

# Solstice Range of Refrigerants

		Baseline	R-134a	GWP 5th IPCC rev	ASHRAE class	New/Retrofit	Drop-in (1)		Compressor (2)	Comments	Status	
							Capacity	Efficiency				
Chillers, Heat pumps & Appliances	Med/High pressure chillers	Honeywell alternative	<b>Solstice® N13 (R-450A)</b>	547	A1	New/Retrofit*	8% to 10% lower	1% to 3% higher	Screw, Centrifugal	Wider operating envelope Better at higher ambient Flooded evaporators OK	Commercial	
		Honeywell alternative	<b>Solstice® ze (HFO-1234ze)</b>	<1	A2L	New	20% to 25% lower	1% to 5% higher	Screw, Centrifugal	Wider operating envelope Better at higher ambient Higher oil solubility	Commercial	
	Heat pumps	Honeywell alternative	<b>Solstice® ze (HFO-1234ze)</b>	<1	A2L	New	20% to 25% lower	1% to 5% higher	Screw, Centrifugal	Wider operating envelope Better at higher ambient Higher oil solubility	Commercial	
		Appliances	Honeywell alternative	<b>Solstice® L41 (R-447A)</b>	572	A2L	New	7% to 10% lower	1% to 5% higher	Recip., Rotary, Scroll	Works well at higher ambient Lower pressure fluid	Available for sampling
	Low pressure chillers	Honeywell alternative	<b>Solstice® zd (HFO-1233zd)</b>	1	A1	New	40% to 45% higher	Similar	Centrifugal	Higher capacity range	Commercial **	
		High temperature heat pumps	Honeywell alternative	<b>Solstice® zd (HFO-1233zd)</b>	1	A1	New			Screw, others tbd	Industrial processes Depending t <sup>re</sup> of use****	Commercial **
	Stationary refrigeration	DX	Honeywell alternative	<b>Performax LT (R-407F)</b>	1674	A1	New/Retrofit	Similar	5% to 10% higher	Recip., Scroll, Screw	No TXV change Higher discharge temperature in LT	Commercial
Honeywell alternative			<b>Solstice® N40 (R-448A)</b>	1273	A1	New/Retrofit	Similar	5% to 10% higher	Recip., Scroll, Screw	No TXV change Good compressor envelope coverage	Commercial	
Honeywell alternative			<b>Solstice® N13 (R-450A)</b>	546	A1	New/Retrofit*	8% to 10% lower	Similar	Recip., Screw	Wider operating envelope Works well at higher ambient Flooded evaporator OK	Commercial	
DX Medium Temp CO <sub>2</sub> cascade		Honeywell alternative	<b>Solstice® ze (HFO-1234ze)</b>	<1	A2L	New	20% to 25% lower	1% to 5% higher	Recip., Screw	Outdoor/Atex compliance	Commercial	
		Self-contained Condensing units	Honeywell alternative	<b>Solstice® L40X (R-455A)</b>	145	A2L	New	4% lower	3% to 6% higher	Recip., Rotary, Scroll	Same discharge temperature in LT	Commercial 2016
Air conditioning		DX	Honeywell alternative	<b>Solstice® L41 (R-447A)</b>	572	A2L	New	7% to 10% lower	1% to 3% higher	Recip., Rotary, Scroll, Screw	Works well at higher ambient Lower pressure fluid	Available for sampling
			Honeywell alternative	<b>Solstice® L20 (R-444B)</b>	295	A2L	New	vs R-22: 95% vs R-407C: similar	vs R-22: 95% vs R-407C: 1% to 3% higher	Recip., Rotary, Scroll	Works well in warm climates	Available for sampling Commercial 2016
	Honeywell alternative		<b>Solstice® N40 (R-448A)</b>	1273	A1	New/Retrofit	Similar	1% to 4% higher	Recip.	Higher discharge temperature in LT	Available for sampling Commercial	
	ORC	Honeywell alternative	<b>Solstice® ze (HFO-1234ze)</b>	<1	A2L	New	20% to 25% lower	1% to 5% higher		Depending temperature of use***	Commercial	

