

VACCINE COLD CHAIN

Background

According to the World Health Organization (WHO), almost 20% of temperature-sensitive health care products are damaged during transport due to broken cold chain. With the pandemic coming from the new virus SARS-CoV-2, and a race to get temperature sensitive vaccines out quicker, more attention is being paid to the efficiency and effectiveness of the vaccine cold chain.

The vaccine cold chain is made of both active refrigeration during shipping and warehousing along with monitored boxes called vacuum insulated parcels (VIP). VIPs can have active refrigeration through grid or battery power and are typically supplemented with dry ice as passive refrigeration. Combined, the transport refrigeration and VIPs work together to ensure vaccines are stored at the proper temperatures from the factory to the distribution centers.

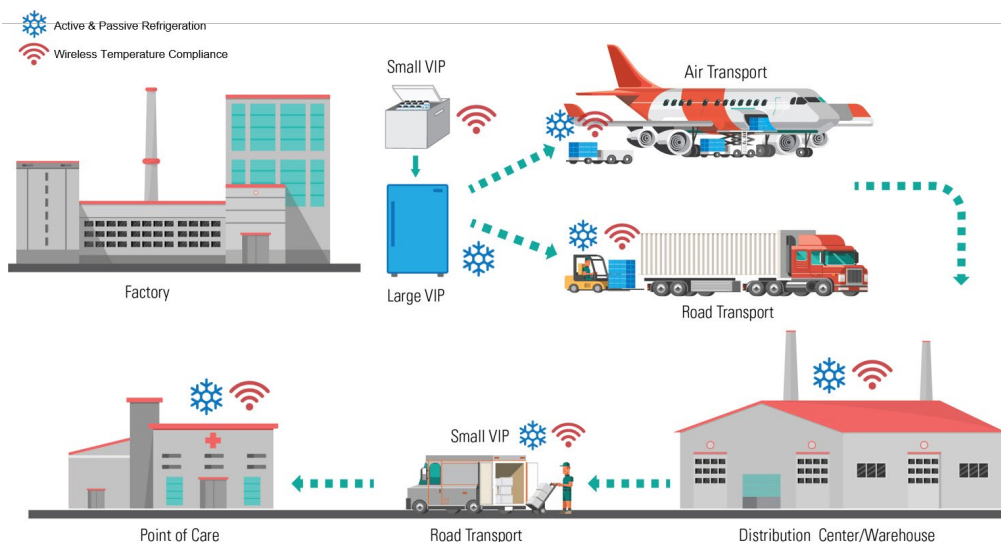
Solution

Pressure and temperature sensors and switches are used in numerous points in the refrigeration cycle for system control and optimization. These points typically include temperature sensing of refrigerant, air intake and cold air return along with pressure sensing of refrigerant on the low and high side of the compressor.

Similarly, VIPs typically include temperature sensors which allow for monitoring of the actual vaccine temperature and may provide real-time monitoring through wireless transmission. Sensata Technologies, a world leader in mission critical sensors and switches, has a full portfolio of pressure and temperature sensors and switches for all refrigeration applications.




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COLD CHAIN LOGISTICS



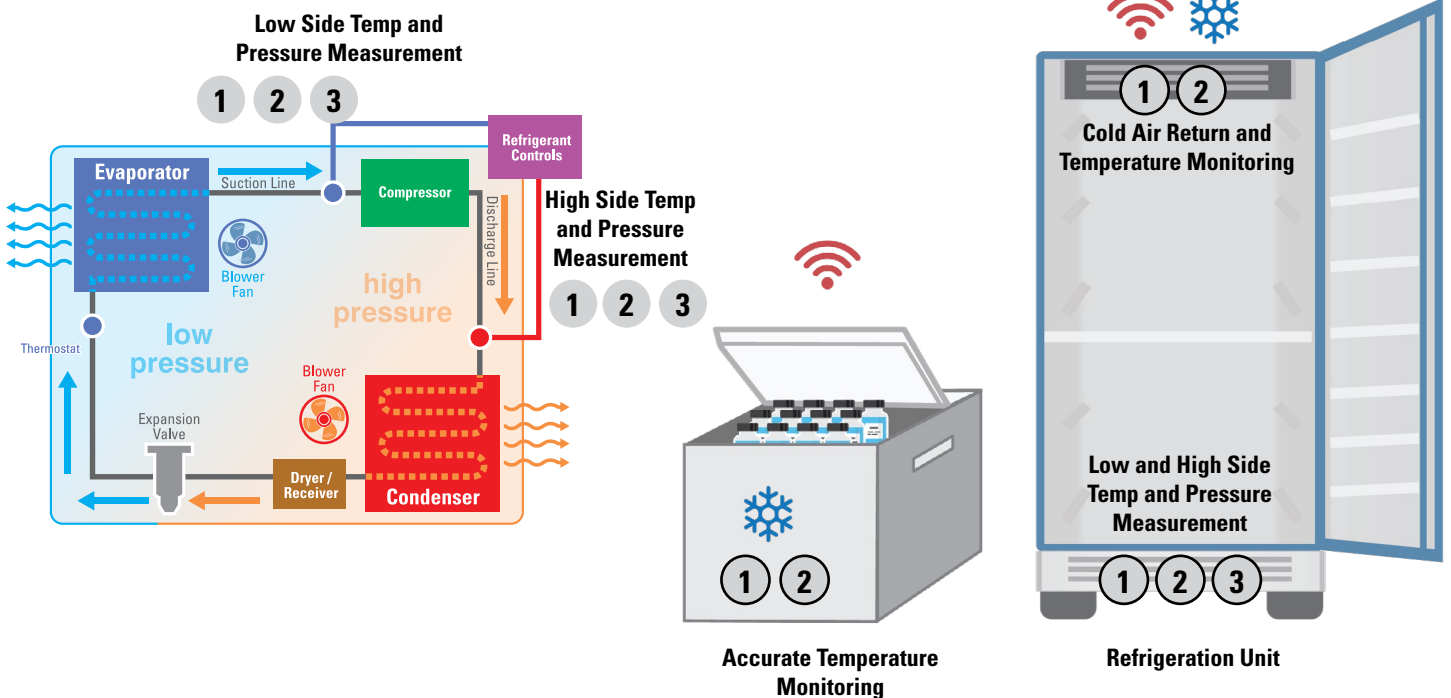


RECOMMENDED PRODUCTS

Reference on Diagram	Product	Features	Function	Brand
1	 3000 Series	<ul style="list-style-type: none"> Stainless steel probe housing Thermistor or RTD sensing technologies Optional threads available 	Monitor refrigerant and ambient temperatures	Sensata Technologies
2	 4000 Series	<ul style="list-style-type: none"> Highly accurate PT1000 RTD (Class AA) 5.9mm diameter brass probe IP69K -40 to 85°C operating temperature range 100nF Capacitor for electrical noise reduction 	Monitor refrigerant and ambient temperatures	Sensata Technologies
3	 2CP5 Series	<ul style="list-style-type: none"> UL recognized Low Cost 	Control Low and High Side Refrigerant Pressure	Sensata Technologies



COLD CHAIN REFRIGERATION SYSTEM



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