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natural refrigerants

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R290 R&D Progress and Commercialization

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The HCFC Phase-out Management Plan (HPMP) for the Room Air-conditioner (RAC) sector was approved in the 64th ExCom Meeting.

Target 1

- R22 frozen consumption in 2013 and 10% reduction in 2015, which is, maximum 74,700 MT in 2013 and 67,230 MT in 2015

Target 2

- Phasing out 9,454 MT(A5 share) by investment projects

Target 3

- 18 production lines should be converted to R290 as well as the compressor lines with the similar capacities.

Why R290

Haier

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Good
performance

Low discharge temperature

Best in high ambient areas

Wider
application

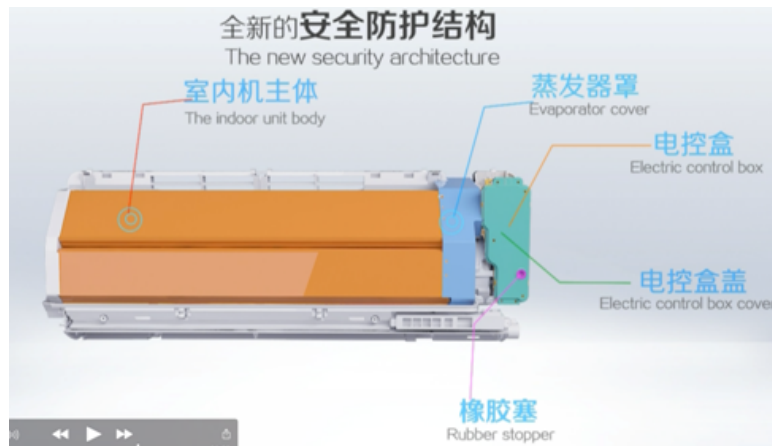
High energy efficiencies

Strict production inspection

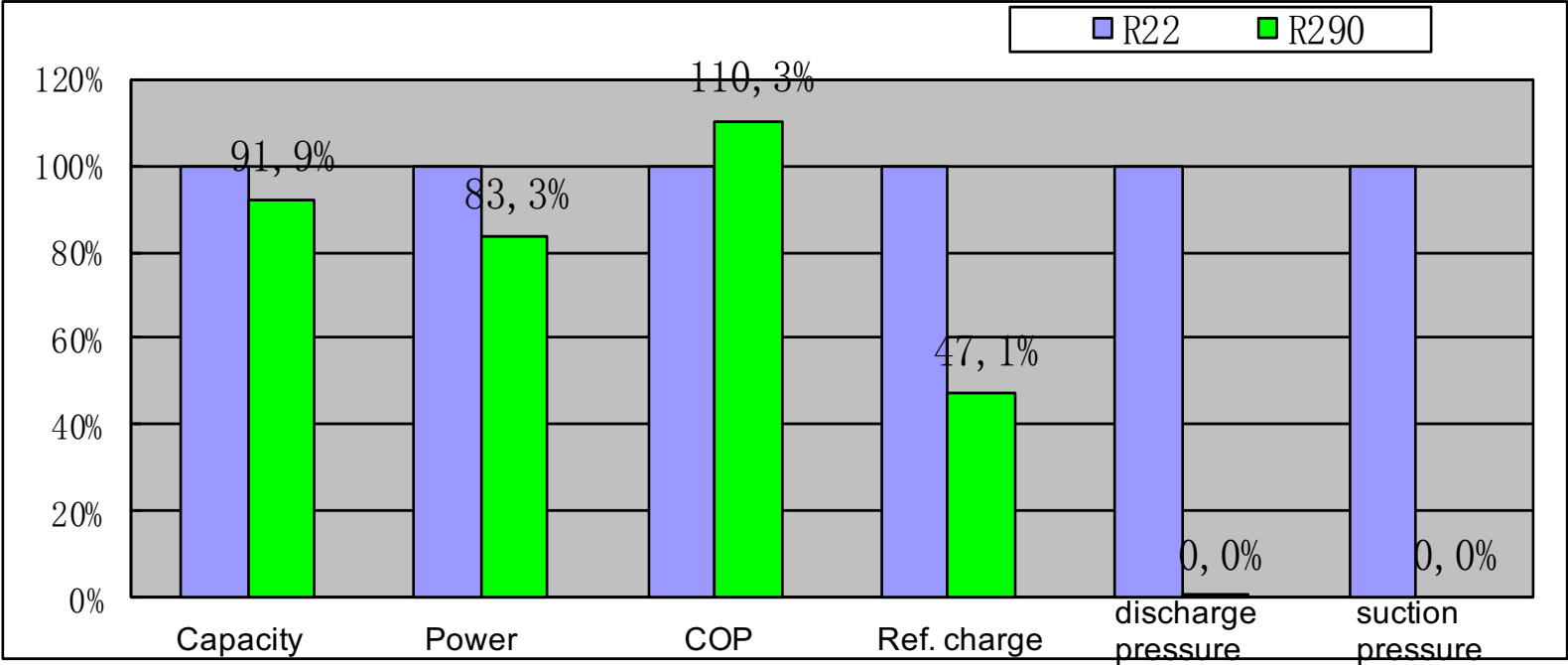
Better
reliability

Safety measures

Better design



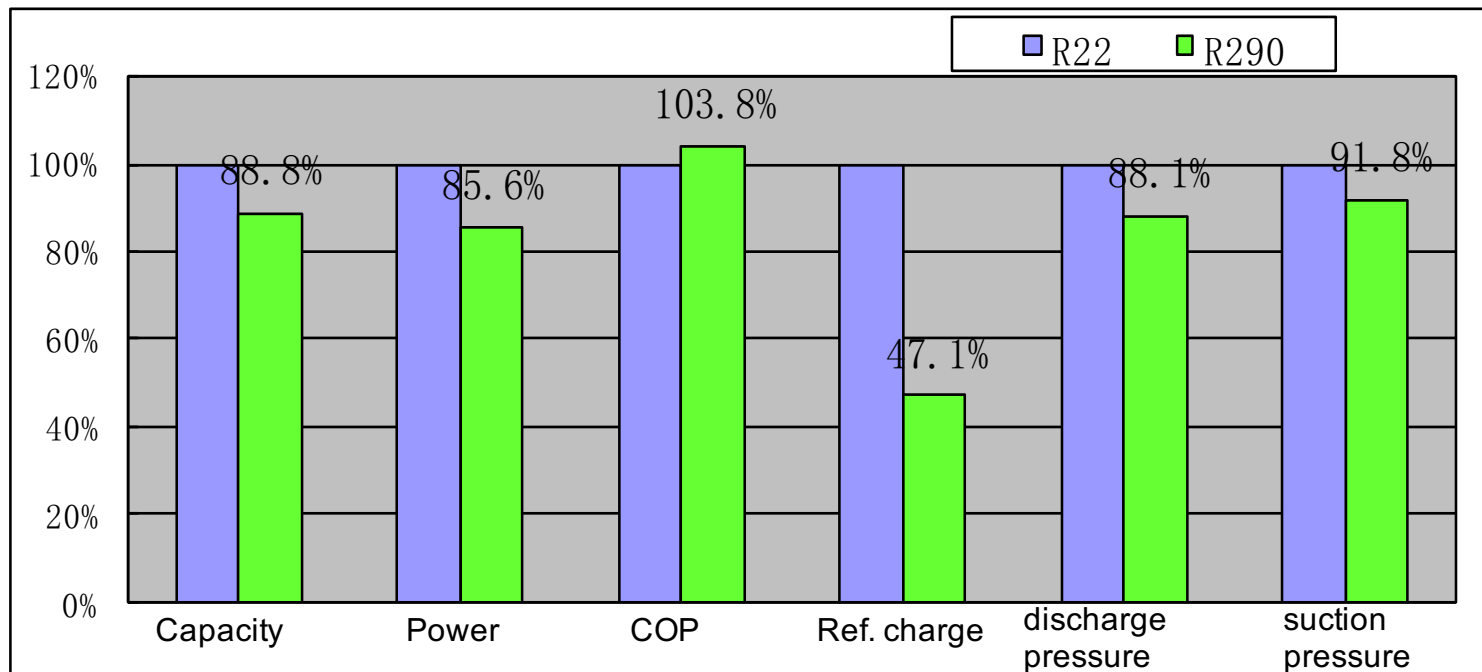
3500W air-condition R-290 VS R-22 Cooling



