

CONQUERING THE BARRIERS

OF HC TECHNOLOGY

embraco

WORLD CLIMATE **CHANGES**

URGENT ACTIONS ARE MANDATORY

**INTERNATIONAL COMMUNITY
IS STILL FAR FROM A **GLOBAL
AGREEMENT** ABOUT EMISSION
REDUCTION**



N.AMERICA & JAPAN F-GASES

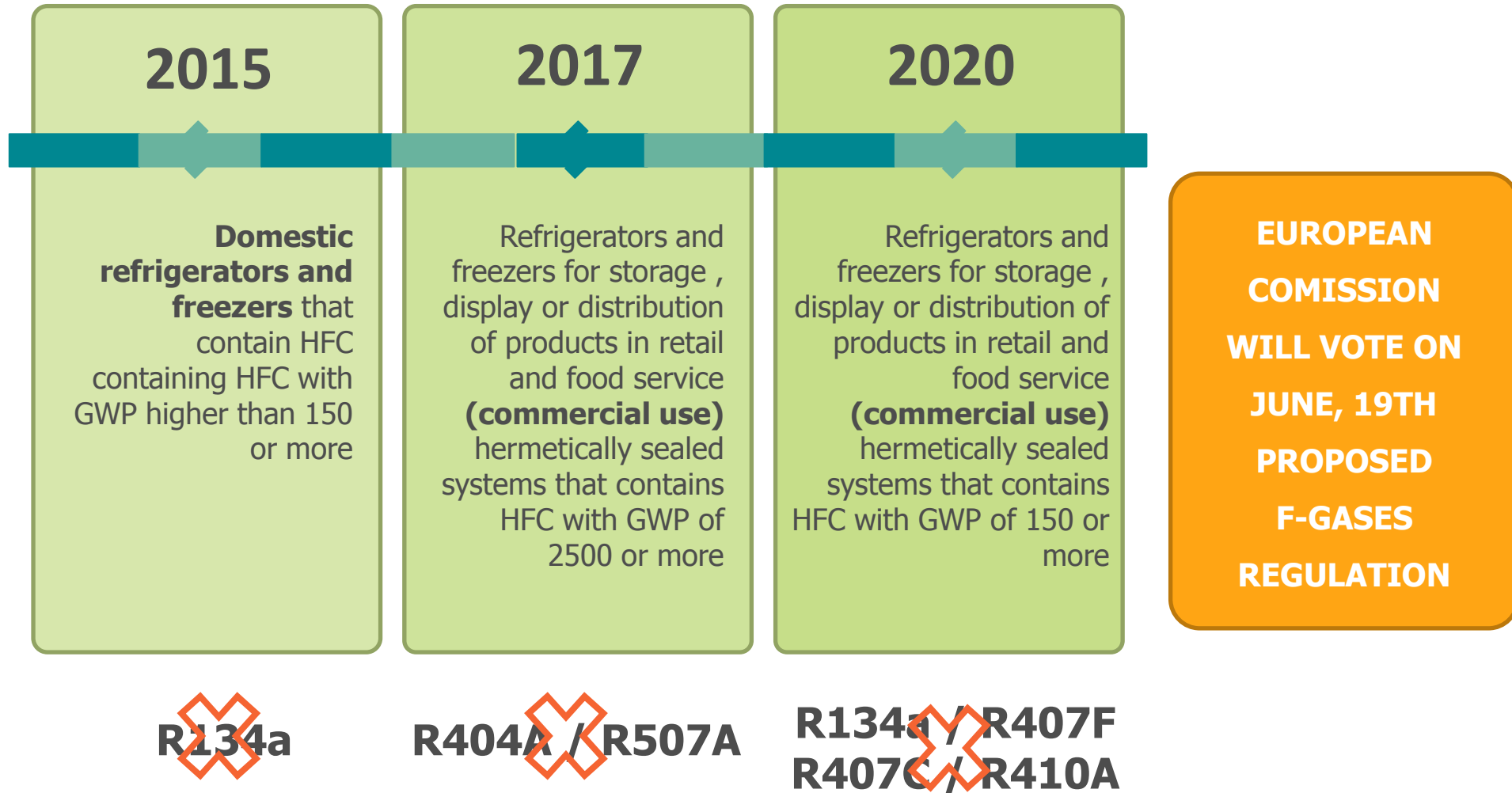
LEGISLATION MOVES



GOOD INTENTIONS BUT NOT ANY SPECIFIC ACTIONS FOR F-GASES REGULATION

