



Business Case for  
Natural Refrigerants



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SHANGHAI



## **R290 Variable Speed Compressors for superior efficient LC equipment**



**NIDEC GLOBAL APPLIANCE**

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**#GoNatRefs**

# Agenda

## 目录



- Nidec GA Compressor Core Business
- Product Development Strategy
- Technology Leadership
- Case Study
- One Solution for All
- Natural Refrigerants Solution
- Conclusions

# Nidec GA Compressor Core Business

## 尼得科压缩机（原思科普）核心业务

### Household

Refrigeration compressors for mid- and high-end Household combined refrigerators with low energy consumption



### Commercial

Refrigeration compressors for the food-, beverage- and medical equipment industry



### Battery-Driven

Refrigeration compressors for the mobile-, medical-, telecom- and solar equipment industry

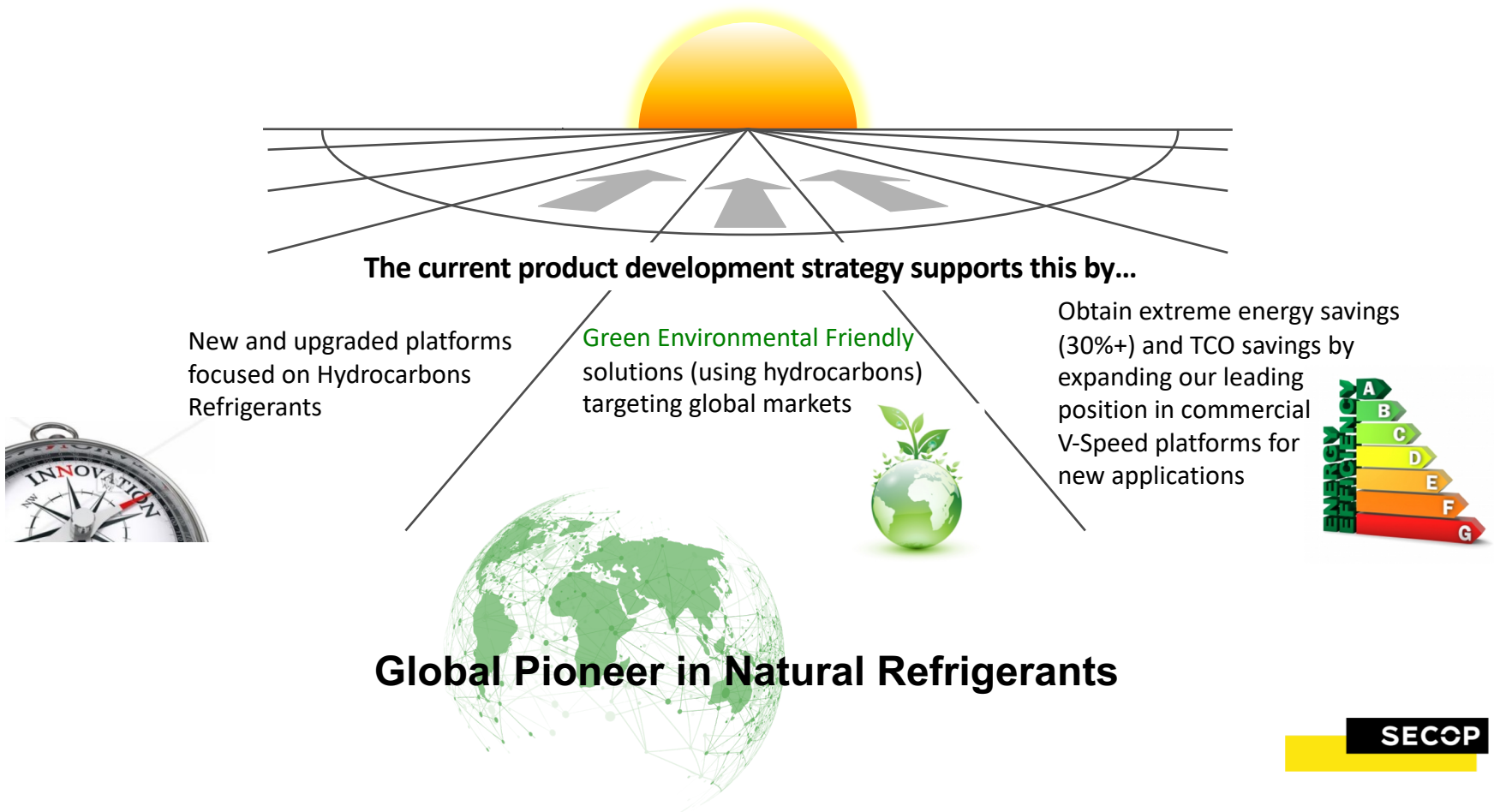




# Product Development Strategy

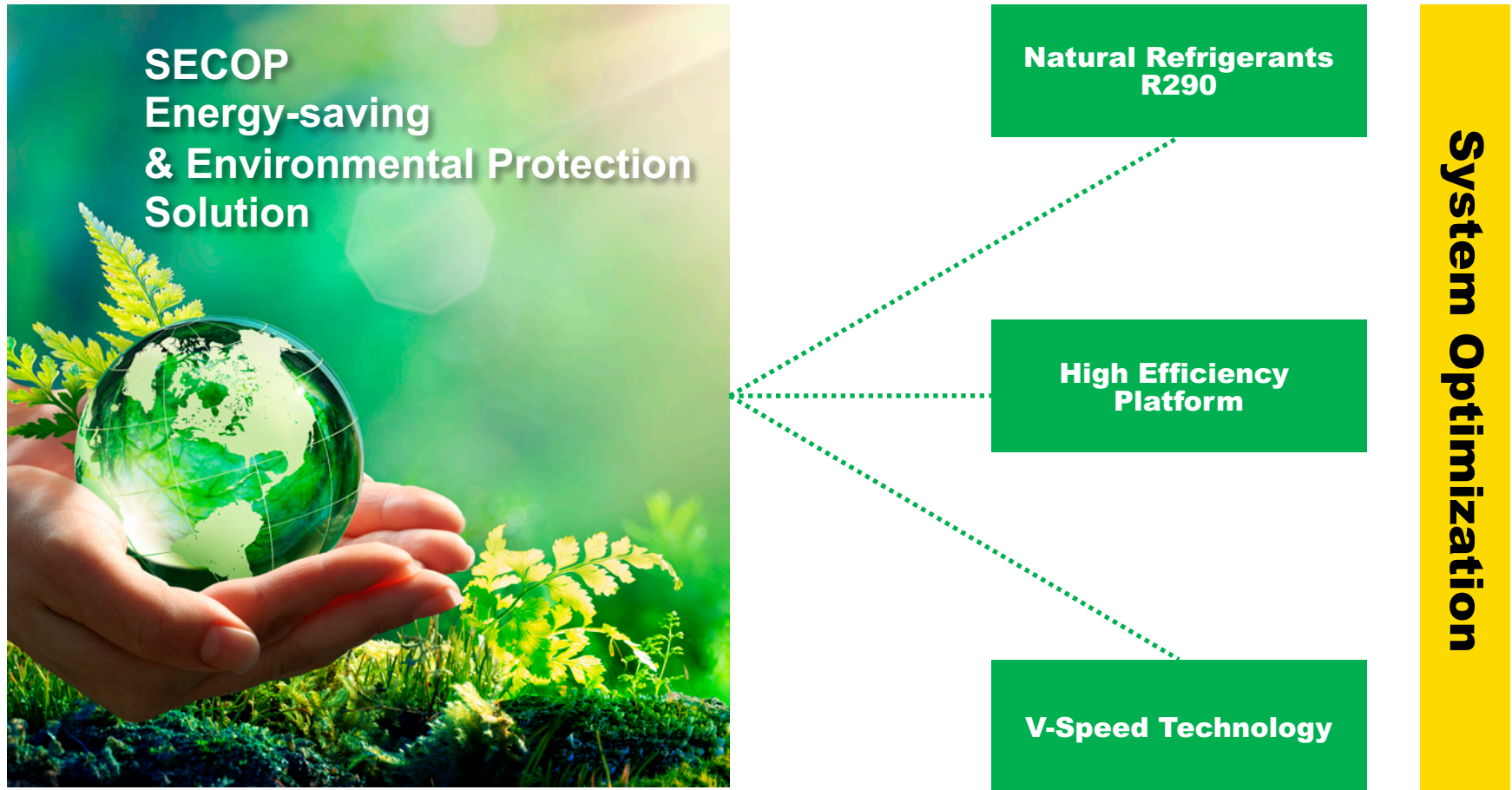
## 产品发展策略

**“We secure peace of mind and best total cost through reliable and innovative products and a strong application support”**



