

# Refrigerants Route Planner



STATIONARY AIR-CONDITIONING								
Technology	Refrigerant	Supplier	GWP*	ASHRAE Class	New or Retrofit	Capacity	Efficiency	Manufacturer's claims & comments
Current	R410A		2088	A1				
New	R452B (Solstice L-41y)	<b>Honeywell</b>	698	A2L	New	Similar	1% - 3% higher	Works well at high ambient. Low pressure fluid.
New	R452B (Opteon XL55)		698	A2L	New	Similar	Up to 5% higher	Very low temperature glide.
New	R32		675	A2L	New	Close match	Close match	Very close match but new equipment only.
New	R455A (Solstice L40X)	<b>Honeywell</b>	145**	A2L	New	Close match	Close match	Extended operating envelope.
New	R466A (Solstice N41)	<b>Honeywell</b>	733**	A1	New	Close match	Close match	Non flammable alternative to R410A but new equipment only.
New	R454B (Opteon XL41)		466	A2L	New	Higher	Higher	Improved capacity and efficiency compared to R410A. Excellent performance in normal & high ambient conditions. Very close match R410A-easily converted from R410A design with minimal changes. Low temp glide - can be topped up after leaks.
Current	R407C		1774	A1				
Current	R22		1810	A1				HCFC now completely banned in Europe.
New	R444B (Solstice L20)	<b>Honeywell</b>	295**	A2L	New	vs R22 - 95% vs R407C similar	vs R22 - 95% vs R407C 1% - 3% higher	Works well in warmer climates.
TRANSPORT REFRIGERATION								
Current	R404A		3943	A1				Banned for servicing after January 2020.
New	R452A (Solstice R452A)	<b>Honeywell</b> 	2140	A1	New & Retrofit	Similar	Similar	Same discharge temperature MT/LT.
New	R455A (Solstice L40X)	<b>Honeywell</b>	145**	A2L	New & Retrofit	4% Lower LT, Higher MT	Higher LT/MT	Same discharge temperature LT.
New	R452A (Opteon XP44)		2140	A1	New & Retrofit	Similar	Similar	Near match for R404A to the compressor discharge temperature and mass flow rate eliminating the need to adjust the TXV.
TRANSPORT AIR-CONDITIONING								
Current	R134A		1430	A1				Banned in new cars in Europe from 2017.
New	R1234yf (Solstice yf)	<b>Honeywell</b>	4	A2L	New	Similar	Similar +/- 5%	Very low GWP long term sustainability.
New	R513A	<b>Honeywell</b> 	573**	A1	New	Similar	Similar	Lower GWP alternative to R134A.
New	Co2		1	A1	New	Better	Similar to worse	High pressure and low critical temp.
CHILLERS & HEAT PUMPS								
Current	R134A		1430	A1				
New	R450A (Solstice N13)	<b>Honeywell</b>	604	A1	New & Retrofit	8% - 10% Lower	1% - 3% Higher	Wider operating envelope. Better at higher ambient. Flooded evaporators OK.
New	R1234ze (Solstice ze)	<b>Honeywell</b>	7	A2L	New	20% - 25% lower	1% - 3% Higher	Wider operating envelope. Better at higher ambient. Higher oil solubility.
New	R513A (Opteon XP10)		573**	A1	New & Retrofit	Close match	Close match	Efficient match to R134A. Close performance match for new and retrofit. Azeotropes with zero glide.
CHILLERS & HEAT PUMPS								
Med/high pressure Chillers & Heat Pumps								
Current	R410A		2088	A1				
New	R454B (Opteon XL41)		466	A2L	New	Higher	Higher	Improved capacity and efficiency compared to R410A. Excellent performance in normal & high ambient conditions. Very close match R410A-easily converted from R410A design with minimal changes. Low temp glide - can be topped up after leaks.
New	R452B (Opteon XL55)		698**	A2L	New	Close match	Close match	Excellent performance in normal and high ambient conditions. Very close match to R410A - easily converted from R410A design with minimal changes. Low temp glide- can be topped up after leaks.
New	R32		675	A2L	New	Close match	Close match	GWP nearly 3 times lower than R410A. New systems only - can not be retrofitted.
New	R452B (Solstice L-41y)	<b>Honeywell</b>	689	A2L	New	Match	Higher	Works well at higher ambient. Lower pressure fluid.
Low Pressure Chillers								
Current	R123		77	B1				HCFC now completely banned in Europe.
New	R1233zd (Solstice zd)	<b>Honeywell</b>	1**	A1	New	40% - 45% higher	Similar	Higher capacity range.
High Temperature Heat Pumps								
Boilers, Fossil fuels, Electric heaters								
New	R1233zd (Solstice zd)	<b>Honeywell</b>	1**	A1	New	40-45% higher	Similar	Industrial processes - check with manufacturer technical department.
New	R1234ze (Solstice ze)	<b>Honeywell</b>	7	A2L	New	Capacity 20-25% lower	1-5% Higher	Wider operating envelope, works well at higher ambient & possible flooded evaporator's.
STATIONARY REFRIGERATION								
Current	R404A		3922	A1				
New	R407F (Performax LT)	<b>Honeywell</b>	1824	A1	New & Retrofit	Similar	5% to 10% Higher	No TXV Change. Higher discharge Temperature in LT.
New	R448A (Solstice N40)	<b>Honeywell</b>	1387	A1	New & Retrofit	Similar	5% to 10% Higher	No TXV Change. Good compressor Envelope coverage.
New	R449A (Opteon XP40)		1397	A1	New & Retrofit	Similar	8% - 12% higher	Approved by major equipment and component manufacturer's.
New	R454C (Opteon XL20)		148	A2L	New	12-25% lower	5-11% higher	Close match to R22 technology but is also a valid solution for R404A equipment.
New	R454A (Opteon XL40)		239	A2L	New	Superior performance	Superior performance	Offers superior performance in cooling capacity and performance.
New	R455A (Solstice L40X)	<b>Honeywell</b>	145**	A2L	New	4% lower LT - Lower/similar HT	6% higher LT - 10% higher MT	Close capacity match to R404A.
New	R452A (Solstice 452A)	<b>Honeywell</b>	2140	A1	New & Retrofit	Similar	Similar	Same discharge temperature MT'LT.
Current	R134A		1430	A1				
New	R513A (Opteon XP10)		573**	A1	New & Retrofit	Similar	Similar	No glide.
New	R450A (Solstice N13)	<b>Honeywell</b>	604	A1	New	8% - 10% lower	Similar	Similar performance to R134A. Shows 87% capacity and similar efficiency (100%). Small glide can be addressed during system design.
New	R1234ze (Solstice ze)	<b>Honeywell</b>	7	A2L	New	20%-25% lower	1%-5% higher	Can be used in supermarkets and commercial buildings as well as other medium temperature applications.

\* GWP - IPCC 4th Revision \*\* GWP - IPCC 5th Revision



For full specifications on each refrigerant please visit the website at [www.nationalref.com](http://www.nationalref.com)

National Refrigerants Ltd 4 Watling Close Sketchley Meadows Business Park Hinckley Leicestershire LE10 3EZ  
Tel: +44 (0) 1455 630790 | Email: [info@nationalref.com](mailto:info@nationalref.com) | Web: [www.nationalref.com](http://www.nationalref.com)