

# Vulcan Energy Resources Ltd.

Australia | Basic Resources | MCap EUR 430.7m

13 September 2024

**UPDATE** 



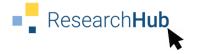
# Charging up: Key Milestones and Strategic Moves in H1 2024

# What's it all about?

Vulcan Energy Resources has published its half-year report. The company achieved several key milestones in 2024, marking significant progress towards its Zero Carbon Lithium Project. It initiated the production of Lithium Chloride at its LEOP demo plant in Germany, achieving over 90% extraction efficiency, and began commissioning its CLEOP plant, set to produce battery-grade Lithium Hydroxide Monohydrate (LHM) by the end of the year. Financing remains a critical focus, with the company entering the final stage of securing the EUR 1.4bn required for Phase One, with potential backing from the European Investment Bank and strategic investors. Vulcan's future success hinges on its financing, expected to conclude in Q4 2024 to further progress towards commercial lithium production. We confirm our BUY recommendation with a PT of EUR 10.50.

# BUY (BUY)

Target price EUR 10.50 (10.50)
Current price EUR 2.39
Up/downside 340.1%





### MAIN AUTHOR

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# Vulcan Energy Resources Ltd.

# Australia | Basic Resources | MCap EUR 430.7m | EV EUR 352.0m

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# Charging up: Key Milestones and Strategic Moves in H1 2024

**Recap H1 2024:** Vulcan Energy Resources has published its half-year report for 2024. We take the opportunity to review the developments:

Start of production at demo plant: In April, Vulcan announced the start of production (SOP) of the first Lithium Chloride (LiCl) at Vulcan's demo plant (LEOP) in Landau, Germany. The production is non-commercial and is intended to facilitate Vulcan's commercial operational readiness, as it will be utilized for optimization of Vulcan's upstream process, operational training and product qualification. Early results showed a lithium extraction efficiency of over 90% (up to 95%) of Vulcan's A-DLE unit (Adsorption-type Direct Lithium Extraction), confirming the company's efficiency data from its >10.000 hours of piloting at its geothermal plant in Insheim.

Commissioning of CLEOP: In August, Vulcan commenced the commissioning at its lithium hydroxide optimization plant (CLEOP). In this facility, located at the Höchst Chemical Park near Frankfurt, Vulcan will be converting lithium chloride (LiCl) into lithium hydroxide monohydrate (LHM). Similar to the LEOP, the CLEOP is used to optimize the downstream process in preparation for full-scale production at its planned commercial Central Lithium Plant (CLP).

Production of first Lithium Hydroxide Monohydrate in Q4 2024: Vulcan plans to fully commission the CLEOP during the fourth quarter. Then Vulcan will be able to produce its first LHM (Lithium Hydroxide Monohydrate) in-house. To achieve this, the LiCl produced at LEOP will be transported to the CLEOP, where the LiCl will be converted into battery-grade LHM. Subsequently, the end product will be tested by Vulcan's lithium offtake partners for product qualification. Vulcan has already acquired the offtakers at an early stage. The group includes Stellantis, Renault, Umicore, LG Energy Solution and Volkswagen.

**Financing**: According to the Bridging Engineering Study, the CAPEX for Phase One is currently estimated with EUR 1.4bn. Vulcan has already entered the final stage of its financing process to raise the necessary funds. To achieve this, Vulcan pursues

