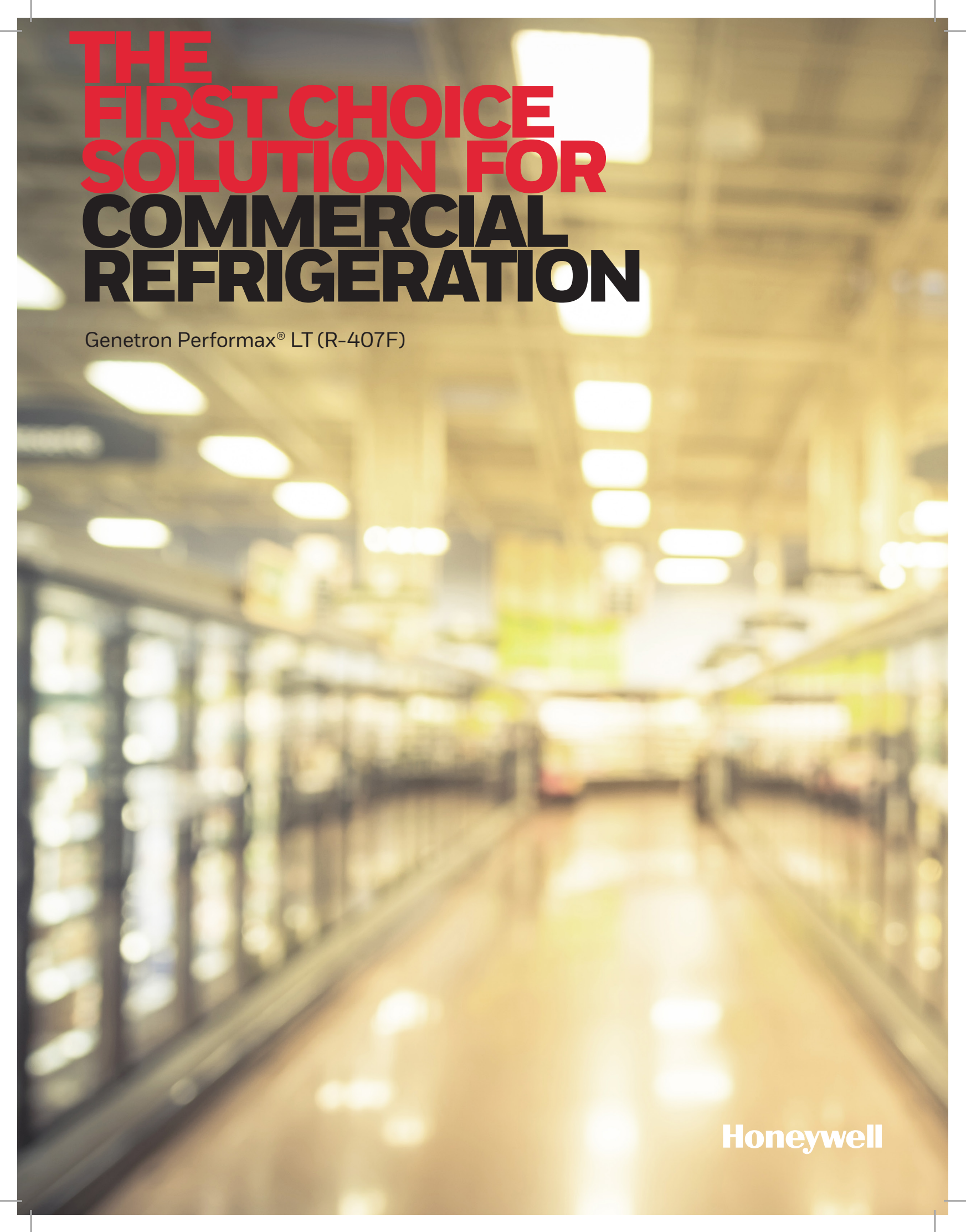




THE FIRST CHOICE SOLUTION FOR COMMERCIAL REFRIGERATION

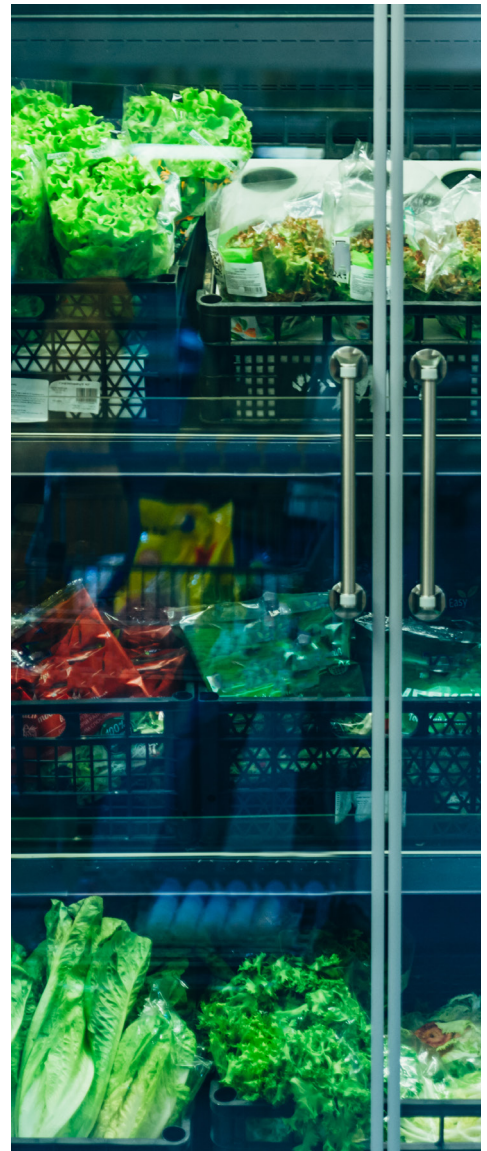
Genetron Performax® LT (R-407F)

Honeywell

SOLUTION OF CHOICE FOR SUPERMARKET AND COLDSTORE REFRIGERATION

Honeywell's Genetron Performax® LT (R-407F) is a highly efficient and innovative mixture of conventional hydrofluorocarbon refrigerants (R-32, R-125, R-134a). It can be used in Medium and Low Temperature applications for new commercial installations and to retrofit existing R-404A, R-407A and R-22 installations with only minor adaptations.

Supermarkets around the world are coming under intense scrutiny to prove their credentials when it comes to environmental impact and sustainability. The cooling gases used in their refrigeration systems account for around one quarter of their carbon footprint – and that is before energy for powering equipment is taken into account. Honeywell has responded by developing a new, lower GWP refrigerant blend Genetron Performax LT (R-407F) which is delivering outstanding results across key metrics linked to energy efficiency, carbon footprint reduction, running costs and safety.



APPLICATIONS

It's cool for new build and retrofit alike

Genetron Performax LT (R-407F) can be used for new commercial installations and with minimal change, can also be used to retrofit existing R-404A, R-407A and R-22 installations.

