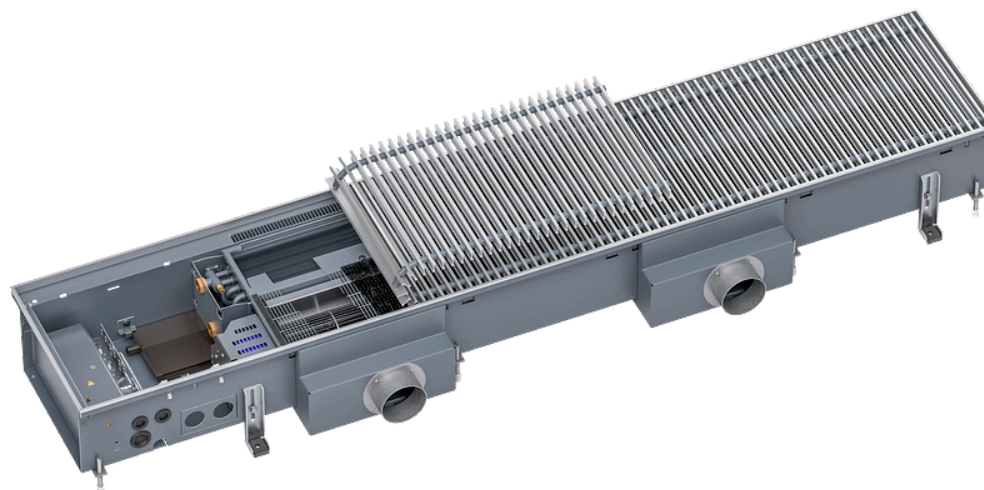


## Environmental Product Declaration - (EPD) Katherm HK P



The EPD data presented here is based on a verified EPD from the program holder EPD International AB. The data contained therein has been converted to the above-mentioned article number. (Verified EPD: EPD-IES-0007771)