-continued next page

Vulcan Energy	2021	2022	2023	2024E	2025E	2026E
Sales	3.8	3.6	6.8	7.3	9.0	204.9
Growth yoy	na	-4.7%	87.3%	8.3%	22.5%	2,176.7%
EBITDA	-14.9	-11.0	-22.3	-44.8	-67.9	107.2
EBIT	-17.7	-13.9	-28.8	-56.0	-100.5	55.1
Net profit	-18.9	-13.4	-24.7	-137.0	-185.4	-15.7
Net debt (net cash)	-175.4	-134.1	-78.7	-396.6	386.4	758.2
Net debt/EBITDA	11.8x	12.2x	3.5x	8.9x	-5.7x	7.1x
EPS reported	-0.15	-0.09	-0.16	-0.76	-0.96	-0.08
DPS	0.00	0.00	0.00	0.00	0.00	0.00
Dividend yield	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross profit margin	131.2%	110.2%	340.1%	18.3%	-344.4%	68.5%
EBITDA margin	-392.3%	-304.3%	-328.9%	-609.3%	-754.4%	52.3%
EBIT margin	-466.6%	-383.4%	-425.0%	-762.3%	-1,116.7%	26.9%
ROCE	-7.1%	-5.8%	-10.4%	-3.2%	-5.9%	2.8%
EV/EBITDA	-17.1x	-26.9x	-15.8x	-0.8x	-12.0x	11.1x
EV/EBIT	-14.4x	-21.4x	-12.2x	-0.6x	-8.1x	21.6x
PER	-15.8x	-25.4x	-15.4x	-3.1x	-2.5x	-29.9x
FCF yield	-3.8%	-2.2%	-6.3%	-27.0%	-28.2%	41.6%

Source: Company data, mwb research



Source: Company data, mwb research

High/low 52 weeks 3.59 / 1.21 Price/Book Ratio 1.4x

**Ticker / Symbols** 

ISIN AU0000066086 WKN A2PV3A Bloomberg VUL:GR

**Changes in estimates** 

		Sales	EBIT	EPS
2024E	old	7.3	-56.0	-0.76
	Δ	0.0%	na%	na%
2025E	old	9.0	-100.5	-0.96
	Δ	0.0%	na%	na%
2026E	old	204.9	55.1	-0.08
	Δ	0.0%	0.0%	na%

### Key share data

Number of shares: (in m pcs) 180.52 Book value per share: (in EUR) 1.68 Ø trading vol.: (12 months) 32,827

# Major shareholders

F. Wedin	8.8%
Hancock Prospecting	7.5%
CIMIC Group	5.8%
Free Float	72.8%

# **Company description**

Vulcan Energy Resources Ltd. is an Australian lithium chemicals renewable energy company, developing a project in the Upper Rhine Valley in Germany that combines geothermal energy with the extraction of the lithium contained in the geothermal brine without polluting the environment with emissions, waste material or toxic substances. With a CO2 footprint of "zero", the project is predestined to mark the beginning of the decarbonization of the battery industry.





a multi-fold financing structure that includes strategic investors aboard at project level (equity), debt funding, and public funding. For the equity part, the company intends to build long-term strategic relationships with potential partners from the engineering and energy sector. Further, commercial and development banks have signaled strong interest, as well as export credit agencies in Australia, Canada, Italy, and France.

Potential EIB financing: A large proportion of the required capital could also come from the European Investment Bank (EIB). Pending completion of due diligence, Vulcan could obtain a financing up to EUR 500m. The European Investment Bank is the lending arm of the European Union, and one of the largest providers of climate finance. To support the European Green Deal, the EIB is committed to support EUR 1 trillion of green investment in the decade to 2030 and to align all its new operations with the Paris Agreement. In addition, Vulcan has also applied for a number of public funding programs, which, if successful, could provide a significant amount of public funding in the form of grants.

**Financing round**: In June, Vulcan received strategic investments by new and existing shareholders in a total volume of EUR 40m (AUD ~65m), including Hancock Prospecting Pty Ltd (HPPL) and the CIMIC Group (member of HOCHTIEF Group). By this, Vulcan received fresh funds to carry out necessary preparatory work and still have a comfortable cushion.

**Financing to be completed in Q4 2024**: Vulcan is anticipating finalizing all components of its financing process in Q4 2024, including receiving decisions regarding its various applications during Q4 2024. Subsequently, closing/draw down on funds is expected during Q1 2025, which will trigger the construction of the commercial facilities.

H1 report reflects capital-intensive preparations and pre-commercial phase: The half-year report also contained figures that are only of limited significance for future business development. In the current phase, the key financial figures are characterized by high operating losses and high cash outflows. In this phase, the company's key success is measured more by its ability to secure financing.

**Revenue**: In H1 2024, Vulcan Energy Resources reported revenue of EUR 3.75m, a slight increase from EUR 3.1m in H1 2023. Revenue was primarily generated from the Insheim geothermal power plant, though slightly lower due to maintenance, alongside contributions from its drilling services subsidiaries.