DATE OF PROHIBITION

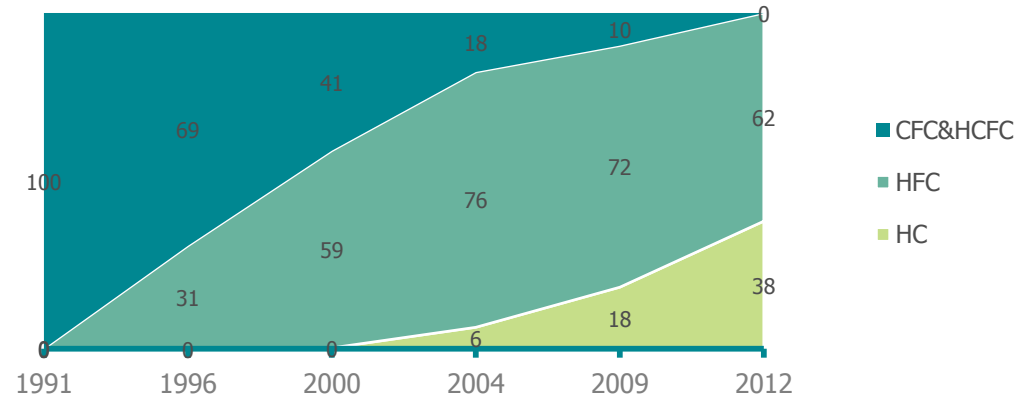
EUROPEAN ENVIRONMENT COMMISSION PROPOSAL



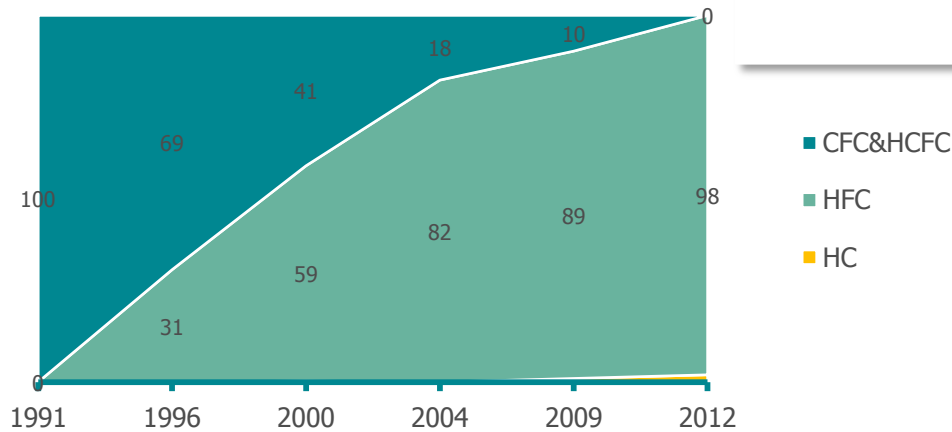
EMBRACO LIGHT COMMERCIAL SALES EVOLUTION BY REFRIGERANT

EUROPEAN AND NORTH AMERICAN MARKET

Light Commercial Compressors Sales by Refrigerant Europe (%)



Light Commercial Compressors Sales by Refrigerant North America (%)



