Honeywell
THE POWER OF CONNECTED | Refrigerants

Glide

What You Need To Know

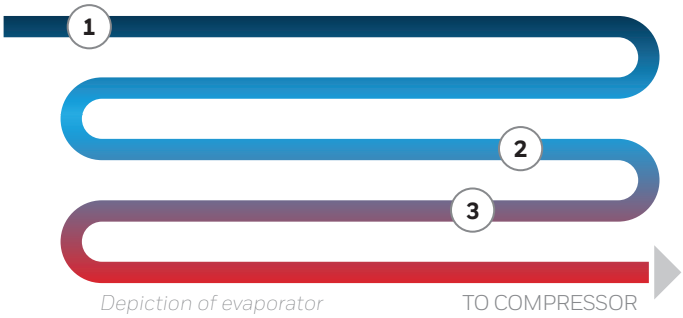
Understanding Glide and Superheat

Glide Matters

Many technicians are accustomed to using refrigerants that act as a single component with a boiling temperature that doesn't change within the evaporator or the condenser. But with zeotropic refrigerant blends, the temperature in the evaporator will be colder at the start of the coil than at the end and the temperature in the condenser will be warmer at the beginning than at the end. Simply put, the differences in these temperatures is the Glide.

Understanding Glide is the key to maintaining the desired temperature and protecting the compressor.

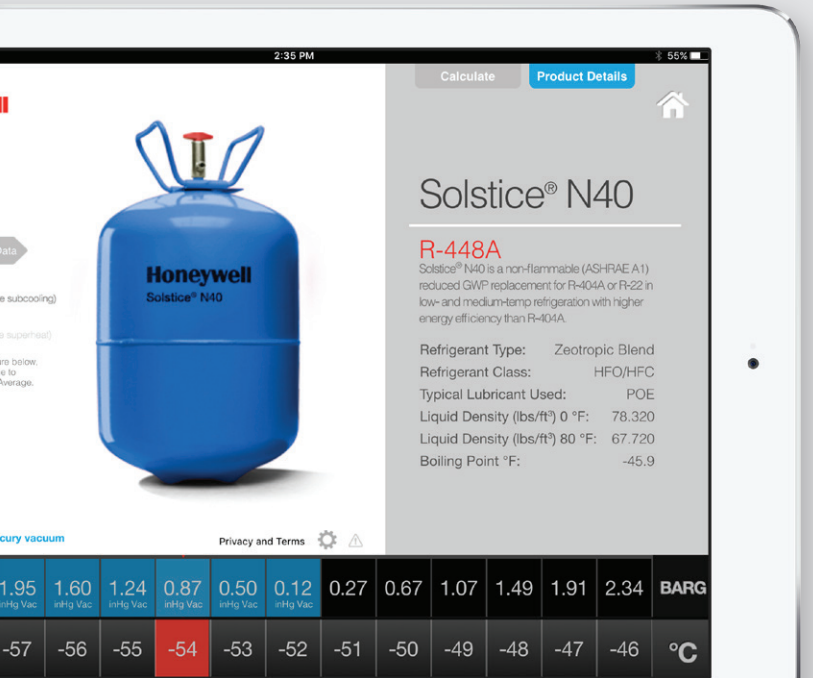
1. Liquid with a few bubbles (coldest)
2. Equal vapor and liquid
3. Vapor and last few drops of liquid (warmer)



Depiction of evaporator

Why **Glide** Matters

Because different components in a blend boil at different temperatures, the temperature in the coil will vary as the mixture boils. If the expansion valve adjustment isn't made using the Dew Point, two things can happen. **FIRST**, the liquid may not vaporize before reaching the compressor, which can cause inefficiency and lead to compressor damage. **SECOND**, the blend may completely boil part way through the evaporator, leading to a loss of efficiency and required fixture temperature.



ADJUSTING FOR GLIDE

When adjusting pressure and superheat, your goals are to achieve the desired temperature, maximize coil efficiency, and protect the compressor for long service life. It all starts by looking at the Pressure-Temperature (PT) chart included with your refrigerant or on the convenient Honeywell Refrigerants PT Chart app.