# Solstice® Refrigerants

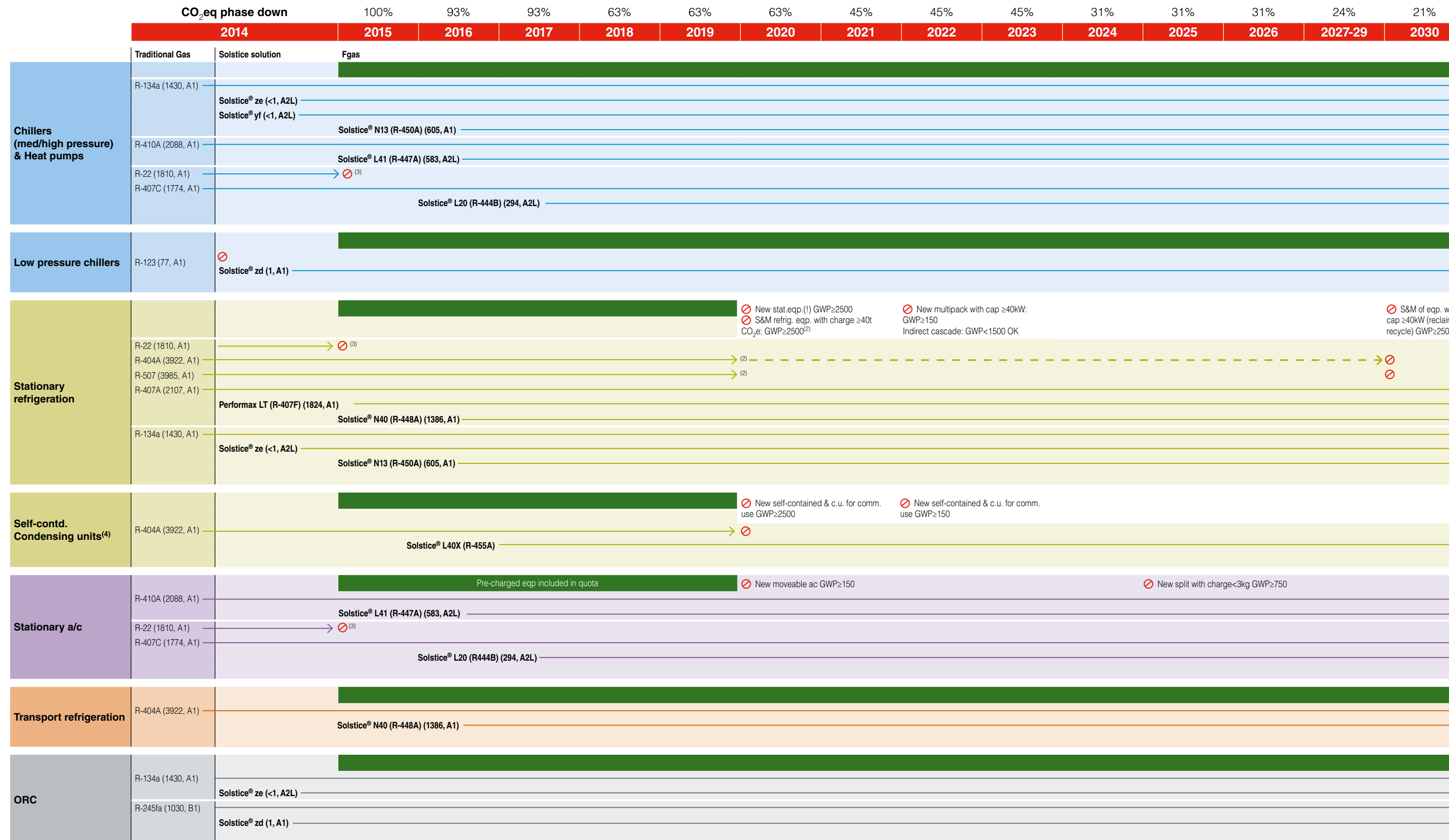


**Solstice refrigerants roadmap:  
the new industry standard**

(1) Drop-in test in a non-optimised system  
 (2) Suitable compressor technology, check with Honeywell technical department for qualified models  
 \* Retrofit if original installed capacity is overdimensioned  
 \*\* Ask Honeywell for agreement  
 \*\*\* Check with Honeywell technical department

