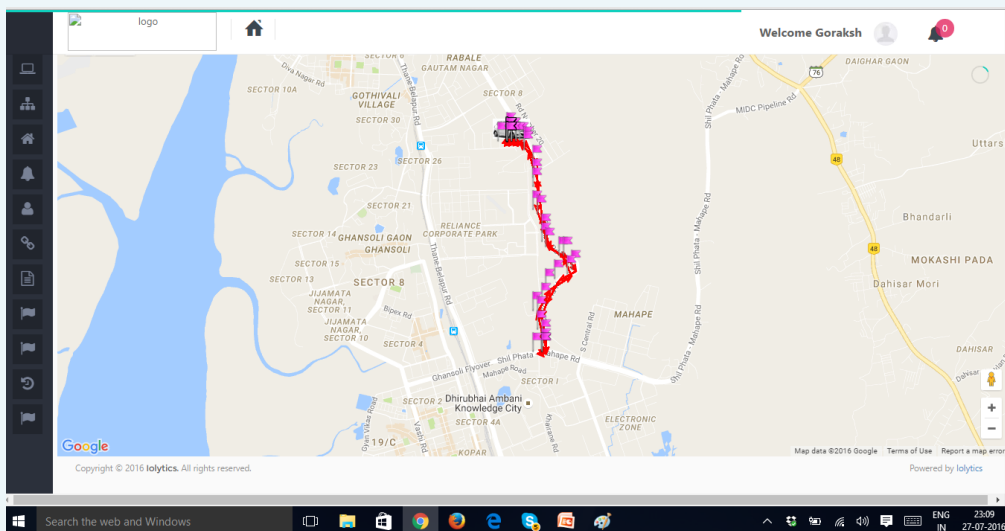


- **Silent performance – charging unit only on for a few hours total a day**



- **Enviromentally friendly – no emissions**

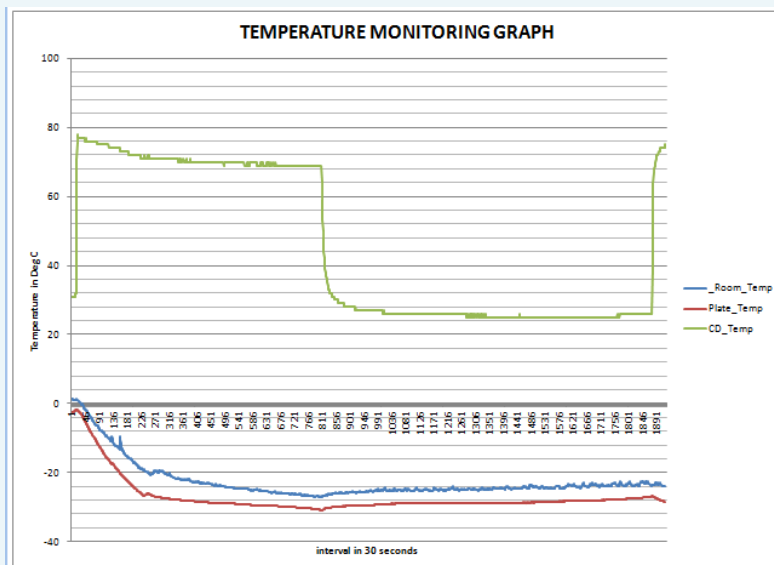
ONLINE PLATFORM FOR REMOTE MONITORING



GEO TRACKING AND GEO FENCING

No.	Date Time	GPS_LATITUDE (°)	GPS_LONGITUDE (°)	SPEED (Km/hr)	BEARING (°)	Active Power (kW)	PH1 Voltage (V)	PH2 Voltage (V)	PH3 Voltage (V)	Room Temp (°C)	Plate Temp (°C)	CD Temp (°C)	AVG VOLTAGE (V)	TOTAL_CURRENT (A)
1	Jul 27, 2016, 11:12:46 PM	NaN	NaN	0	0	0.28	438	426	439	-18.2	-31.4	53	434	0
2	Jul 27, 2016, 11:12:16 PM	NaN	NaN	0	0	0.28	442	428	439	-18.2	-31.6	57	435	0
3	Jul 27, 2016, 11:11:46 PM	NaN	NaN	0	0	0.28	438	425	438	-18.1	-31.7	63	435	0
4	Jul 27, 2016, 11:11:18 PM	NaN	NaN	0	0	0.28	430	418	430	-18.1	-31.7	67	426	8
5	Jul 27, 2016, 11:10:46 PM	NaN	NaN	0	0	0.28	432	420	433	-18.2	-31.7	67	428	8

REMOTE MAINTENANCE ALERTS



TEMPERATURE DATA REPORTS

KEY FEATURES:

1. GPS monitoring and Geo-fencing alerts
2. Vehicle Data : Door opening and Ignition alerts
3. Remote temperature monitoring – Graphs and reports for compliance
4. Remote Error Monitoring: Maintenance alerts received by Customer and TESSOL for reducing downtime

