Linear DIOS

Green Technology Linear DIOS

SPECIFICATION

A new concept of refrigeration technology is first launched by LGE. LG Electronics creates the "Green Technology" for human and eco – friendly refrigerator.
The "Green Technology" is appreciated for a high efficient linear compressor, Nano-technology, Pb free(Lead free) electric parts with the reduction of energy consumption and noise

EFFECT

GREEN ENERGY - Notable Reduction of Energy Consumption
GREEN ENVIRONEMENT - 'Pb free' of Electric Parts
GREEN HOME - Minimization of NOISE(Soft Starting, Soft Stop)
Friendly Health(Nano Technology)

CERTIFICATION

ENERGY WINNER GRAND PRIX
EDP[Environmental Declaration of Products]
KT[Korean Technology]
Nano Technology[Certification of ISO,FDA,SIAA,EPA,FITI]

Green Technology Linear DIOS

Energy

Lowest energy consumption in the world

Previous

626kWh

Compressor 10%

Cooling Capacity Modulation 2%

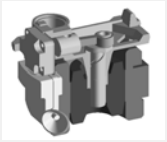
Now

551kWh

24% Lower than DOE

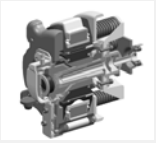
(10% Lower than E/Star)

Recipro Comp.



EER 6.35

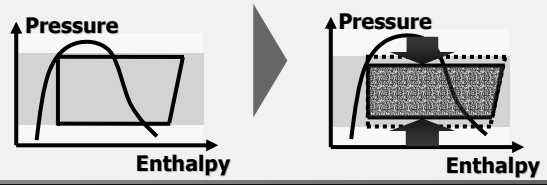
Linear Comp.



EER 7.30

Test Condition(Teva/Tcond) : -26/38□

Cooling Capacity Modulation by Linear Compressor



Green Technology Linear DIOS

Noise

Lowest Noise in the World

Previous

42dBA

Fan Noise 20%

Vibration Pulsation 30%

Peak Noise 10%

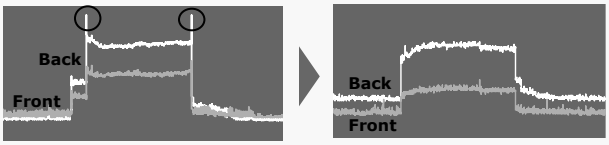
Now

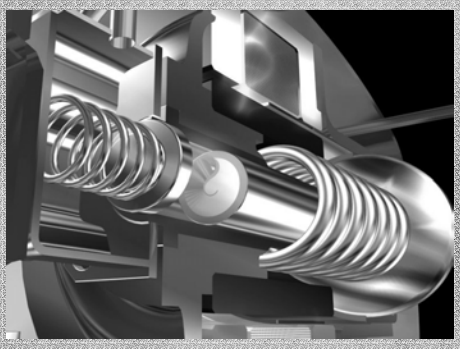
39dBA

New Fan Development

Vibration

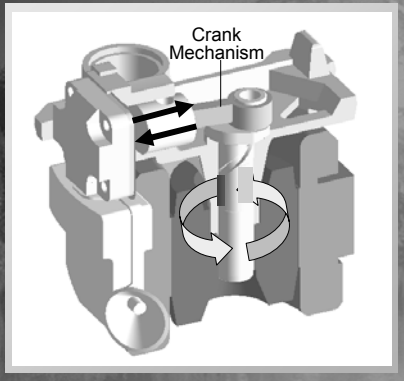
Peak Noise Reduction Algorithm of Linear Compressor



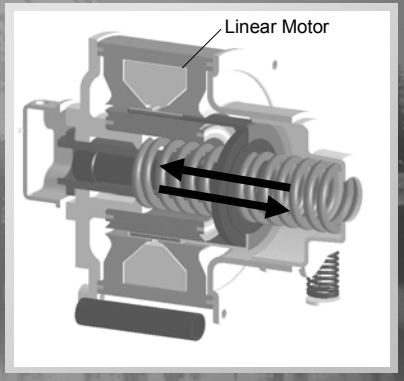


Linear Compressor

Recipro. Compressor



Linear Compressor



Rotary motion

Motor

Linear motion

Crank mechanism

Direct Transmission

Linear motion

Piston

Linear motion

Linear Compressor — Why so efficient?

High efficiency = *Low Energy Loss*

Total Loss of Compressor

=

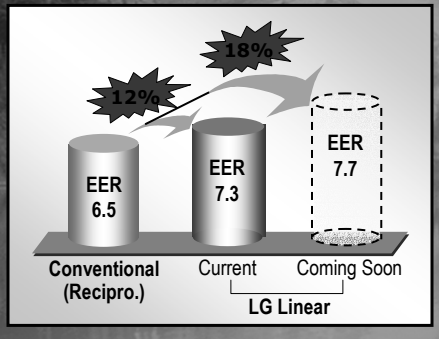
Motor Loss
+
Friction Loss
+
Flow Loss
+
Heat exchange Loss