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## Basic data

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
GWP - Total	kg CO2 eq	1.13E+02	3.17E+00	1.39E+00	1.18E+02	4.66E+00	5.65E-01	2.73E-01	7.25E-02	1.32E+00	9.19E+00	0.00E+00	1.58E-01	5.32E+00	7.91E-02	-6.40E+01
GWP - fossil	kg CO2 eq	1.13E+02	3.14E+00	5.06E+00	1.21E+02	4.64E+00	5.58E-01	2.55E-01	6.38E-02	1.30E+00	8.07E+00	0.00E+00	1.58E-01	5.32E+00	7.91E-02	-6.33E+01
GWP - Biogenic	kg CO2 eq	-6.64E-01	6.60E-03	-3.67E+00	-4.33E+00	6.60E-03	4.40E-03	1.10E-02	-6.60E-03	1.10E-02	1.12E+00	0.00E+00	3.84E-04	1.01E-03	7.91E-04	-3.08E-02
GWP - Luluc	kg CO2 eq	8.73E-01	2.20E-03	8.79E-03	8.84E-01	7.52E-04	5.58E-04	4.40E-03	1.54E-02	6.60E-03	1.10E-02	0.00E+00	5.94E-05	1.34E-04	7.94E-05	-4.59E-01
ODP	kg CFC-11 eq	7.55E-06	7.85E-07	2.64E-07	8.60E-06	1.08E-06	2.40E-08	2.18E-08	6.05E-09	7.85E-08	5.47E-07	0.00E+00	3.96E-08	4.57E-08	2.40E-08	-4.26E-06
AP	mol H+ eq	1.51E+00	1.10E-02	1.10E-02	1.54E+00	2.42E-02	2.20E-03	1.05E-03	4.86E-04	5.28E-02	2.42E-02	0.00E+00	5.06E-04	1.09E-03	6.62E-04	-9.28E-01
EP - fresh water	kg P eq	1.24E-01	2.04E-04	6.60E-03	1.30E-01	1.40E-04	1.69E-04	5.25E-05	2.20E-05	4.40E-03	2.20E-03	0.00E+00	1.03E-05	3.85E-05	2.29E-05	-7.69E-02
EP - marine	kg P eq	1.40E-01	2.20E-03	4.40E-03	1.46E-01	8.79E-03	6.31E-04	2.75E-04	1.08E-04	2.20E-03	6.60E-03	0.00E+00	1.13E-04	4.24E-04	2.29E-04	-7.91E-02
EP - country	mol N eq	1.57E+00	2.64E-02	2.86E-02	1.63E+00	8.57E-02	4.40E-03	2.20E-03	7.15E-04	3.96E-02	6.60E-02	0.00E+00	2.20E-03	4.40E-03	2.20E-03	-9.19E-01
POCP	kg NMVOC	4.59E-01	6.60E-03	6.60E-03	4.72E-01	2.20E-02	2.20E-03	5.45E-04	2.24E-04	1.10E-02	1.54E-02	0.00E+00	3.14E-04	1.00E-03	6.11E-04	-2.66E-01
ADPE	kg Sb eq	2.21E-02	7.52E-06	9.17E-06	2.21E-02	4.44E-06	3.43E-06	1.67E-06	1.07E-06	2.20E-03	2.29E-05	0.00E+00	3.78E-07	1.09E-06	2.57E-07	-1.76E-02
ADPF	MJ	1.49E+03	5.12E+01	7.30E+01	1.61E+03	6.82E+01	1.20E+01	6.09E+00	8.40E-01	1.75E+01	2.15E+02	0.00E+00	2.57E+00	1.25E+00	1.84E+00	-7.80E+02
WDP	m³ depriv.	5.36E+01	1.71E-01	2.09E-01	5.39E+01	1.12E-01	7.21E-01	7.91E-02	3.74E-02	1.14E+00	2.88E-01	0.00E+00	8.79E-03	8.57E-02	7.91E-02	-1.37E+01
GWP-GHG	kg CO2 eq	1.11E+02	3.12E+00	5.06E+00	1.19E+02	4.62E+00	5.45E-01	2.53E-01	7.69E-02	1.28E+00	8.00E+00	0.00E+00	1.58E-01	5.32E+00	7.69E-02	-6.16E+01
PM	disease inc.	7.74E-06	2.75E-07	8.62E-08	8.10E-06	1.54E-07	3.78E-08	7.08E-09	4.55E-09	1.57E-07	1.14E-07	0.00E+00	1.39E-08	7.69E-09	1.28E-08	-4.81E-06
IR	kBq U-235 eq	1.07E+01	2.59E-01	7.98E-01	1.17E+01	3.19E-01	3.96E-02	1.82E-01	2.20E-03	1.69E-01	7.56E+00	0.00E+00	1.32E-02	1.10E-02	8.79E-03	-6.75E+00
ETP - FW	CTUe	9.39E+03	4.00E+01	3.78E+01	9.47E+03	4.22E+01	1.30E+01	5.01E+00	2.17E+00	4.20E+02	1.00E+02	0.00E+00	2.01E+00	1.99E+01	1.31E+00	-6.78E+03
HTP - C	CTUh	5.91E-07	1.10E-09	1.11E-09	5.93E-07	7.96E-10	5.72E-09	1.12E-10	1.11E-10	1.62E-08	2.03E-09	0.00E+00	5.50E-11	6.22E-10	5.65E-11	-3.61E-07
HTP - NC	CTUh	1.44E-05	4.18E-08	3.54E-08	1.45E-05	5.96E-08	2.84E-08	3.14E-09	2.51E-09	7.01E-07	5.78E-08	0.00E+00	2.11E-09	8.79E-09	8.75E-10	-1.06E-05
SQP	-	6.94E+02	6.05E+01	2.70E+02	1.02E+03	3.30E+01	1.53E+00	2.81E+00	1.28E+00	2.09E+01	8.11E+01	0.00E+00	3.06E+00	4.26E-01	4.57E+00	-3.72E+02

## Resource use

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
PERE	MJ	3.39E+02	6.51E-01	5.69E+01	3.97E+02	4.59E-01	4.18E-01	1.29E+00	2.02E-01	3.80E+00	3.91E+01	0.00E+00	3.30E-02	1.21E-01	3.08E-02	-1.49E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.39E+02	6.51E-01	5.69E+01	3.97E+02	4.59E-01	4.18E-01	1.29E+00	2.02E-01	3.80E+00	3.91E+01	0.00E+00	3.30E-02	1.21E-01	3.08E-02	-1.49E+02
PENRE	MJ	1.49E+03	5.12E+01	7.30E+01	1.61E+03	6.82E+01	1.20E+01	6.09E+00	8.57E-01	1.75E+01	2.15E+02	0.00E+00	2.57E+00	1.25E+00	1.84E+00	-7.80E+02
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.49E+03	5.12E+01	7.30E+01	1.61E+03	6.82E+01	1.20E+01	6.09E+00	8.57E-01	1.75E+01	2.15E+02	0.00E+00	2.57E+00	1.25E+00	1.84E+00	-7.80E+02
SM	kg	7.96E-02	0.00E+00	0.00E+00	7.96E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	5.40E-04	0.00E+00	0.00E+00	5.40E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	3.47E-02	0.00E+00	0.00E+00	3.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	1.08E+00	1.10E-02	2.42E-02	1.12E+00	8.79E-03	1.32E-02	4.40E-03	0.00E+00	3.96E-02	5.28E-02	0.00E+00	5.28E-04	4.40E-03	2.20E-03	-4.33E-01