R-290 Capacity ↓ 8.1%

R-290 COP ↑ 10.3%

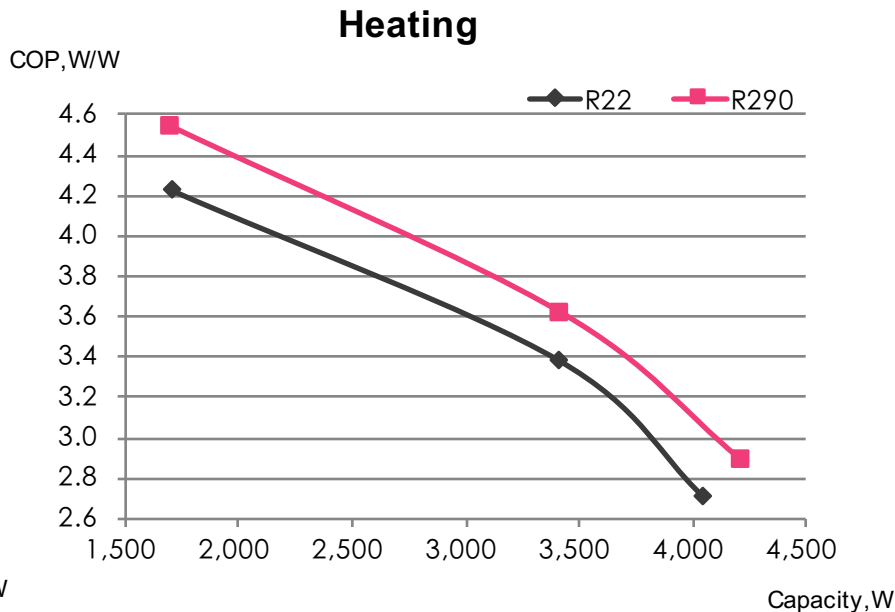
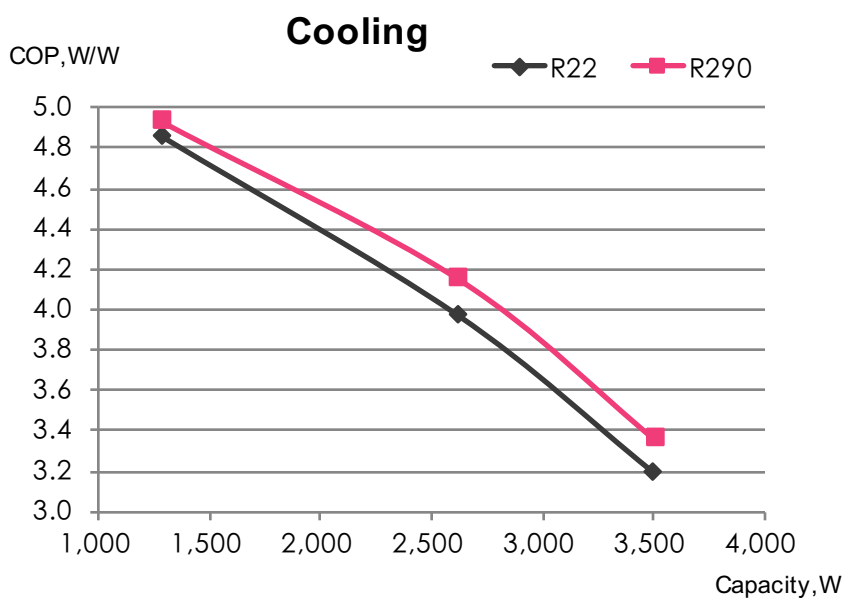
3500W air-condition R-290 VS R-22 Heating



R290 Capacity ↓ 11.2%

R290 COP ↑ 3.8%

Performance Evaluation of Inverter RAC



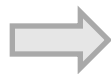
R-290 refrigerant charge 43% of R-22

According to the test results of the inverter air conditioner, at the same capacity (changing the compressor speed), the COP of R290 was increased by about 4% compared with R22

Compared with R-22, R-290 has the following features:

capacity :

The capacity of R-290 reduce about 10%, but by increasing the size of the compressor or increase the compressor operating speed can reach to the same level.



R-290 can meet the performance requirements of high-efficiency air conditioner.

COP :

Increase 4%-10%

Discharge temperature:

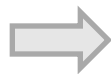
Decreased significantly, especially in T3 condition

Pressure :