It is the best performing lower global-warming-potential (GWP) refrigerant for supermarket installations with improved energy efficiency compared to other HFCs and is well suited for new installations as a replacement for R-404A in both low- and medium-temperature supermarket applications. Converting existing R-404A supermarket systems to Genetron Performax LT will result in significant reduction in their carbon footprint and increase in overall performance.

COOL TIPS

Things To Consider When Using Genetron Performax LT (R-407F)

- Genetron Performax LT must only be liquid charged into a system to ensure proper refrigerant composition and system performance
- Evaluate the Expansion Device used. Due to difference in mass flow with many existing HFC refrigerants, there may be a need to adjust the superheat of the evaporator
- Ensure correct Lubricant is used. In most instances, the lubricant in use with R-404 or R-507 is also suitable for use with Honeywell Genetron Performax LT (R-407F). Honeywell recommends using a miscible lubricant approved by the compressor manufacturer
- Polymers and Elastomers. If using as a replacement for R-22 with oil change from mineral, seals must be replaced due to possible shrinkage
- Always check with Compressor manufacturers specifications to ensure full compatibility (Refer to Genetron Performax LT Guidelines for more details)

BENEFITS OF GENETRON PERFORMAX LT (R-407F)

Genetron Performax LT has been proved and tested by many European and Global Retailers who have identified R-407F (Genetron Performax LT) as their 'Refrigerant of Choice'.