High Efficiency

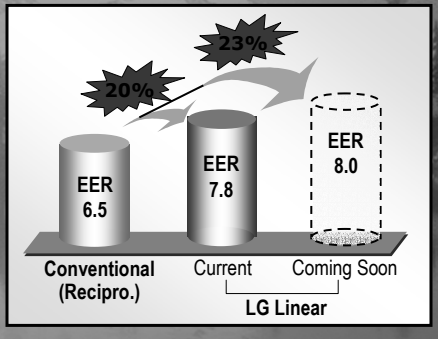
- **Super Efficient Linear Motor**
  - *No End coil Loss(Motor Efficiency : 92~95%)*
- **No Crankshaft Mechanism**
  - *Low Friction & Side force Loss*
- **Direct Suction & Straight Flow Path**
  - *Low Heat Exchange & Flow Loss*
- **Free Piston System**
  - *Variable Cooling Capacity*

Linear Compressor — Compressor Efficiency

Compressor Efficiency for R134a Refrigerant

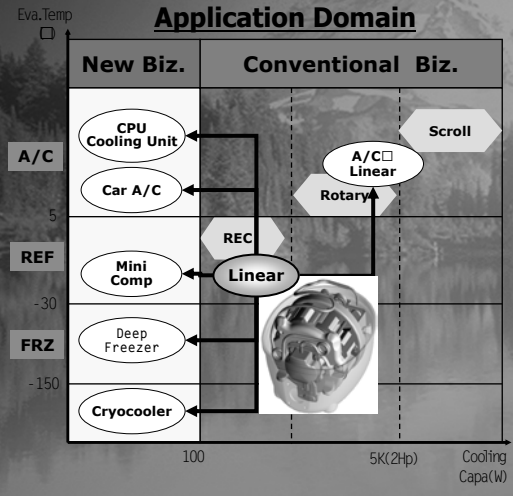


Compressor Efficiency for R600a Refrigerant



Test condition : LG Ref condition
(Condenser temperature = 38□)
(Evaporator temperature = -26□)

Application Domain



Application to New Biz.

■ For Household A/C

- ❑ Energy Improvement : 20% (Heat Pump, 2.8kW)
- ❑ Under Development,
- ❑ Plan to release to Market in `05

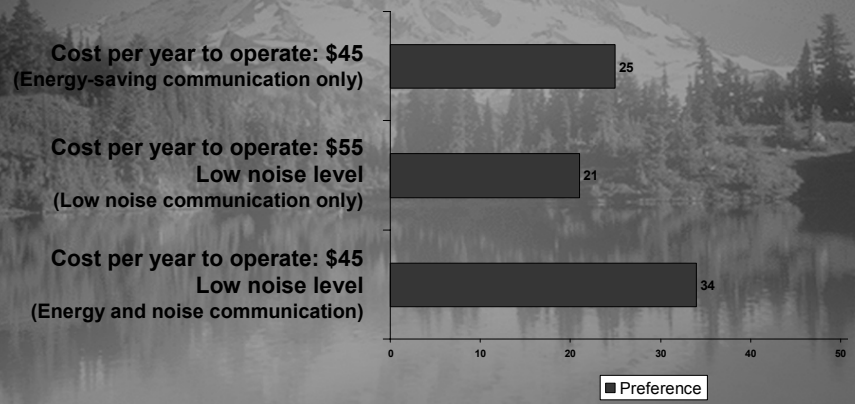
■ For Car A/C

- ❑ For Eco-Friendly Electric Car
- ❑ Under Research

■ For Cryocooler

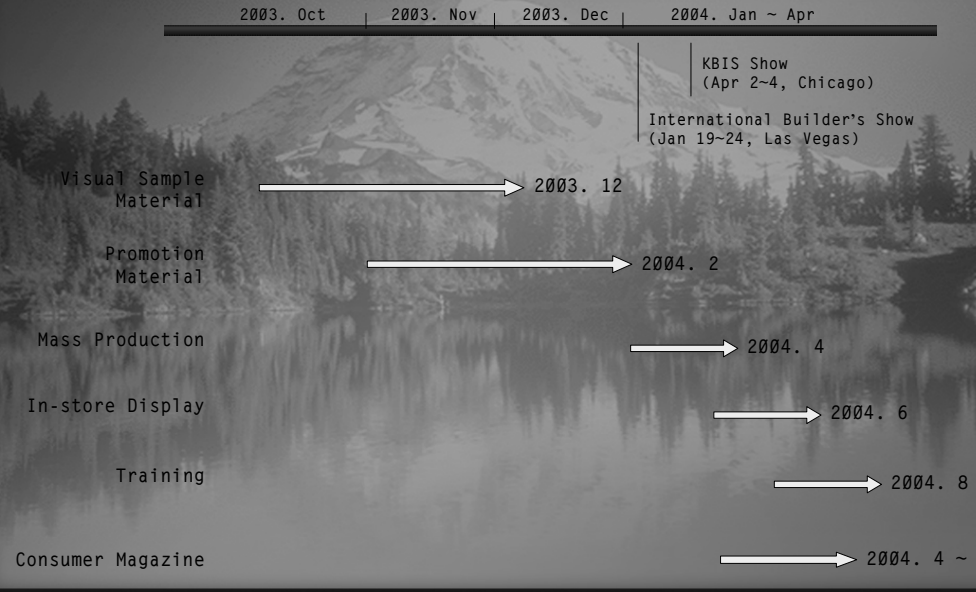
- ❑ Oil Free Mechanism is essentia
- ❑ Development already Finished
- ❑ On sale of Samples

What Consumers Think



So Far

Time Line




Thank you
Great Company Great People
LG Electronics