EMBRACO PRODUCT PORTFOLIO

FOR NORTH AMERICAN MARKET

	MODEL	Capacity (Btu/h)	Efficiency (Btu/h)	Application	
				LBP	MBP
	EMI50UER	520	4,50	•	•
	EMI70UER	700	4,33	•	•
	EMI90UEX	945	4,68	•	•
	EM2X1117U	705	5,90	•	
	EM2X1121U	1095	5,93	•	
	EM2X1125U	1230	5,91	•	
	FFU130UAX	1360	5,15	•	•
	FFU160UAX	1670	5,26	•	•
	NEK2134U	1800	4,65	•	
	NEK2150U	2340	4,47	•	
	NT2160U	2820	4,57	•	
	NT2170U	3140	4,44	•	
	NT2180U	3750	4,56	•	
NEW	NT2210U	4770	4,80	•	
NEW	NEK6210U	4666	8,45		•
	NEK6213U	6281	7,26		•
NEW	NT6217U	7440	9,60		•
NEW	NT6222U	10317	9,32		•

BARRIERS FOR HC TECHNOLOGY

NORTH AMERICAN MARKET



**PEOPLE TRAINING
FOR CABINET
SERVICING**



**EMBRACO TRAINING
GTZ GUIDE**

**Guidelines for the safe use
of hydrocarbon refrigerants**
A handbook for engineers, technicians, trainers and
policy-makers - For a climate-friendly cooling