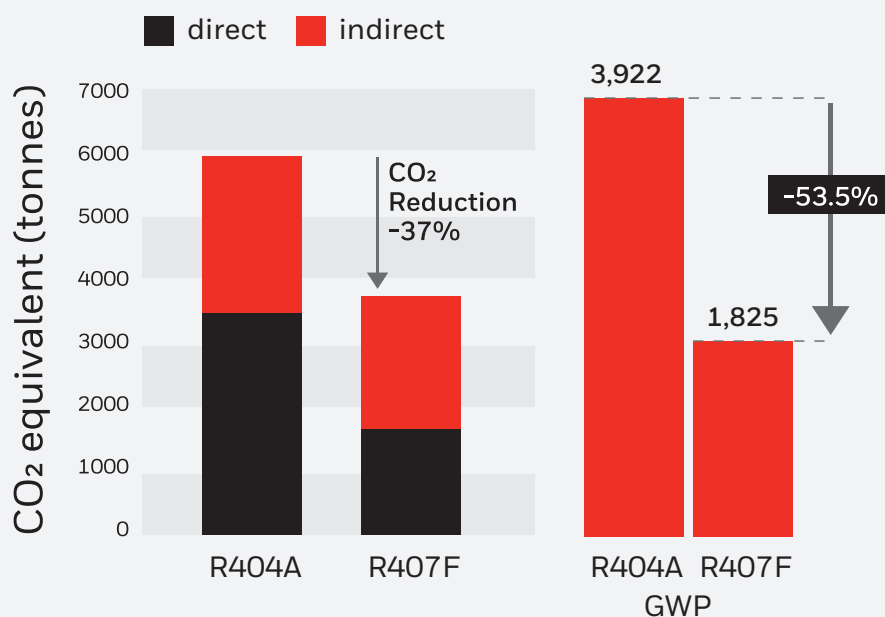
When comparing R-407F to existing Commercial Refrigeration refrigerants, it offers a variety of significant environmental and operational benefits:

ENERGY IMPROVEMENT

According to the industry testing, systems using Genetron Performax LT (R-407F), can consume up to 15% less energy than systems using R-404A.

CARBON BENEFIT

Use of Genetron Performax LT can also reduce carbon dioxide emissions by up to 40%. Its global warming potential (GWP 1,824) is around 53% less than existing refrigerant R-404A (3,922), and lower than any other HFC alternative used in commercial refrigeration.



APPLICATION IN ALREADY EXISTING INSTALLATIONS

There is no need to replace refrigeration systems in order to use R-407F. With a series of minor adjustments, Genetron Performax LT or R-407F can be used with no problem in existing systems. In this way, the necessary remodelling of gas refrigeration installation groups that commercial and industrial establishments face has a major ally in this new refrigerant. Approved by major manufacturers of components and engineer friendly. R-407F is approved by major manufacturers of compressors, valves and other components, and there is no significant difference in its handling for regular technicians and contractors, so that it can be handled safely and with no major changes.

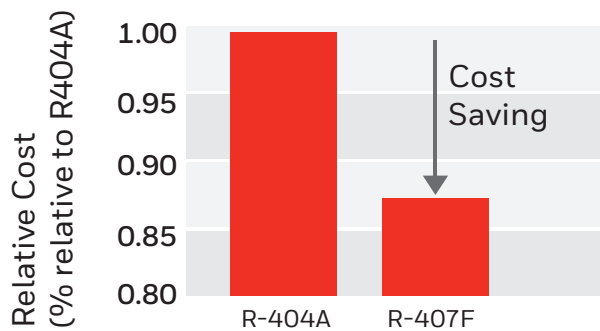
SUPPLY SECURITY

Thanks to Honeywell's multi-channel distribution network Genetron Performax LT (R-407F) is widely available.