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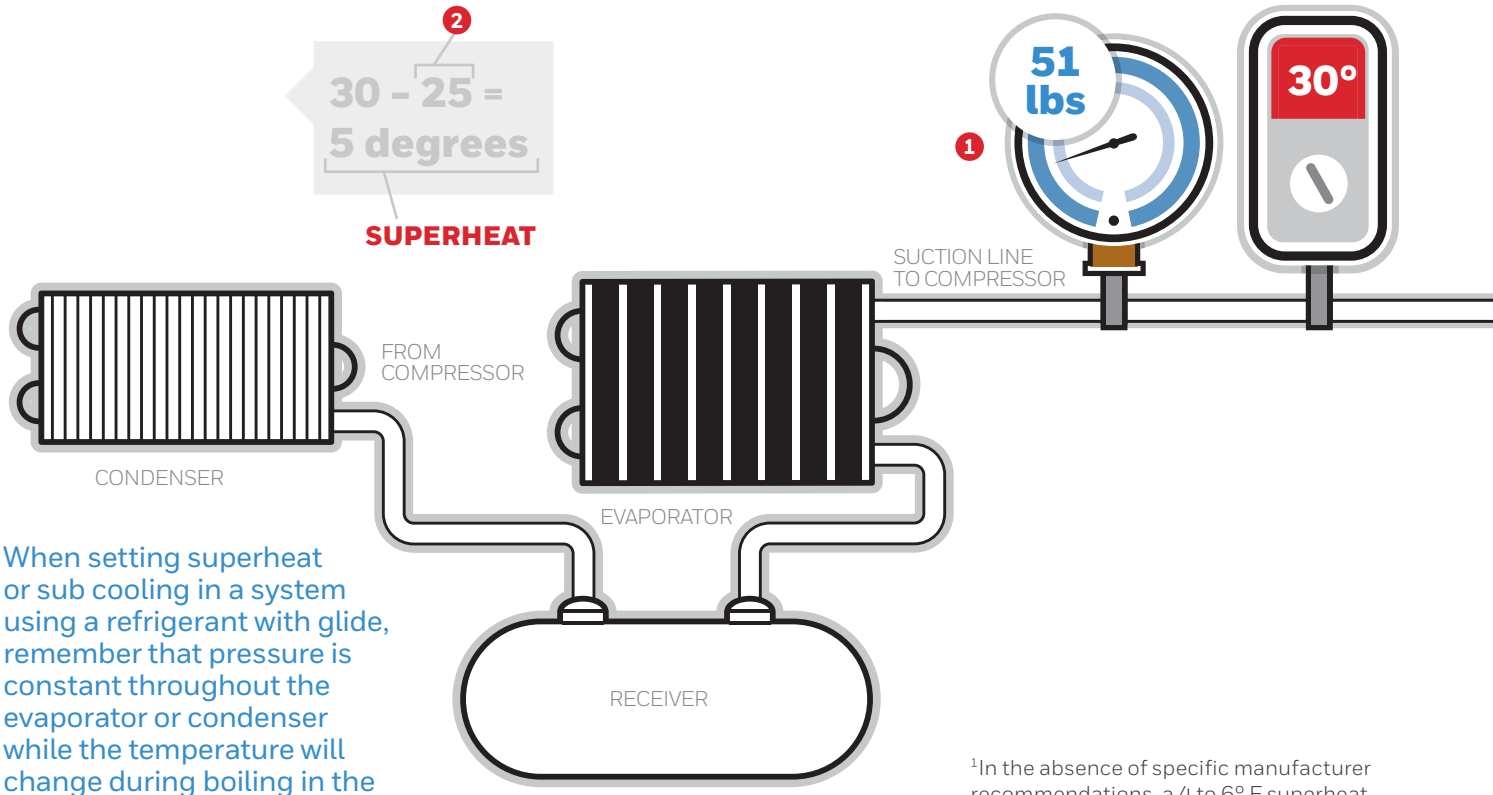
SETTING EVAPORATOR PRESSURE

In this Honeywell Solstice® N40 PT chart, we want to achieve an **average** coil temperature of 20° F, as noted by the (4). Using the chart as reference, we know that we can begin by setting the Pressure to 51 psig (1).

PRESSURE	TEMPERATURE		
	AVERAGE	BUBBLE	DEW
(psig)	°F		
45	15	10	20
46	16	11	21
47	17	12	22
48	18	12	23
49	18	13	24
50	19	14	24
1 51	20 4	15 3	25 2
52	21	16	26
53	22	16	27
54	22	17	28
55	23	18	28

SETTING SUPERHEAT

In order to set the superheat[1], find the Dew Point temperature corresponding to the coil pressure. The evaporator coil pressure and dew temperature are shown as 1) and 2) in chart above. To get superheat compare the dew temperature from the chart to the actual temperature of the evaporator outlet piping. The difference in these two temperatures is the superheat. In this example, when the pressure is 51psig and the pipe temperature is 30 degrees, the superheat will be 30 minus 25, or 5 degrees. As you continue to take temperature readings, you can adjust the superheat and pressure as needed until you've achieved the desired coil temperature.



When setting superheat or sub cooling in a system using a refrigerant with glide, remember that pressure is constant throughout the evaporator or condenser while the temperature will change during boiling in the evaporator or condensing in the condenser.

[1]In the absence of specific manufacturer recommendations, a 4 to 6° F superheat for low temperature and 6 to 8° F for medium temperature is recommended.

Learn More

PT Charts for all Honeywell refrigerants are available in the free Honeywell Refrigerants PT Chart app. You can also get technical support by contacting your Honeywell representative or visiting honeywell-refrigerants.com.

For more information

www.honeywell-refrigerants.com/americas

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