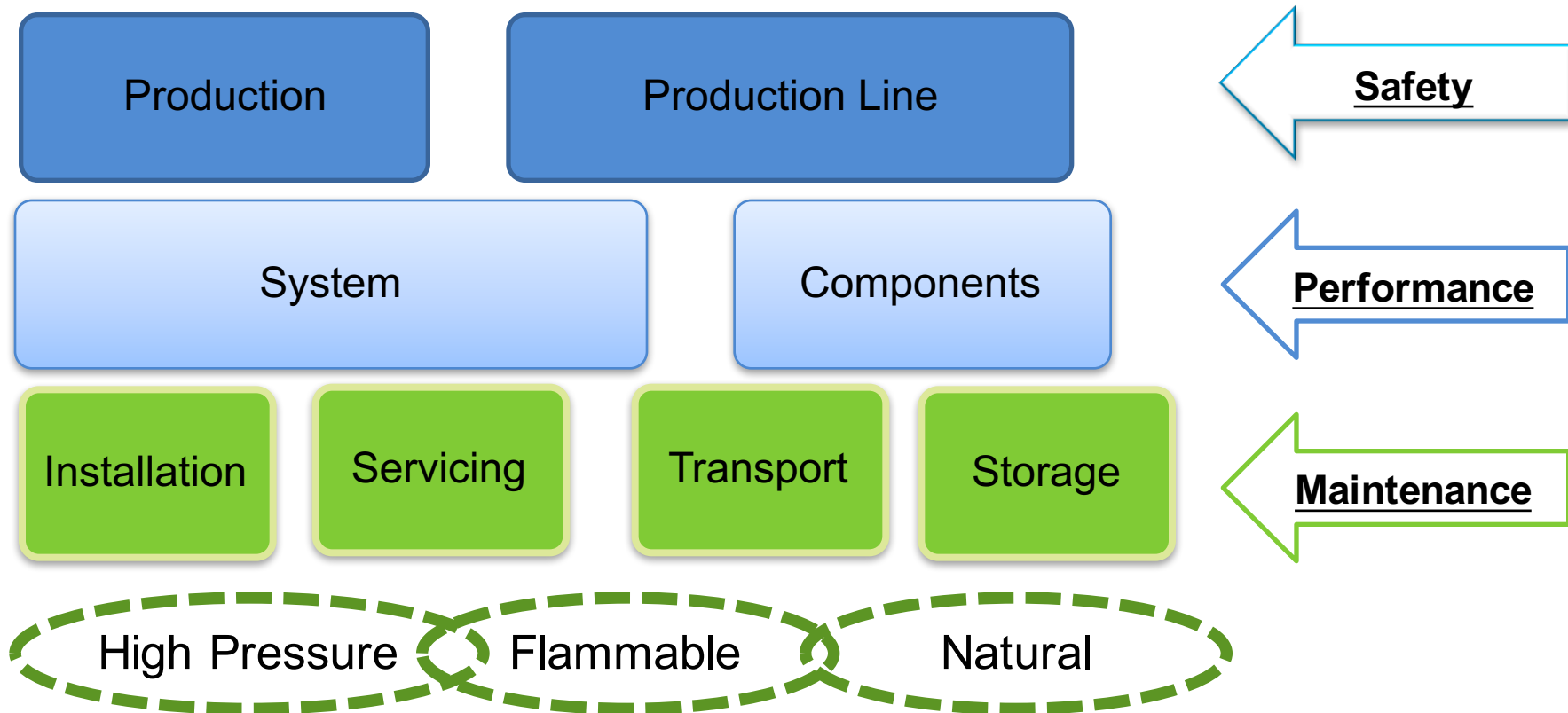
Reduce about 10%

Refrigerant charge:

About 45% of the R-22



The reliability of the refrigeration system will be better.

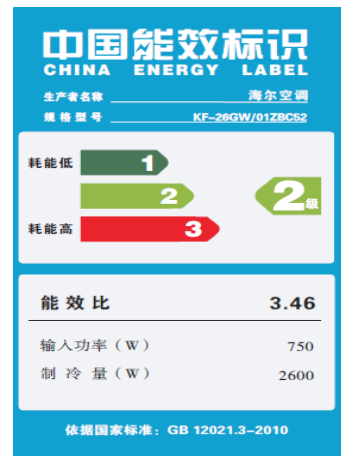


Product Certification

R-290 split cooling air conditioner has passed the “CCC” certification and has been on sale.

R-290 heat pump air conditioner has been developed.

R-290 inverter air conditioner is also Under development.



Transformation of Production Line

One production line and relevant test labs in Chongqing base have been completed.

In Jiaozhou, Wuhan, Hefei, Zhengzhou, there are five relevant production lines are under construction or planning



Chongqing R290 production line



R290 production lines contract

Market Promotion



Eco-Logo Issuance:

The Eco-logo, which can be used for those air conditioners and heat pump water heaters with R290 or CO₂ as the refrigerant, was issued on 13th May, 2015 to encourage the manufactures' promotion



Market Promotion

Shenzhen University procured total 243 units of RACs in 28th June, first order of R290 split RACs in China.

Market Initiation Ceremony was held in Shenzhen on the same day with 6 manufactures.



Training Centers



Total 19 training centers on
the environmental protection,
safety and good practice

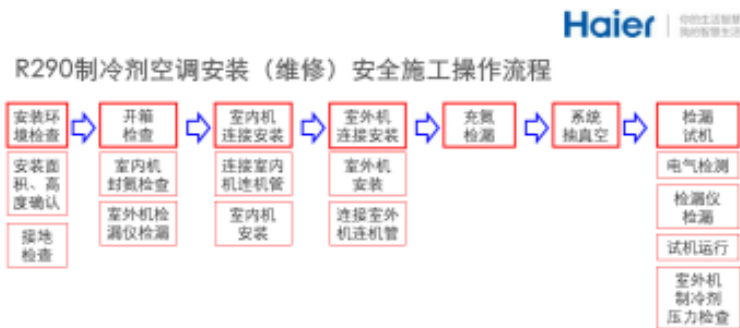
2 national centers for trainers

17 local centers for technicians



After-sale Service Training

Establish R-290 air conditioner customer service installation and maintenance service standards



A total of 2015 national customer service training installation and maintenance service staff of nearly 3000 people



END

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Thanks