A large amount of operational and economic constraints limit the applicability of heat pumps operated with natural working fluids. The limitations are highly dependent on the integration of heat source and sink streams. An evaluation of feasible operating conditions was carried out considering the constraints of available refrigeration equipment and a requirement of a positive net present value of the investment. Six heat pump systems were considered, corresponding to an upper limit of the sink temperature of 120 °C. For each set of heat sink and source temperatures the best available technology was determined. The results showed that four different heat pump systems propose the best available technology at different parts of the complete domain. Ammonia systems presented the best available technology at low sink outlet temperatures. At high temperature difference between sink in- and outlet, the transcritical R744 expands the working domain for low sink outlet temperatures.