High costs from project development: In H1, Vulcan recorded a negative EBITDA of EUR 16.7m, a deterioration from the EUR 13.5m loss in the previous period, reflecting increased project development costs, such as higher employee costs due to staffing expansions. Bottom line, Vulcan posted a net loss of EUR 19.3m, expanding from a EUR 15.6m loss in H1 2023.

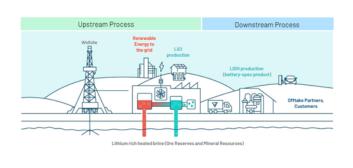
Conclusion: The overview of Vulcan's activities this year alone demonstrates the strong commitment to drive the project forward. With the completion and commissioning of both the LEOP and CLEOP, Vulcan has mitigated a number of key risks. Further, Vulcan can demonstrate that the Zero Carbon Lithium Project can be commercially successful with its first, domestically produced battery-grade LHM. With the impending completion of Phase 1 financing, Vulcan is about to embark on the development of the commercial phase. Despite the current depressed price level for lithium (~10,000 USD/tonne), we are sticking to our long-term assumption for the lithium price of USD 25,000 per tonne. This is in line with long-term market assumptions (e.g. FitchSolutions BMI). Hence, we confirm our BUY recommendation with a PT of EUR 10.50.



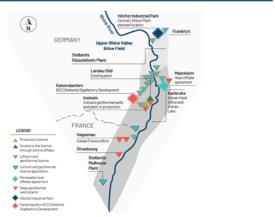


# Investment case in six charts

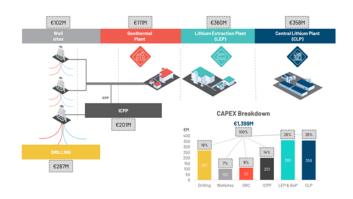
# **Products & Services**



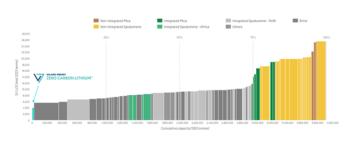
# **Footprint in Germany and France**



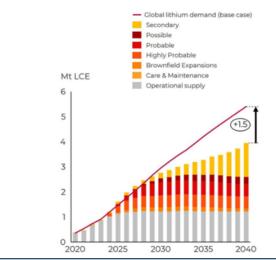
## **CAPEX Breakdown Phase 1**



# Global cost curve LHM (projected 2035)

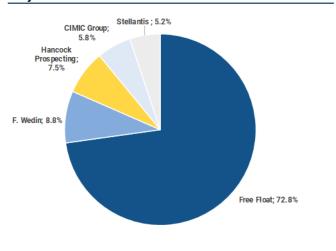


# Global supply/demand balance



Source: Company data; mwb research

# **Major Shareholders**







# Company Background

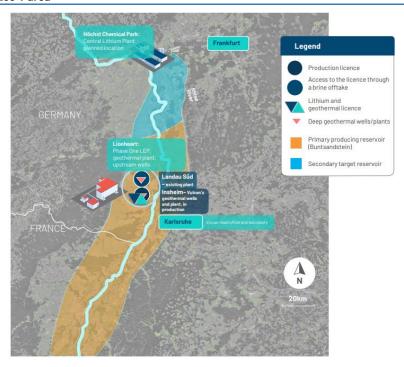
## Vulcan in a nutshell:

Battery grade lithium hydroxide from brine sources in Germany – Vulcan has been on target for becoming a leading supplier of a material that is central to the electrification strategies of the automotive industry. And by operating geothermal plants, the company plans to provide renewable energy and heat to public and commercial customers in Germany.

Vulcan's Zero Carbon Lithium Project combines operations of extraction in the lithium-rich geothermal brine of the Upper Rhine Valley, of upgrading lithium to a high purity hydroxide (LiOH) as well as the production of hydrogeothermal energy (renewable electricity and heat). Thermal water will be used as energy source, and thus the extraction of lithium contained in the brine will run without polluting the environment with emissions, waste material or toxic substances. With a CO<sub>2</sub> footprint of "zero", the project is predestined to mark the beginning of the decarbonization of the battery industry.