**MANDATORY GAS RECOVERY
LEGISLATION**



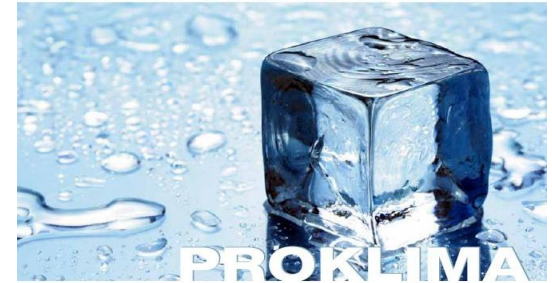
EPA REVISION EXPECTED SOON

INITIAL INVESTMENTS



GOV. INCENTIVES RECOMMENDED

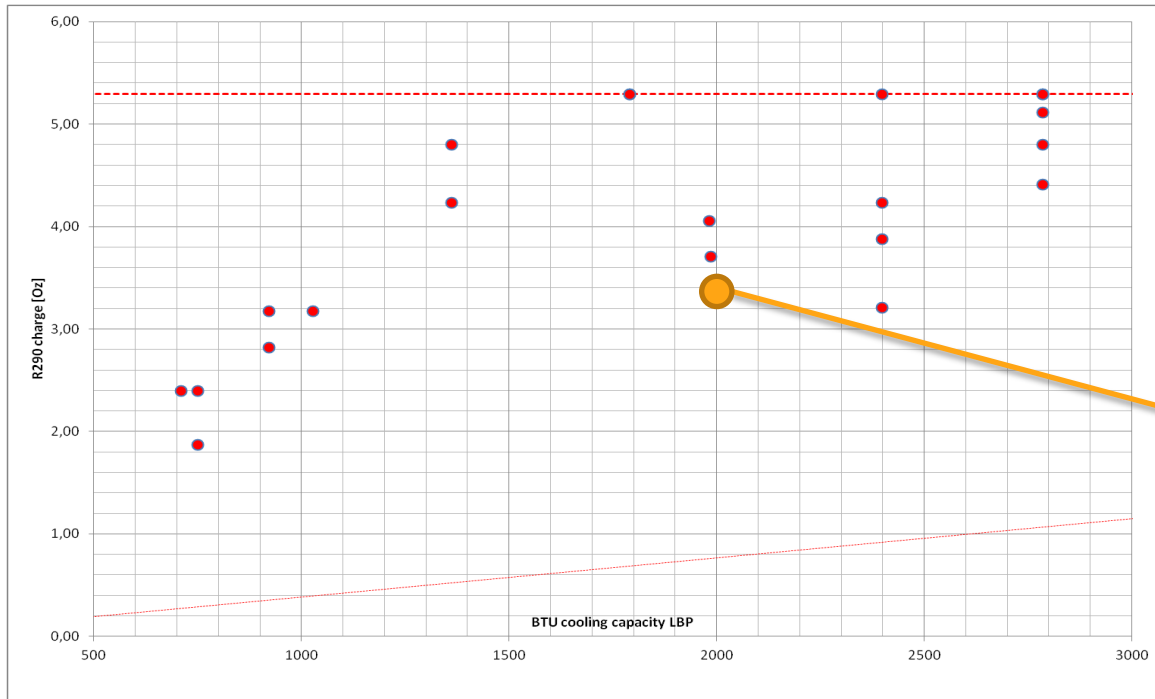
150 GRAMS CHARGE LIMIT



PROKUMA

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



CHEST FREEZER

30 cuft

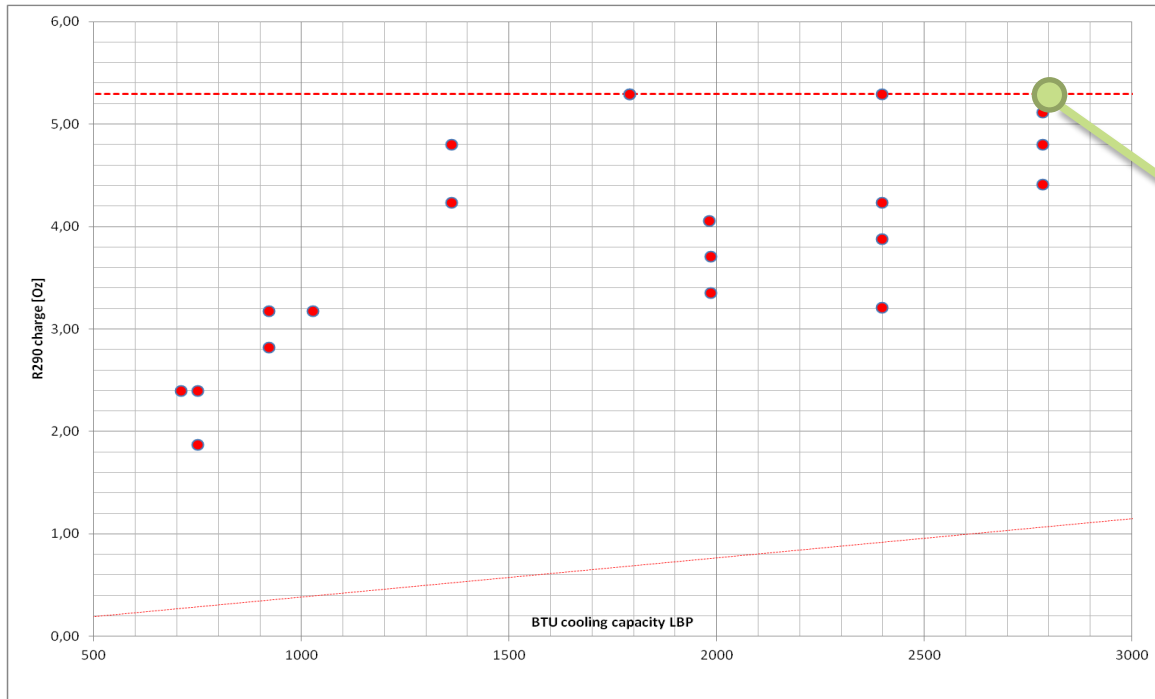
NEK2160U

3,2 oz

10,3 kWh/DAY

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



VERTICAL FREEZER

