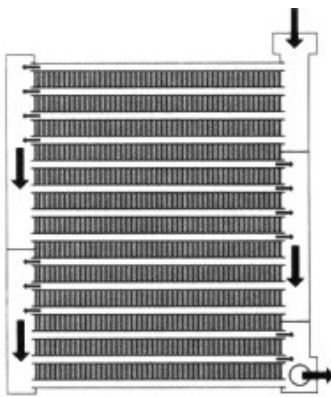


FAQ: FLUSHING CONDENSERS?

THE METHODS TO ACCOMPLISH SATISFACTORY CONDENSER FLUSHING

Complete or partially assembled systems cannot be flushed. You must always isolate the heat exchanger and flush through the most direct and unrestricted path to obtain satisfactory flushing results. For years, flushing Condensers has been very successful and there have been no major issues with flushing the simple pathways of the "Tube & Fin" or "Serpentine" designed Condensers.

The most common Condenser flushing problems are associated with the "Parallel Flow" Condensers (PFC) and the phenomenon of "Black Death" or "Burnout" (see FAQ: Condenser Designs?). The following information is provided as a basic guide to flushing a PFC and cannot cover all the possible scenarios a technician may encounter. The intent is to offer technicians a better understanding of internal component designs, the inherent issues, and what the necessary steps are to overcome these issues.



◀ The arrows in this picture to the left are indicating the normal refrigerant flow path. In some PFC designs, a serviceable filter/dryer will be found as an integrated component. The filter/dryer desiccant bag and screen must be removed and the housing resealed before attempting to flush.

Common PFC designs will have an inlet usually located at or near the top, and the outlet will usually be located at or near the bottom of the unit. As with most heat exchanger flushing, this unit should be back flushed first (bottom to top), in the opposite direction of normal refrigerant flow. This is done to back out possible large debris that cannot be driven through the small passageways.

A flushing method that provides a high solvent velocity is required to lift out this debris. In cases of extreme high debris loads such as a catastrophic compressor failure, it may be necessary to even remove the PFC from its mountings and invert the component to allow for gravity to assist the flushing process in removing the larger metal pieces.

You can flush back and forth as much as you wish and then make the last flush in the normal flow direction (top to bottom) to allow for the complete removal of the flushing solvent during the final purge or vacuum process. Be aware that the connecting chambers will trap flushing chemicals and the final purging must be adequate to remove all residual solvents. Failure to remove residual solvents will dilute the new refrigerant oils. This is why only the highly evaporative solvents will work and questions the marketing by trusted Name Brands of poor performing flushing chemicals with limited evaporative qualities.

The concerns regarding "Parallel Flow" paths and how cleaners can pass around a blockage through adjoining parallel passageways is known as "The path of least resistance" Rule. High velocity and agitation has proven to overpower this rule and questions the widespread use and promotion of inexpensive and poor performing flushing methods such as aerosol cleaners and 1 qt. pressure pots using OSHA regulated low flow blow guns. These products lack effective cleaning velocity, solvent volume, and a method to perform the critical solvent purging or recovery.

