

**Examples of common Distillation Processes and Possible Savings of Primary Energy when using a Heat Pump**

Separation Task	Required Temperature Lift	Expected PES
	K	%
1-Butene-n-butane	>10	63
1-Butene-n-butane	20	67
Acetic acid dehydration	55	27
Acetic acid dehydration	55	50
Benzene-toluene	<30	76
Benzene-toluene	30	46
Benzene-toluene	35	70
Butane-isobutane	25	47
Butane-isobutane	20	69
Butane-isobutane	36	72
Cyclohexane-n-heptane	33	75
Methanol-water	55	41
Methanol-water	40	69
Methanol-water	45	0
Methanol-water	55	14
Methanol-water	40	23
Methanol-water	45	33
Methanol-water	45	50
Methanol-water	55	34
Methanol-water	43	60
n-Pentane-cyclopentane	20	71
Propane-propylene	11	80
Propane-propylene	12	-
Propane-propylene	25	73
Water-acetic acid	65	40
Water-acetic acid	60	23
Water-acetic acid	65	-10

N.B. 1 - Primary energy savings (PES) are the yearly savings compared to the primary energy requirements of a conventional column;

N.B. 2 - The multiple entries for the same separation task refer to different publications and/or different type of heat pump technology

Source: Anton A. Kiss and Carlos A. Infante Ferreira, "Heat Pumps in Chemical Process Industry", 2017