PROVEN SAVINGS

Don't just take our word for it – there are many published case / field studies on Genetron Performax LT (R-407F) compared to R-404A and R-22. These 3rd party / independent assessments, validate both theoretical and laboratory testing and add to the confidence in the performance of the product.

Available to download at: <http://www.honeywellrefrigerants.com/europe>



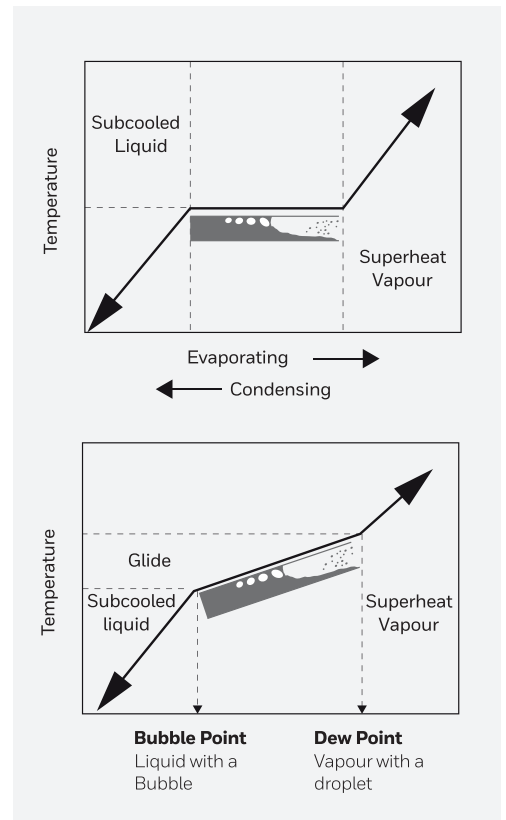
BLENDS WITH GLIDE

Genetron Performax LT (R-407F) is a blend which has glide. For the system to operate efficiently, consideration must be given to correct Suction and Condenser set points must be given to review Suction and Condenser Set Points as well as recalibrate Evaporator Superheat.

ASHRAE classifies blends in azeotropic (R-500 series) and nonazeotropic (R-400 series). Single refrigerants and azeotropic blends evaporate or condense at constant temperature, in a process at constant pressure. Non-azeotropic blends or just "Blends" have two distinct points:

- When the first droplet of vapor occurs (Dew Temp), and
- When the first bubble of vapor occurs (Bubble Temp)
- Difference between these temps is called the "Glide"

This Glide Effect must be taken into consideration when setting up system controllers, as the Mean or Average temperature must be used as opposed to the Dew or Bubble point temperature. More detailed information on this topic can be obtained from our web site or through any of our distributors.



SAFETY

Genetron Performax LT (R-407F) is classified A1 (non flammable).

AVAILABLE LITERATURE/ TECHNICAL ASSISTANCE

Honeywell has a wide range of literature available for all of its environmentally safer Genetron® products, covering such topics as reclamation, retrofitting guidelines, product specifications and technical properties.

Much of this information is available online at www.genetron.com. In addition, Honeywell technical specialists are available to assist you in all phases of using Genetron Performax LT (R-407F) – especially retrofitting, handling and storage and applications assistance.