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<b>Key</b>	<b>Notes</b>
R-134a (1430, A1) Refrigerant (GWP, ASHRAE class)	S&M Service and maintenance
█ Fgas: no restrictions during this period on this application	GWP values IPCC revision 4, as per Fgas Regulation, except for Solstice yf/ze (IPCC rev5)
⊘ Refrigerant can no longer be used after January 1st of this year	c.u. condensing units
--- Continue to use but only reclaimed or recycled – not virgin	(1) Except applications at -50°C
	(2) Except recycled/reclaimed
	(3) Banned in EU28 and Saudi
	(4) Please verify if there are charge restrictions

Honeywell's key environmental focus is on safe, lower GWP sustainable solutions, whilst still maintaining energy efficiency at the heart of the product range. We have invested in both R&D and manufacturing capacity for continuous improvement to help countries and companies meet the global commitments for carbon footprint reduction.

## F-gas – Annex III: new placing on the market prohibitions

Products and equipment	Date of prohibition	
Fire protection equipment that contain HFC-23	1 January 2016	
Domestic refrigerators and freezers that contain HFCs [...] with GWP of 150 or more	1 January 2015	
Refrigerators and freezers [...] for commercial use (hermetically sealed systems)	that contain HFCs with GWP of 2500 or more	1 January 2020
	that contain HFCs with GWP of 150 or more	1 January 2022
Stationary refrigeration equipment, that contains, or that relies upon for its functioning HFCs with GWP of 2500 or more except equipment intended for application designed to cool products to temperatures below -50°C	1 January 2020	
Multipack centralised refrigeration systems for commercial use with a capacity of 40kW or more that contain, or that rely upon for their functioning, fluorinated greenhouse gases with GWP of 150 or more, except in the primary refrigerant circuit of cascade systems where fluorinated greenhouse gases with a GWP of less than 1500 may be used	1 January 2022	
Movable room air-conditioning appliances (hermetically sealed equipment which is movable between rooms by the end user) that contain HFCs with GWP of 150 or more	1 January 2020	
Single split air-conditioning systems containing less than 3kg of fluorinated greenhouse gases, that contain, or that rely upon for their functioning, fluorinated greenhouse gases with GWP of 750 or more	1 January 2025	
Foams that contain HFCs with GWP of 150 or more except when required to meet national safety standards	Extruded polystyrene (XPS) Other foams	1 January 2020 1 January 2023
Technical aerosols that contain HFCs with GWP of 150 or more, except when required to meet national safety standards or when used for medical applications		1 January 2018

Note: 'HFCs' refers to blends, not individual components of blends

## F-gas – Annex III: control of use

Maintenance and Servicing	Date of prohibition
Virgin F-Gases with GWP>2500 or more for servicing refrigeration equipment with a charge size of 40 tons of CO <sub>2</sub> eq or more.	1 January 2020
This service ban is not applicable to military and low temp (- 50°C) equipment.	
Recycled and reclaimed F-gases with GWP of 2500 or more for servicing refrigeration equipment with a charge size of 40 tons of CO <sub>2</sub> eq or more.	1 January 2030
Pre-charged equipment	Date of prohibition
Refrigeration, air conditioning and heat pump equipment pre-charged with F-gases may not be placed on the market unless F-Gases charged into this equipment are accounted for within the quota system referred to in Chapter IV. When placing pre-charged equipment on the market after that date, manufacturers and importers must issue a declaration of conformity which must be verified by an independent auditor.	1 January 2017

### More information

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



[www.honeywell-refrigerants.com/europe](http://www.honeywell-refrigerants.com/europe)

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



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**Our commitments:**  
The safety of our employees  
The quality of our products  
Being responsible stewards for the protection of the environment, the communities in which we operate and our customers

**Honeywell Belgium N.V.**  
Gaston Geenslaan 14  
3001 Heverlee, Belgium  
Phone: +32 16 391 212  
Fax: +32 16 391 371  
E-mail: [fluorines.europe@honeywell.com](mailto:fluorines.europe@honeywell.com)

[fluorines.europe@honeywell.com](mailto:fluorines.europe@honeywell.com)

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