26 cuft

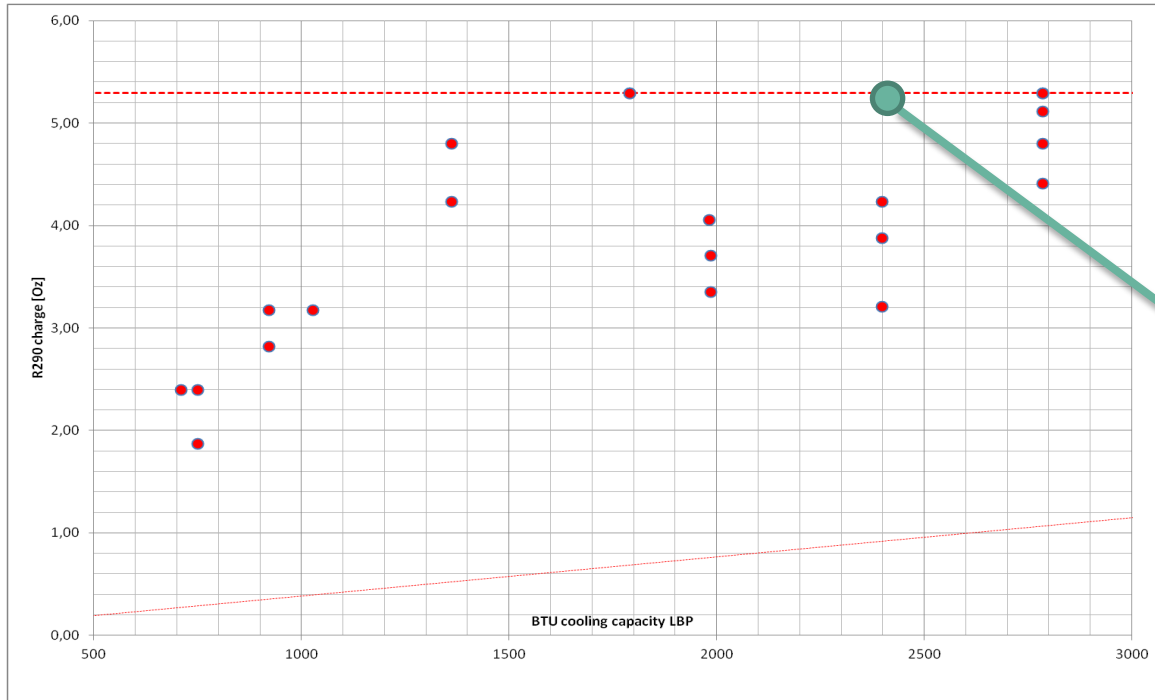
NT2180U

5,3 oz

11,6 kWh/DAY

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



ICE MACHINE

704 lb/DAY

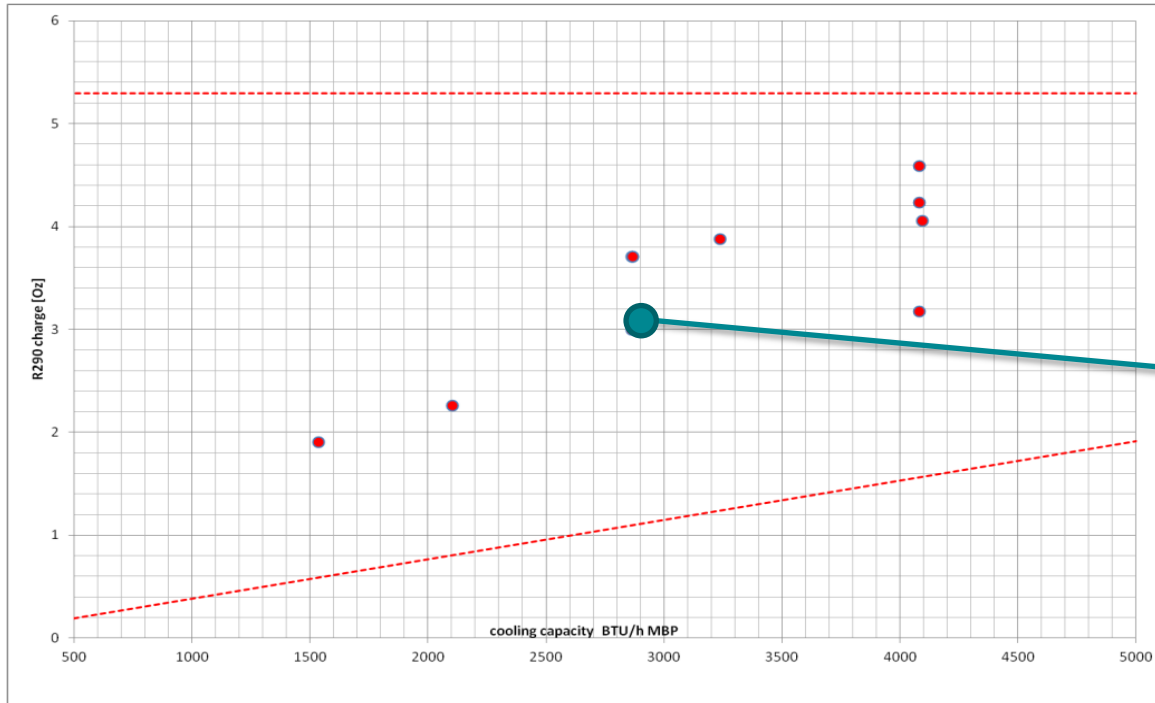
NT2170U

5,3 oz

5,3kWh/100 lb

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



GLASS DOOR MERCHANDIZE

26cuft

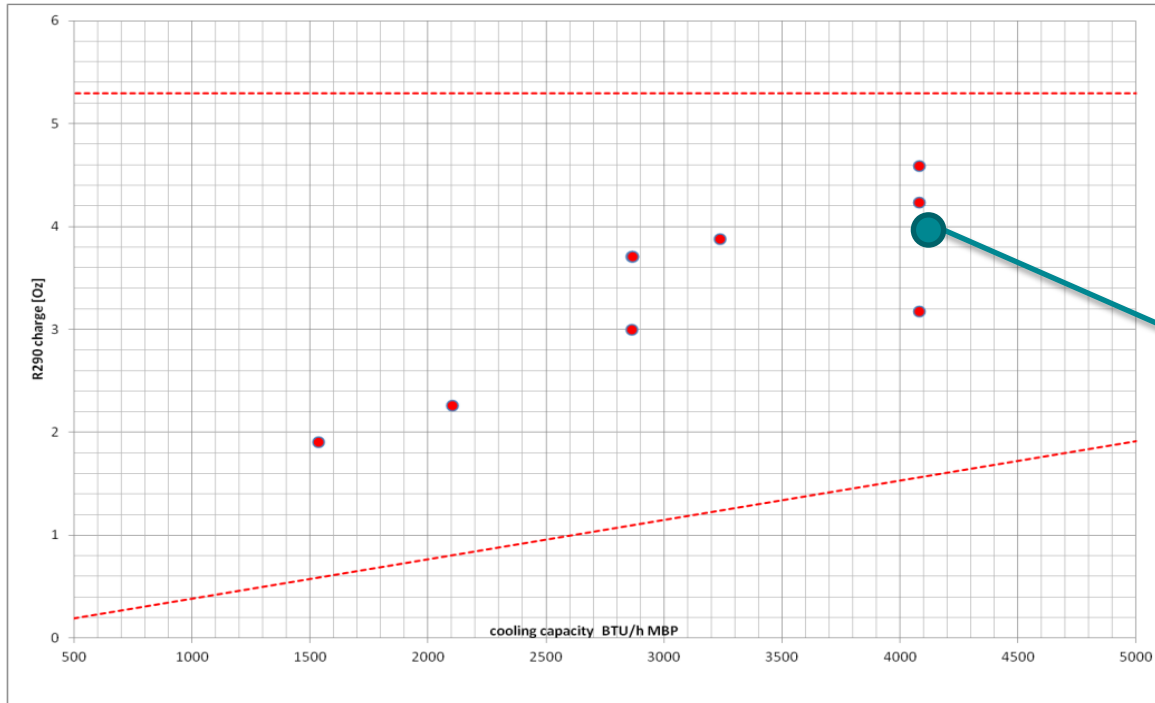
FFU130U

3.4oz

2.0kWh/DAY

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