# Technology Leadership

## 技术领导力



# Island Merchandiser Case Study

## 超市岛柜应用案例

### Island merchandiser for frozen food

Glass sliding lids

Volume: 567 liters

Temperature: -18°C to -22°C

Auto defrost

Stand alone or combined island configuration



### Pull-down time (min)

SC12CLX.2: 42.7

NLE12.6CNL: **-13%**

NLV8.0CN : **-8%**



### Electric Charge (¥/year)

SC12CLX.2: 2110

NLE12.6CNL: **-770**

NLV8.0CN : **-1000**



### Energy consumption (kWh/24h)

SC12CLX.2: 5.78

NLE12.6CNL: **-36%**

NLV8.0CN : **-47%**



### Energy Labelling (China)

SC12CLX.2: Level 2

NLE12.6CNL: **Level 1**

NLV8.0CN : **Level 1+**



# Kitchen Refrigerator Case Study

## 厨房冰箱应用案例

### Kitchen Commercial Freezer

Volume: 1270 liters  
Temperature: -18°C to -22°C  
Auto defrost  
Stand alone or combined island configuration



### Pull-down time (min)

SC21CL: 116

SCE21CNLX : -3%

NLV12.6CN : -1%



### Electric Charge (¥/year)

SC21CL: 4600

SCE21CNLX : -1500

NLV12.6CN : -1800



### Energy consumption (kWh/24h)

SC21CL: 12.65

SCE21CNLX : -32%

NLV12.6CN: -38%



### Energy Labelling (China)

SC21CL: Level 4

SCE21CNLX : Level 1

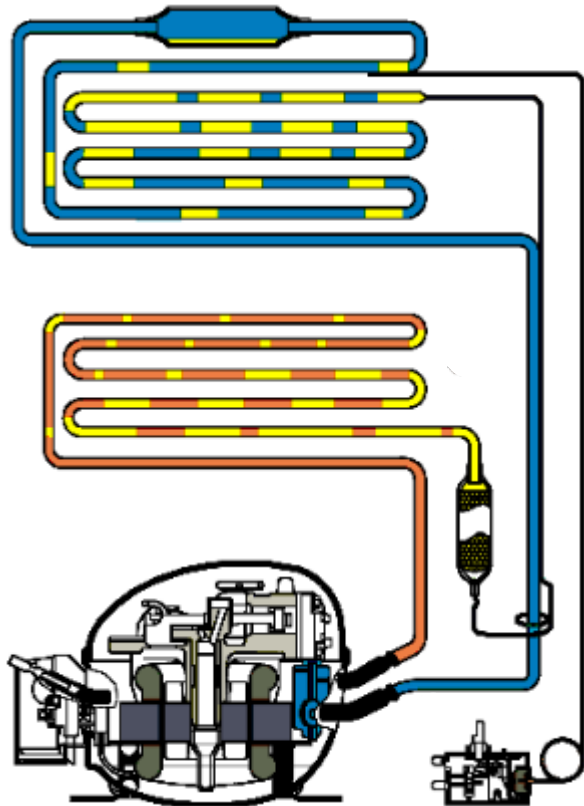
NLV12.6CN : Level 1





# One Solution for All

## 整套解决方案



*Besides of compressor selection ...*

Evaporator Design Optimization

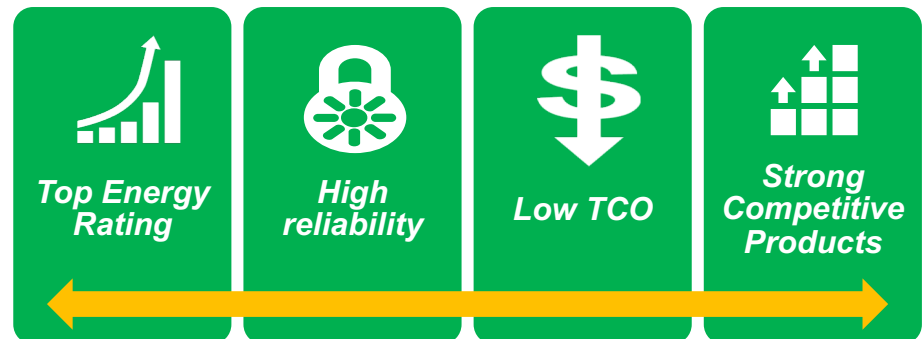
Condenser Design Optimization

Exp. Device Optimization

Charge Determination

Auxiliary Components e.g. defrost, lights ...

Speed control for inverter system



# Natural Refrigerants Solution

## 天然制冷剂解决方案

Efficiency



BDm

BD

XV

DLV

NLV

SLV

VSD Technology



DELTA



KAPPA



DLE



NLE



SCE

High Efficiency platforms Technology



PL



TL



D



N



SC

Cooling capacity

**R290 offers the best TCO for light commercial applications in L/MBP**

**R290 Variable Speed Technology pushes the limits for top Energy Labelling**



**ATMO**  
sphere

Business Case for  
Natural Refrigerants

**Thank you  
for listening.**