Estimated resources of Vulcan's Upper Rhine Valley Project have reached a total of approx. 27.7 million t LCE in JORC-compliant terms (Measured and Indicated Resource: 11.2 million t LCE). A portion of 4.16 million t LCE has been classified in the Measured category.

### Phase 1 area



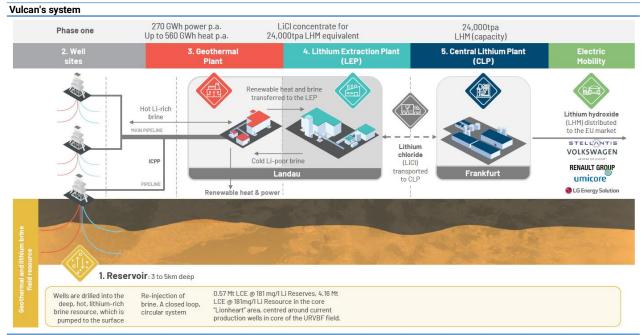
Source: Company data

## How Vulcan's system works:

The system consists of extraction wells, drilled into the deep, hot, lithium-rich brine resource, which is pumped to the surface. Reinjection wells are used to feed the water back into the reservoir after part of the thermal energy stored in it has been cooled and lithium from brine has been extracted in the Lithium Extraction Plant (LEP). The lithium in the form of lithium chloride will be transported to Vulcan's Central Lithium Plant (CLP) at Frankfurt Höchst Chemical Park, where it will be converted to battery grade lithium hydrate monohydrate (LHM) using electrolysis.





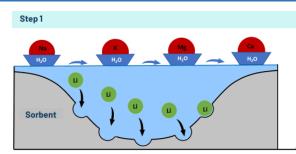


Source: Company data

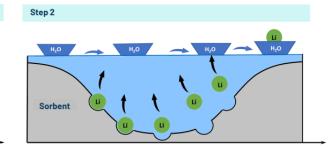
### Technology:

In Vulcan's project areas, a staged development will implement a process, which is known as **Adsorption-type Direct Lithium Extraction** (**A-DLE**). This technology bases on proven effective for more than 20 years in industrial lithium carbonate production, while offering a higher lithium yield and very low environmental impact compared to traditional methods such as evaporation or hard-rock mining. A-DLE provides lower operating cost and less waste as this method requires the use of water instead of acid to recover lithium, and naturally heated sub-surface brines do not have to be pre-treated. Also, production times are much shorter. Vulcan's produced lithium can be adapted to meet specific requirements and serve as a precursor product in different forms. Vulcan can extract lithium of high purity relative to hard rock and evaporative lithium, meeting very high product quality standards, particularly in the battery electric vehicle industry.

### A-DLE process



- Brine has a high salinity it contains ions of various sizes and electric charges.
- Water molecules surrounding the ions make up a hydration shell.
- Small lithium ions require a double hydration shell to stabilise their electric charge in the solution.
- In brines with high salinity this is not possible due to the competition for water molecules with the other ions.
- Thus, lithium chloride adsorbs to the surface of the sorbent material.
- During loading, lithium chloride is adsorbed on the sorbent while all the other ions stay in the brine.



- When the loaded sorbent is washed with water, an excess of free water molecules becomes available to the lithium ions.
- Formation of a double hydration shell is an energetically favoured process, which drives the desorption of the lithium chloride from the surface of the sorbent material.
- This process is called elution and the collected wash water that contains the lithium chloride is called the eluate.
- Eluate has a high concentration of lithium chloride and low concentration of impurities, enabling conversion to lithium hydroxide.

Source: Company data



### Pre-commercial stage:

Vulcan's first pilot plant has been operating since April 2021, using live geothermal brine from existing wells. To train staff in a pre-commercial environment prior to the start of commercial production for targeted operational readiness in 2026, Vulcan is setting up demonstration plants for the extraction and the electrolysis. In September 2023, Vulcan completed its in-house designed Lithium Extraction Optimisation Plant (LEOP) at the GeoX geothermal plant in Landau. Start of operations occured in November 2023. The Central Lithium Electrolysis Optimisation Plant (CLEOP) in Frankfurt's Höchst industrial park has been completed in 2024.

