

BREEAM International 2016 Pol 01 Impact of refrigerants calculator

System Type/Name	R-Number	System capacity (kW)	Total refrigerant charge (kg)	System operational life (yr)	Refrigerant Global Warming Potential	Annual leakage rate (% refrigerant charge)	Annual purge release factor (% refrigerant charge)	Annual service release (% refrigerant charge)	Probability factor for catastrophic failure (%)	Refrigerant Recovery efficiency (%)	Refrigerant loss (operational)	Refrigerant loss (retirement)	Total lifetime refrigerant loss (kg)	CO <sub>2</sub> equivalent (kg)	Direct Emissions Life Cycle kgCO <sub>2</sub> equi/kWh coolth capacity
Värmepump (Ropsten1-2)	VP21-26	156000,00	93490,00	8	1430	0,19%	0,00%	0,00%	0,02%	99,00%	1565,51	934,90	2500,41	3575581,53	22,92
Värmepump (Ropsten3)	VP 91-94	100000,00	85300,00	8	1430	0,48%	0,00%	0,00%	0,05%	99,00%	3584,43	853,00	4437,43	6345523,39	63,46
Kylmaskin (Nimrod)	KA 101-401	36000,00	19789,00	8	1430	1,87%	0,00%	0,00%	0,19%	99,00%	3259,21	197,89	3457,10	4943647,58	137,32
Värmepump (Hammarby)	VP1-VP7	245000,00	160855,00	8	1430	0,54%	0,00%	0,00%	0,05%	99,00%	7602,65	1608,55	9211,20	13172020,86	53,76
Värmepump (Akalla)	VP1-VP3	21900,00	12374,00	8	1430	1,45%	0,00%	0,00%	0,14%	99,00%	1577,95	123,74	1701,69	2433410,07	111,11
Värmepump (Vilunda)	VP1-VP2	22000,00	12996,00	8	1430	8,10%	0,00%	0,00%	0,81%	99,00%	9261,58	129,96	9391,54	13429896,87	610,45
Värmepump (Brista)	VP1-VP2	7400,00	600,00	8	0	0,00%	0,00%	0,00%	0,00%	99,00%	0,00	6,00	6,00	0,00	0,00

Total system cooling/heating capacity 588300,00 kW

Total Direct Effect Life Cycle CO<sub>2</sub>e emissions (DELC) 74,62 kgCO<sub>2</sub>e/kWh coolth capacity

Total Pol 01 credits achieved

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Värmepump (Ropsten 3)	VP 91-94	76000,00	85300,00	8	1430	0,13%	0,00%	0,00%	0,01%	99,00%	946,84	853,00	1799,84	2573767,94	33,87
Kylmaskin (Nimrod)	KA 101-401	48000,00	19789,00	8	1430	0,49%	0,00%	0,00%	0,05%	99,00%	854,39	197,89	1052,28	1504765,82	31,35
Sjövatten (Ropsten)	Frikyla	70000,00	0,00	8	0	0,00%	0,00%	0,00%	0,00%	99,00%	0,00	0,00	0,00	0,00	0,00
Sjövatten + KM (Hornsberg)	Hornsberg	80000,00	8460,00	8	1430	0,82%	0,00%	0,00%	0,08%	99,00%	611,20	84,60	695,80	994994,00	12,44
Värmepump (Hammarby)	VP1-VP7	84000,00	160855,00	8	1430	0,03%	0,00%	0,00%	0,00%	99,00%	355,21	1608,55	1963,76	2808181,47	33,43

Total system cooling/heating capacity 358000,00 kW

Total Direct Effect Life Cycle CO<sub>2</sub>e emissions (DELC) 22,02 kgCO<sub>2</sub>e/kWh coolth capacity

Total Pol 01 credits achieved

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System Type/Name	R-Number	System capacity (kW)	Total refrigerant charge (kg)	System operational life (yr)	Refrigerant Global Warming Potential	Annual leakage rate (% refrigerant charge)	Annual purge release factor (% refrigerant charge)	Annual service release (% refrigerant charge)	Probability factor for catastrophic failure (%)	Refrigerant Recovery efficiency (%)	Refrigerant loss (operational)	Refrigerant loss (retirement)	Total lifetime refrigerant loss (kg)	CO <sub>2</sub> equivalent (kg)	Direct Emissions Life Cycle kgCO <sub>2</sub> equi/kWh coolth capacity
Värmepump (Ropsten1-2)	VP21-26	156000,00	93490,00	8	1430	0,19%	0,00%	0,00%	0,02%	99,00%	1565,51	934,90	2500,41	3575581,53	22,92
Värmepump (Ropsten3)	VP 91-94	176000,00	85300,00	8	1430	0,60%	0,00%	0,00%	0,06%	99,00%	4531,27	853,00	5384,27	7699501,33	43,75
Kylmaskin (Nimrod)	KA 101-401	84000,00	19789,00	8	1430	2,36%	0,00%	0,00%	0,24%	99,00%	4113,60	197,89	4311,49	6165430,70	73,40
Sjövatten (Ropsten)	Frikyla	70000,00	0,00	8	0	0,00%	0,00%	0,00%	0,00%	99,00%	0,00	0,00	0,00	0,00	0,00
Sjövatten + KM (Hornsberg)	Hornsberg	80000,00	8460,00	8	1430	0,82%	0,00%	0,00%	0,08%	99,00%	611,20	84,60	695,80	994994,00	12,44
Värmepump (Hammarby)	VP1-VP7	329000,00	160855,00	8	1430	0,56%	0,00%	0,00%	0,06%	99,00%	7957,87	1608,55	9566,42	13679975,83	41,58

Total system cooling/heating capacity 895000,00 kW

Total Direct Effect Life Cycle CO<sub>2</sub>e emissions (DELC) 35,88 kgCO<sub>2</sub>e/kWh coolth capacity

Total Pol 01 credits achieved