PRESSURE VS TEMPERATURE				
Bubble Pressure psig	Dew Pressure psig	Temp °C	Bubble Pressure bar-g	Dew Pressure bar-g
4.9	*0.4	-40	0.3	0.0
7.5	1.9	-38	0.5	0.1
10.4	4.2	-36	0.6	0.2
13.6	6.8	-34	0.8	0.3
17.1	9.7	-32	0.9	0.4
20.9	12.9	-30	1.1	0.6
25.1	16.4	-28	1.3	0.7
29.6	20.2	-26	1.5	0.9
34.5	24.4	-24	1.7	1.1
39.8	28.9	-22	1.9	1.3
45.6	33.9	-20	2.1	1.4
51.8	39.3	-18	2.4	1.7
58.5	45.1	-16	2.6	1.9
65.6	51.4	-14	2.9	2.1
73.3	58.2	-12	3.2	2.4
81.6	65.5	-10	3.5	2.6
90.4	73.4	-8	3.8	2.9
99.7	81.8	-6	4.1	3.2
109.7	90.8	-4	4.5	3.5
120.4	100.5	-2	4.9	3.9
131.7	110.8	0	5.3	4.2
143.7	121.8	2	5.7	4.6
156.4	133.5	4	6.1	5.0
169.9	146.0	6	6.6	5.4
184.1	159.2	8	7.1	5.8
199.1	173.3	10	7.6	6.3
215.0	188.2	12	8.1	6.7
231.7	203.9	14	8.6	7.2
249.3	220.6	16	9.2	7.8
267.8	238.3	18	9.8	8.3
287.2	256.9	20	10.4	8.9
307.6	276.6	22	11.1	9.5
329.0	297.4	24	11.8	10.1
351.5	319.3	26	12.5	10.8
375.0	342.4	28	13.2	11.4
399.7	366.8	30	13.9	12.1
425.4	392.4	32	14.7	12.9
452.4	419.5	34	15.6	13.7
480.6	448.0	36	16.4	14.5

*inches of mercury vacuum

MORE INFORMATION ABOUT R-407F

You can find all the information about Genetron Performax LT (R-407F) at:
<http://www.honeywell-refrigerants.com/europe>

Honeywell also provides 'GENEPRO' refrigerant calculation software (available for free download) to help calculate and compare the use of different refrigerants, their properties as well as line sizing for new installations.

Download the free software from Honeywell Genetron Properties Suite at:
<https://www.honeywell-refrigerants.com>

Download the PT retrofit calculator applications for iOS and Android free.



PHYSICAL PROPERTIES

Chemical Name	Difluoromethane/Pentafluoroethane Tetrafluoroethane	
Molecular Formula	CH ₂ F ₂ /CHF ₂ CF ₃ /CH ₂ FCF ₃	
Appearance	Colourless	
Molecular Weight	82.1 (kg/mol)	
Units	English	SI
Bubble Point Temperature	-50.9°F @ 1 Atm	-46.1°C @ 101.3 kPa
Dew Point Temperature	-39.4°F @ 1 Atm	-39.7°C @ 101.3 kPa
Bubble Point Pressure [†]	190.2 (Psia)	1311 (kPa)
Dew Point Pressure [†]	165.9 (Psia)	1144 (kPa)
Critical Temperature	180.8°F	82.6°C
Critical Pressure	689.5 (Psia)	4754 (kPa)
Critical Volume	0.0336 (ft ³ /lb)	0.0021 (m ³ /kg)
Critical Density	29.8 (lb/ft ³)	477.37 (kg/m ³)
Vapour Density	0.279 (lb/ft ³) @ 1 Atm	4.465 (kg/m ³) @101.3 kPa
Liquid Density [†]	69.73 (lb/ft ³)	1117 (kg/m ³)
Liquid Heat Capacity [†]	0.38 (Btu/lb °F)	1.57 (KJ/kg K)
Vapour Heat Capacity [†]	0.28 (Btu/lb °F)	1.18 (KJ/kg K)
Heat of Vaporization	110.66(Btu/lb) @ 1 Atm	257.21 (KJ/kg) @101.3 kPa
Liquid Thermal Conductivity	0.052 (Btu/hr ft °F)	89.71 (mW/m°K)
Vapour Thermal Conductivity [†]	0.0084 (Btu/hr ft °F)	14.51 (mW/m °K)
Liquid Viscosity [†]	0.348 (lbm/ft hr)	143.99 (μPa.s)
Vapour Viscosity [†]	0.032 (lbm/ft hr)	13.20 a (μPa.s)
Flammability Limits in Air (vol%)	None*	
Ozone Depletion Potential (ODP)	0.0	
ASHRAE Safety Group Classification	A1/A1	

* Based on ASHRAE Standard 34 with match ignition.

[†] All data are at 77°F (25°C) unless otherwise noted.



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For more information:

www.honeywell-refrigerants.com

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