

Solstice Range of Refrigerants

				Drop-in (1)		New/Retrofit			Compressor (2)	Comments	Status
				GWP 5th IPCC rev	ASHRAE class		Capacity	Efficiency			
Chillers & Heat pumps	Med/High pressure chillers Heat pumps	Baseline	R-134a	1300	A1				Screw, Centrifugal		
		Honeywell alternative	Solstice® N13 (R-450A)	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 2015
		Honeywell alternative	Solstice® ze	<1	A2L	New	20% to 25% lower	1% to 5% higher	Screw, Centrifugal	Wider operating envelope Better at higher ambient Higher oil solubility	Commercial
		Baseline	R-410A	1924	A1				Rotary, Scroll		
		Honeywell alternative	Solstice® L41 (R-447A)	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 Commercial 2015
	Low pressure chillers	Baseline	R-123	1300	A1				Centrifugal		
		Honeywell alternative	Solstice® zd	1	A1	New	40% to 45% higher	Similar	Centrifugal	Higher capacity range	Commercial **
	Hight temperature heat pumps	Baseline	Boilers, fossil fuels, electrical heaters								
		Honeywell alternative	Solstice® zd	1	A1	New			Screw, others tbd	Industrial processes Depending t <sup>re</sup> of use****	Commercial **
Stationary refrigeration	DX	Baseline	R-404A	3943	A1				Recip., Scroll, Screw		
		Honeywell alternative	Performax LT (R-407F)	1674	A1	New/Retrofit	Similar	5% to 10% higher	Recip., Scroll, Screw	No TXV change Higher discharge temperature in LT	Commercial
		Honeywell alternative	Solstice® N40 (R-448A)	1273	A1	New/Retrofit	Similar	5% to 10% higher	Recip., Scroll, Screw	No TXV change Good compressor envelope coverage	Available for sampling Commercial 2015
	DX Medium Temp CO <sub>2</sub> cascade	Baseline	R-134a	1300	A1				Recip., Screw		
		Honeywell alternative	Solstice® N13 (R-450A)	546	A1	New/Retrofit*	8% to 10% lower	Similar	Recip., Screw	Wider operating envelope Works well at higher ambient Flooded evaporator OK	Commercial 2015
		Honeywell alternative	Solstice® ze	<1	A2L	New	20% to 25% lower	1% to 5% higher	Recip., Screw	Outdoor/Atex compliance	Commercial
	Self-contained Condensing units	Baseline	R-404A	3943	A1				Recip., Rotary, Scroll		
		Honeywell alternative	Solstice® HDR-110	145	A2L	New	4% lower	3% to 6% higher	Recip., Rotary, Scroll	Same discharge temperature in LT	Developmental
Air conditioning		Baseline	R-410A	1924	A1				Rotary, Scroll		
		Honeywell alternative	Solstice® L41 (R-447A)	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 Commercial 2015
		Baseline	R-407C	1624	A1				Recip., Rotary, Scroll		
		Baseline	R-22	1810	A1				Recip., Rotary, Scroll		
		Honeywell alternative	Solstice® L20 (R-444B)	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
Transport refrigeration	DX	Baseline	R-404A	3943	A1				Recip.		
		Honeywell alternative	Solstice® N40 (R-448A)	1273	A1	New/Retrofit	Similar	1% to 4% higher	Recip.	Higher discharge temperature in LT	Available for sampling Commercial 2015
		Honeywell alternative	Solstice® HDR-100	2400	A1	New/Retrofit	Similar	Similar	Recip.	Same discharge temperature in LT	Developmental
ORC		Baseline	R-134a	1300	A1						
		Honeywell alternative	Solstice® ze	<1	A2L	New	20% to 25% lower	1% to 5% higher		Depending temperature of use***	Commercial
		Baseline	R-245fa	858	B1						
		Honeywell alternative	Solstice® zd	1	A1	New				Depending temperature of use***	Commercial **

