

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 ₂ equivalent (kg)	Direct Emissions Life Cycle kgCO ₂ equi/kW coolth capacity
Värmepump (Ropssten1-2)	R134a	156000,00	92610,00	6	1430	0,25%	0,00%	0,00%	0,02%	99,00%	1522,34	926,10	2448,44	3501265,11	22,44
Värmepump (Ropssten3)	R134a	100000,00	86740,00	6	1430	0,54%	0,00%	0,00%	0,05%	99,00%	3109,49	867,40	3976,89	5686953,49	56,87
Kylmaskin (Nimrod)	R134a	36000,00	19599,00	6	1430	0,75%	0,00%	0,00%	0,08%	99,00%	971,05	195,99	1167,04	1668867,40	46,36
Värmepump (Hammarby)	R134a	245000,00	159685,00	6	1430	0,42%	0,00%	0,00%	0,04%	99,00%	4378,07	1596,85	5974,92	8544139,09	34,87
Värmepump (Akalia)	R134a	21900,00	12374,00	6	1430	1,39%	0,00%	0,00%	0,14%	99,00%	1136,72	123,74	1260,46	1802463,53	82,30
Värmepump (Vilunda)	R134a	22000,00	12996,00	6	1430	6,19%	0,00%	0,00%	0,62%	99,00%	5311,45	129,96	5441,41	7781210,41	353,69
Värmepump (Brista)	R717	7400,00	600,00	6	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 CO₂e emissions (DEL) 49,27 kgCO₂e/kW coolth capacity

Total Pol 01 credits achieved

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Värmepump (Ropssten 3)	R134a	76000,00	86740,00	6	1430	0,13%	0,00%	0,00%	0,01%	99,00%	760,20	867,40	1627,60	2327474,70	30,62
Kylmaskin (Nimrod)	R134a	48000,00	19599,00	6	1430	0,20%	0,00%	0,00%	0,02%	99,00%	258,12	195,99	454,11	649379,14	13,53
Sjövatten (Ropssten)	Vatten	70000,00	0,00	6	0	0,00%	0,00%	0,00%	0,00%	99,00%	0,00	0,00	0,00	0,00	0,00
Sjövatten + KM (Hornsberg)	R134a	80000,00	8460,00	6	1430	1,00%	0,00%	0,00%	0,10%	99,00%	560,27	84,60	644,87	922159,33	11,53
Värmepump (Hammarby)	R134a	84000,00	159685,00	6	1430	0,02%	0,00%	0,00%	0,00%	99,00%	203,15	1596,85	1800,00	2574003,66	30,64

Total system cooling/heating capacity 358000,00 kW

Total Direct Effect Life Cycle CO₂e emissions (DEL) 18,08 kgCO₂e/kW 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 ₂ equivalent (kg)	Direct Emissions Life Cycle kgCO ₂ equi/kW coolth capacity
Värmepump (Ropssten1-2)	R134a	156000,00	92610,00	6	1430	0,25%	0,00%	0,00%	0,02%	99,00%	1522,34	926,10	2448,44	3501265,11	22,44
Värmepump (Ropssten3)	R134a	176000,00	86740,00	6	1430	0,68%	0,00%	0,00%	0,07%	99,00%	3869,70	867,40	4737,10	6774046,19	38,49
Kylmaskin (Nimrod)	R134a	84000,00	19599,00	6	1430	0,95%	0,00%	0,00%	0,10%	99,00%	1229,17	195,99	1425,16	2037980,84	24,26
Sjövatten (Ropssten)	Vatten	70000,00	0,00	6	0	0,00%	0,00%	0,00%	0,00%	99,00%	0,00	0,00	0,00	0,00	0,00
Sjövatten + KM (Hornsberg)	R134a	80000,00	8460,00	6	1430	1,00%	0,00%	0,00%	0,10%	99,00%	560,27	84,60	644,87	922159,33	11,53
Värmepump (Hammarby)	R134a	329000,00	159685,00	6	1430	0,43%	0,00%	0,00%	0,04%	99,00%	4581,23	1596,85	6178,08	8834647,25	26,85

Total system cooling/heating capacity 895000,00 kW

Total Direct Effect Life Cycle CO₂e emissions (DEL) 24,66 kgCO₂e/kW coolth capacity

Total Pol 01 credits achieved