PLUGnCHILL™ APPLICATIONS

Ice Cream / Dairy



Poultry / Fish / Meat



Fruits and Vegetables



Bakery / QSR



E-commerce / Tertiary delivery



Others



More than 130 units deployed in the field with over 30 esteemed customers

ICE CREAM TRANSPORTATION



- Loading capacity of approx. 60 crates (21" x 14"x 12") in a 8.5 feet vehicle
- Temperature maintenance even at the last delivery (6-8 deliveries)
- 15-16 units per day for charging before transport
- Ideal for manufacturers and C&F agents



ICE CREAM UNITS FROM 6.5 ft UPTO 20 ft.



14 Feet vehicle for Ice cream application



10 feet Ice cream vehicle



6.5 feet Ice cream vehicle

FRESH AND FROZEN MEAT TRANSPORT – 8.5 – 24 feet



8.5 ft for Fresh Chicken distribution



Frozen Chicken distribution – 14 feet

SALIENT FEATURES

- Lower total cost per kg
- More Loading Volume
- High reliability
- High temperature performance

FRESH AND FROZEN MEAT TRANSPORT



Frozen Seafood distribution



8.5 ft Frozen Seafood Distribution

MILK AND DAIRY PRODUCTS – DISTRIBUTION



Blower Chilled Unit for multiple delivery in milk



Natural Chilled unit for milk Delivery

SALIENT FEATURES:

- Distribution of milk and dairy products with multiple openings
- 0-4 deg Temperature maintenance for 12+ hours and 20+ deliveries
- Natural and Blo unit depending upon the customer application
- 1 phase unit available

LONG DISTANCE TRANSPORT OF MILK AND PRODUCTS



SALIENT FEATURES:

- Transport of milk over 300-500 km/ day @ Rs. 180 / trip (running cost)
- 4-5 hours of charging required
- Excellent temperature maintenance
- 3 phase charging required

18 ft vehicle for long distance milk transport

FRUITS AND VEGETABLES PRODUCE



14 feet chilled vehicle for collection and pre-cooling of F&V



Sales and Distribution of F&V



PLUGNCHILL APPLICATIONS – COLD STORAGE ROOMS



KEY FEATURES

1. Ideal for cold storages in remote locations with intermittent power availability – need 5 hours of power in 24 hours
2. Farm level cooling of fruits / vegetables and grains
3. Plug and play system with remote operation and monitoring capability option

PLUGNCHILL APPLICATION FOR VEGETABLES



Vegetable farm



Store and Pre-cool the produce
at farm till the container is full



APMC MARKET

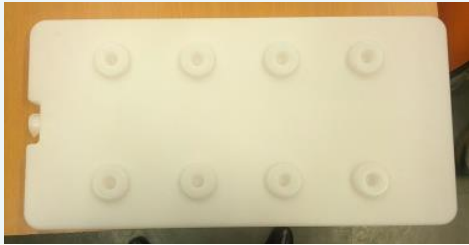
CORPORATE BUYERS

DIRECT TO HOME

PLUGNCHILL CAN BE A 3 IN ONE SOLUTION FOR VEGETABLES PRODUCERS:

- Stationary Storage Cum Pre-cooler At Farm Level
- Transport Refrigeration For Transit
- Distribution And Selling Unit

PLUGNCHILL APPLICATIONS – PASSIVE COOLING UNITS



CARTRIDGES



CARTRIDGE FREEZER

KEY FEATURES

1. Cartridge Blast freezer can accommodate 100-400 cartridges per box
2. Very low cost of operation
3. Ideal for hub and spoke operations
4. Bags and Boxes of various sizes (20L to 600L)
5. Dairy, Ice cream and Frozen Food delivery



**VEHICLE WITH
CARTRIDGES**



**INSULATED BOX
SS304 200L**



20-40 L BAG



A STRONG SERVICE AND INSTALLATION NETWORK*

★ Manufacturing / Sales location

- Mumbai
- Delhi
- Bangalore

● Installation and Major Service Locations

- Mumbai
- Delhi
- Coimbatore

● Sales and Service partner locations

- | | |
|-------------|--------------|
| - Delhi | - Sangli |
| - Cochin | - Kolhapur |
| - Chennai | - Coimbatore |
| - Hyderabad | - Nashik |
| - Pune | - Aurangabad |
| - Ahmedabad | |
| - Bangalore | |

* As in October 2016 and expanding rapidly

AWARDS AND RECOGNITION - TESSOL



DST Lockheed Martin TOP 10 India Innovation Award 2014



EMERSON CUP 2014 & 2016
Innovative Cold Chain Award



COLD CHAIN STRATEGY SUMMIT
Innovative cold chain Award 2015



WORLD WILDLIFE FUND (WWF)
Climate Solver Award



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