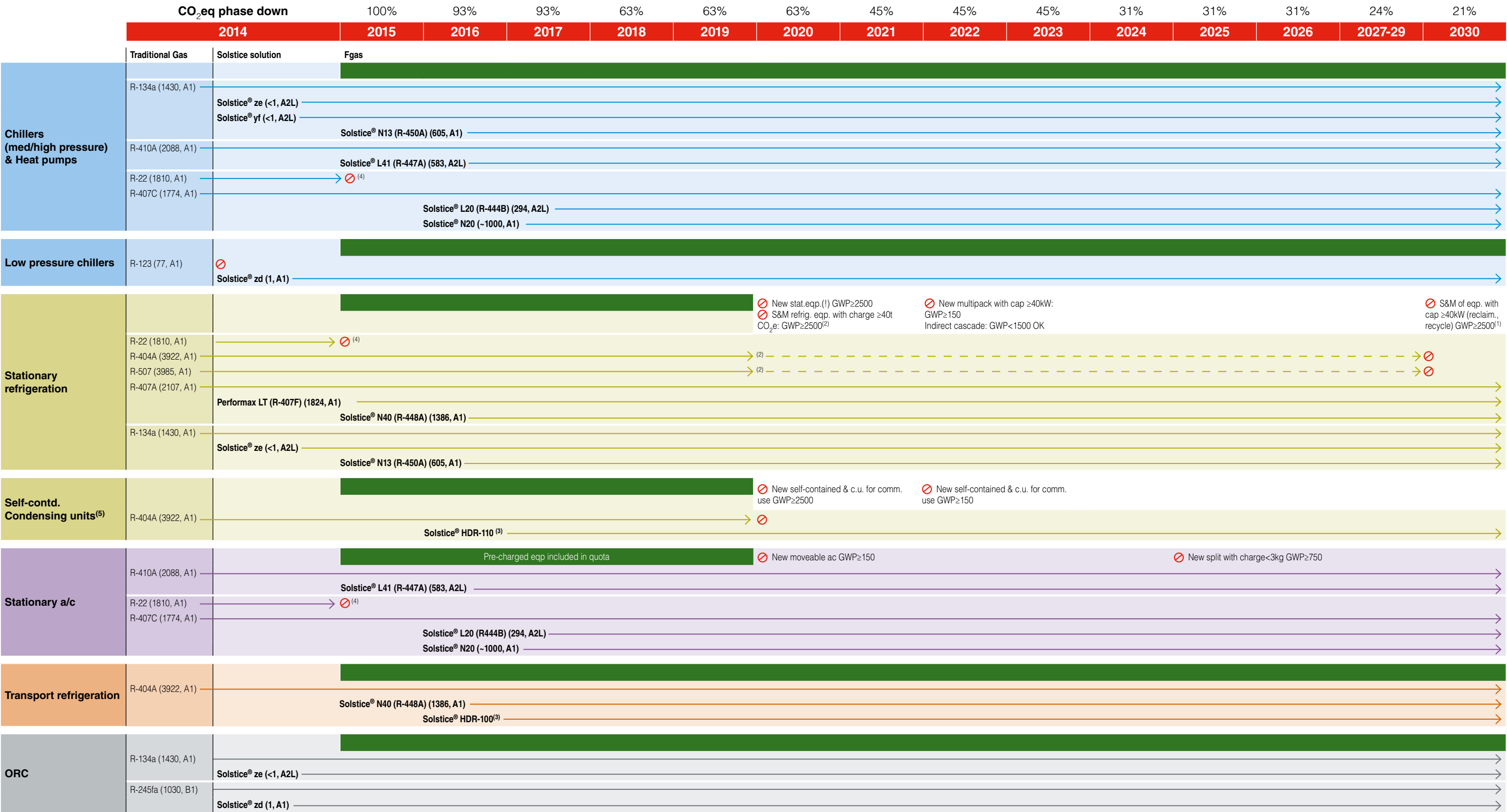
(1) Drop-in test in a non-optimised system  
(2) Suitable compressor technology, check with Honeywell technical department for qualified models  
\* Retrofit if original installed capacity is overdimensioned  
\*\* Ask Honeywell for agreement  
\*\*\* Check with Honeywell technical department

Solstice® Refrigerants



Solstice refrigerants roadmap:  
the art of technology

The future of refrigerants begins with Honeywell Solstice®



Key		Notes	
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/zd/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		

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)	1 January 2020
	Other foams	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. This service ban is not applicable to military and low temp (- 50°C) equipment.	1 January 2020
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](https://www.honeywell-refrigerants.com/europe)

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



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OUR COMMITMENT TO SUSTAINABILITY

RESPONSIBLE CARE

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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

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