GLASS DOOR MERCHANDIZE

49cuft

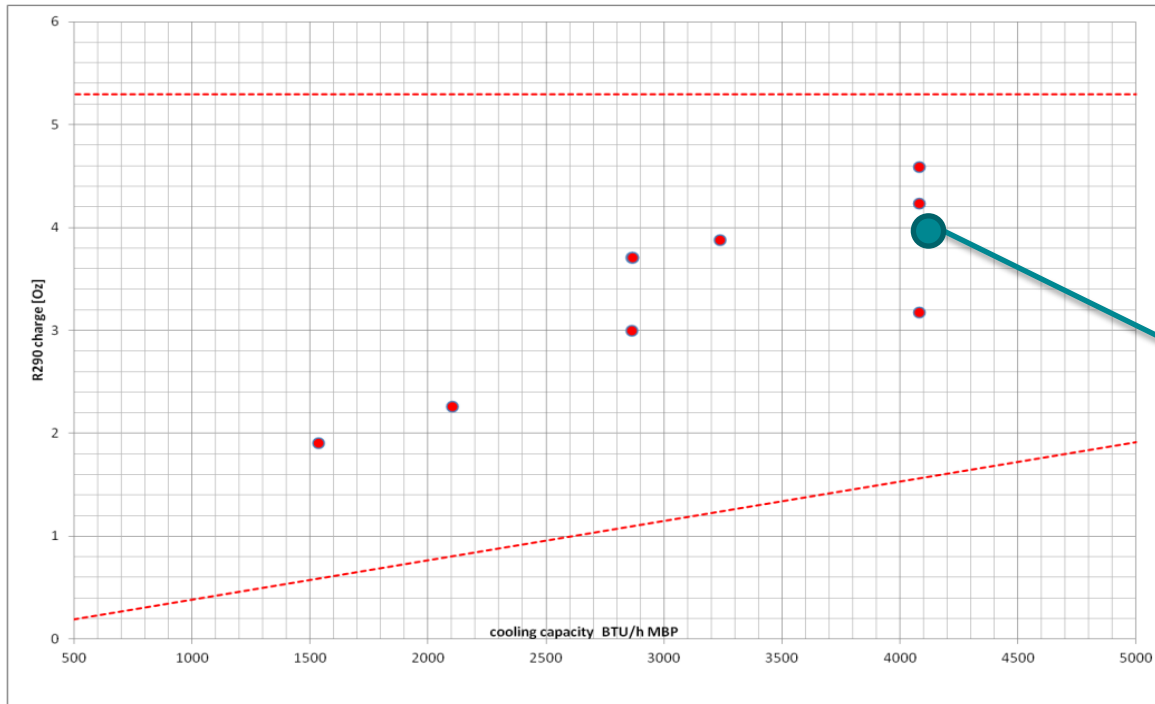
NEK6213U

4oz 2,

4kWh/DAY

150G (5,3 oz) CHARGE LIMIT

PROPANE CABINETS CHARGE



GLASS DOOR MERCHANDIZE

72cuft

NEK6213U

4oz 2, X 2

7.2kWh/DAY

150G (5,3 oz) CHARGE LIMIT

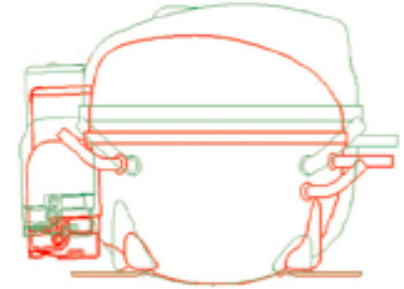


- 1)** Cabinet insulation improvement to reduce heat load and compressor size
- 2)** Use of smaller frame compressor (smaller internal volume)

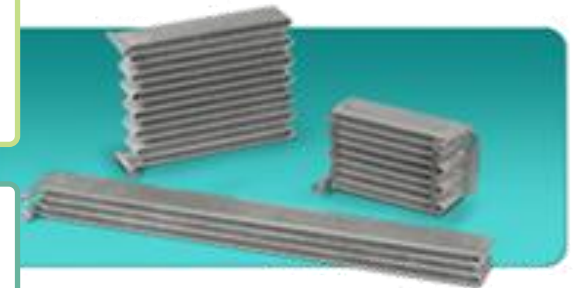
3) Fan cooled heat exchangers

4) Reduced internal volume heat exchangers

5) use of 2 separate circuits, 150 g max each



From 2,1 lt to 1,7lt



KEY POINTS TO TAKE AWAY

We have achieved some great progress so far but **more action is required** to move the market

With 150G of propane charge it's possible to cover most **unitary, plug-in applications**

Two circuit solution can provide additional gains in terms of cabinet efficiency



Thank you

embraco