## Waste & Output Flows

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
HWD	kg	4.21E+00	0.00E+00	0.00E+00	4.21E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	2.74E+00	0.00E+00	7.76E+00	1.05E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	3.49E-03	0.00E+00	0.00E+00	3.49E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	1.36E-03	0.00E+00	0.00E+00	1.36E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.35E+01	0.00E+00	0.00E+00
MER	kg	5.99E-06	0.00E+00	0.00E+00	5.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E+00	0.00E+00	0.00E+00
EE (Electrical)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

impact category	unit	A1	A2	A3	A1-A3	A4	A5	B2	B3	B4	B6	C1	C2	C3	C4	D
EE (Thermal)	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

## Restriction Notice

Restriction Notice 1	IR	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.
Restriction Notice 2	ADPE, ADPF, WDP, ETP - FW, HTP - C, HTP - NC, SQP	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.
Restriction Notice 3	GWP-GHG	The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013

## List of terms

<b>GWP - Total</b> Climate change - total	<b>RSF</b> Renewable secondary fuels
<b>GWP - fossil</b> Climate change - fossil	<b>NRSF</b> Non-renewable secondary fuels
<b>GWP - Biogenic</b> Climate change - biogenic	<b>FW</b> Net use of fresh water
<b>GWP - Luluc</b> Climate change - land use and land use change	<b>HWD</b> Hazardous waste disposed
<b>ODP</b> Ozone Depletion	<b>NHWD</b> Non-hazardous waste disposed
<b>AP</b> Acidification	<b>RWD</b> Radioactive waste disposed
<b>EP - fresh water</b> Eutrophication aquatic freshwater	<b>CRU</b> Components for reuse
<b>EP - marine</b> Eutrophication aquatic marine	<b>MFR</b> Material for recycling
<b>EP - country</b> Eutrophication terrestrial	<b>MER</b> Materials for energy recovery
<b>POCP</b> Photochemical ozone formation	<b>EE (Electrical)</b> Exported energy electrical
<b>ADPE</b> Depletion of abiotic resources - minerals and metals	<b>EE (Thermal)</b> Exported energy thermal
<b>ADPF</b> Abiotic resource depletion - fossil fuels	<b>A1</b> Raw Material Supply
<b>WDP</b> Water use	<b>A2</b> Raw Material Transport
<b>GWP-GHG</b> Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology	<b>A3</b> Manufacturing
<b>PM</b> Particulate Matter emissions	<b>A1-A3</b> A1-A3
<b>IR</b> Ionizing radiation, human health	<b>A4</b> Transport to Site
<b>ETP - FW</b> Ecotoxicity (fresh water)	<b>A5</b> Installation
<b>HTP - C</b> Human toxicity, cancer effects	<b>B2</b> Maintenance
<b>HTP - NC</b> Human toxicity, non-cancer effects	<b>B3</b> Repair
<b>SQP</b> Land use related impacts/Soil quality	<b>B4</b> Replacement
<b>PERE</b> Use of renewable primary energy excluding resources used as raw materials	<b>B6</b> Operational Energy Use
<b>PERM</b> Use of renewable primary energy resources used as raw materials	<b>C1</b> Deconstruction / Demolition
<b>PERT</b> Total use of renewable primary energy	<b>C2</b> Transport
<b>PENRE</b> Use of non-renewable primary energy excluding resources used as raw materials	<b>C3</b> Waste Processing
<b>PENRM</b> Use of non-renewable primary energy resources used as raw materials	<b>C4</b> Disposal
<b>PENRT</b> Total use of non-renewable primary energy	<b>D</b> Future reuse, recycling orenergy recovery potentials
<b>SM</b> Secondary material	

# Trench Technology - Katherm HK P

Articlenumber: 143614611116M1

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## This is how you can reach us

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