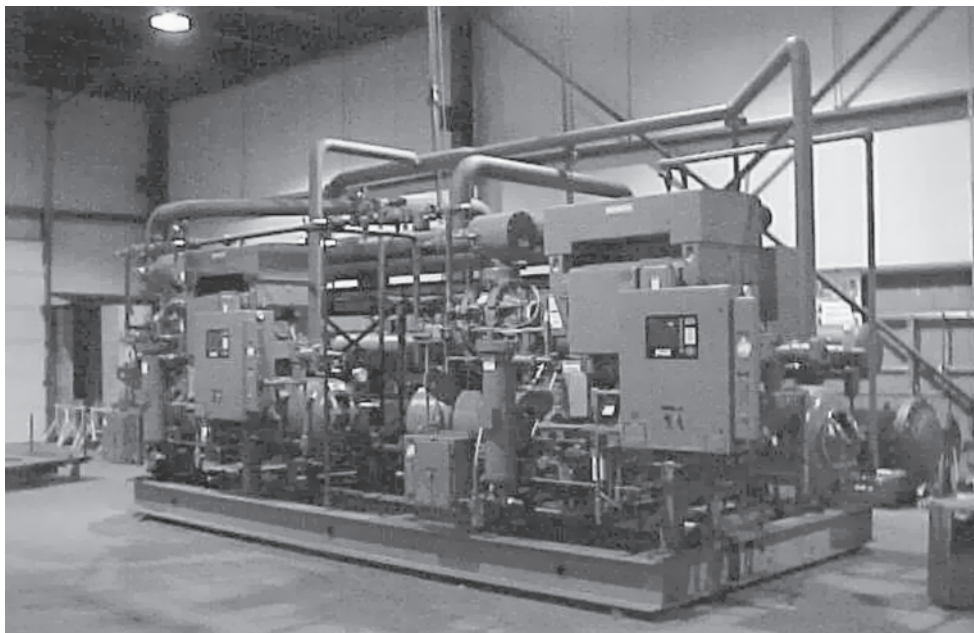


The Cold Facts

Fall 2001



Packaged Heptane Chiller

The custom-engineered package pictured is a 300 TR system. It includes two Frick rotary screw compressors, a mounted custom shell and tube water cooled condenser, a refrigerant receiver and a custom designed heptane shell and tube evaporator. The refrigerant is R-22 and the system is designed to cool 1200 GPM of heptane from +35° F to +15° F.

Due to the application, the electrical is explosion proof to meet Class I, Group C & D, Division II. The motors are explosion proof. All vessels and heat exchangers are constructed to meet TEMA standards.

Heptane is an organic chemical obtained from petroleum and is used as a solvent and anesthetic and to determine octane ratings. C_7H_{16}

The complete packaged refrigeration system is being shipped to a chemical plant in Baytown, Texas. RSC has been custom designing systems for specialty applications for more than 30 years. Is there an application in your plant where we can help?

Refrigeration Pipe Marking Is There A Standard?

Over the years, there have been numerous attempts by different organizations to create a standard marking system for industrial ammonia refrigeration piping and vessels. In general, the labeling/marketing of industrial piping systems has become a standard generated by the label manufacturers—until recently!

The International Institute of Ammonia Refrigeration (IIAR) has published Bulletin Number 114 that includes this information and undoubtedly it will become the standard for the industry. This document is quite specific about the placement, size and nomenclature to be used.

The obvious goal of the plan is to better inform the operators and hazardous response team of the internal contents of a pipe or vessel and to offer an indication of the pressure of the contents. RSC uses this standard as our guide for pipe and vessel identification if no other system is specified. RSC can help you obtain a copy of the bulletin, provide technical assistance, or an analysis of your system for conformity to the IIAR bulletin.

Words of Wisdom...

"A business that makes nothing but money is a poor kind of business."

—Henry Ford

"To live is to change, and to be perfect is to have changed often."

—John Henry Newman



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Cooling Under Pressure

There are specific standards used when selecting the specialized equipment required in the petrochemical industries. For example, this industry is not normally involved with cooling air as in the food processing or storage industry. Instead, the industry is primarily involved with cooling a specialty liquid or gas. Commonly, the fluid is under pressure and it is used in the production of a petrochemical product like plastics, fuel, etc.

There are applications in this industry where air is cooled. However, the air is at high pressure and is being separated into its component parts. Then, these gases are liquefied and piped to equipment for further processing. The type of heat exchanger used in this process is shell and tube, which describes its construction. It is designed for refrigerant on one side of a tube and the product on the other side of the tube.

Because the fluid being cooled in this heat exchanger and the refrigerant are both under pressure, it is important that the heat transfer vessel is appropriately designed. Because of the safety issues involved for vessels and heat exchangers under pressure, a safety code is specified such as ASME Code Section VIII, Division I.

This ensures the units' pressure integrity (fit for duty). The manufacturer then registers the unit and affixes a stamp noting the unit has met the criteria of the code. It is unlikely that an insurance company would provide coverage for a plant that included equipment that did not have this stamp.

There is another standard that is applied to heat exchanger design that is very prevalent in the process industry. It is TEMA. In 1939, a group of manufacturers decided to set standards for shell and tube exchangers. They formed the Tubular Exchanger Manufacturers Association (TEMA). They set manufacturing standards that include tube sheet layout, internal bracing and baffle design, along with other items.

One of the major items covered is corrosion allowance. This gives extra protection against corrosion in the petrochemical plant environment. This design standard incorporates various thickness criteria that are specified as TEMA B, C and R. The "R" is used for the worst case scenario, which is 1/8" thickness added to the design thickness. The TEMA C is the most commonly specified, which is an additional shell thickness of 1/16".

All of this relates to specifying the right equipment for the right job. When RSC designs systems we take into account the application and the industry standards that may apply for each component.

Compressors are another area of specialized design and selection. In our next newsletter, we will review compressor standards and applications.

—Vince Orlando, President,
RSC International

Parts Are Parts – NOT!

We recently have gotten several mailings from distributors of parts that are not authentic Original Equipment Manufacturer (OEM) replacements. In many cases, they are promoting the fact that these parts meet the OEM specifications. However, the manufacturers have not approved the use and therefore we have elected not to resell anything but original equipment parts manufactured and supplied by the OEM.

Naturally, it is possible to save you, our customers, some money by buying and reselling these parts. However, you rely upon the operation of your plant for your livelihood. In addition, it does not seem prudent to save a few dollars on a part that would void a warranty or, worse yet, fail. With so much on the line, we will not sell pirated parts to you.

Another related area is the lubricating oil we sell. The manufacturers design the oil formulation to meet the rigorous duty of their equipment in an industrial refrigeration system. Use of unapproved oil also voids the warranty.

When you are looking for ways to save money on your operation, we will help by making suggestions about operating efficiency or methods of reducing maintenance costs. Our trained sales, technical service and engineering staff will assist you.

Celebrating 40 Years of Exemplary Service

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