### **Optimization plants**







Source: Company data

### Phase One - Commercial stage:

The upstream area for Phase One comprises the Lionheart district, consisting of three licence areas. Vulcan plans to drill additional production and reinjection wells, and to build a new geothermal plant with a planned output of 275GWh of renewable power and 560GWh of heat. For lithium extraction, a large LEP is planned with a total targeted capacity of 24,000 t per year LHM equivalent. Vulcan is targeting the start of production in H2 2026, followed by a ramp up phase during 2027. According to the BES, OPEX was estimated with c. EUR 4,000 per t LHM. The CAPEX for Phase One is currently estimated with EUR 1.4bn.

### Commercial LEP

# Phase One commercial: Lithium Extraction Plant (LEP)

- Building permit submitted in November 2023, in line with Vulcan's timeline.
- Will be constructed next to new Phase One Geothermal Plant in Landau.
- Total targeted capacity to be 24,000tpa LHM equivalent in LiCl form.
- From the LEP, LiCl solution will be transported to the CLP at Industrial Park Höchst (Frankfurt).
- Modular build allows for further phased development across other phases in Upper Rhine Valley Brine Field (URVBF).



Planned new commercial Phase One Geothermal Plant and Lithium Extraction Plant (LEP) in Landau





### **Commercial CLP**

# **NEW CENTRAL LITHIUM PLANT (CLP)**

- CLP planned to be located in Frankfurt (Höchst Industrial Park). Close to 100,000sqm secured.
- Targeted 24,000tpa LHM capacity with space for further modular expansion.
- Conversion of LiCl to battery grade LHM using electrolysis. By-products HCl and Sodium Hypochlorite. Significant synergies with existing chloralkali producers in the same chemical park, e. q. Nobian.
- Höchst is one of Europe's largest industrial estates and is home to around 90 chemical and pharmaceutical companies.
- · Targeting late 2025 for commercial start of operations.
- Optimisation plant under construction, planned to start operation in H2, training staff in pre-commercial operational setting, will send significant volume of product to offtakers for pre-qualifications. Intended to ensure commercial operational readiness.

#### Commercial CLP



Optimisation plant under construction



Secured plot at Höchst

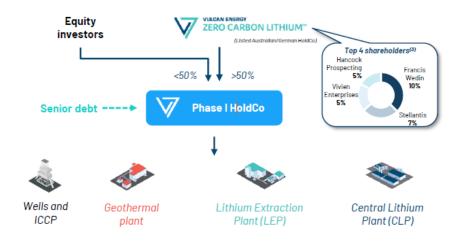
### Source: Company data

### Financing:

Vulcan has released its bridging engineering study (BES), which focuses on Vulcan's Lionheart area. The BES provides favorable project economics while also further derisking potential. Completing the bridging study marks the kick-off for financing of phase 1. Overall, Vulcan is targeting a debt-to-equity ratio of 65:35 for the overall funding of Phase 1. The company intends to raise the needed funds via debt and equity financing, while also applying for public funding. The equity investments are planned on project level. By doing that, Vulcan sees opportunities to bring investors aboard while minimizing dilution.

In addition, Vulcan has received a conditional, non-binding Letter of Support from Export Finance Australia (EFA) for up to AUD 200 million (~EUR 120 million) for the upcoming financing of Phase One. Additionally, Vulcan has already secured substantial in-principle government-backed ECA support, subject to customary conditions, from Bpifrance Assurance Export, the French ECA, SACE, the Italian ECA, and EDC, the Canadian ECA. Currently, the EIB is considering a financing up to EUR 500m.

# Contemplated financing structure



Source: Company data



# Valuation

# **DCF Model**

By using a 25% risk weighting on Equity value, the DCF model results in a fair value of EUR 10.34 per share.

In our base case scenario, revenues are based on an average sales price at USD 22.5 thousand/ton of lithium hydroxide.

**WACC**. Starting point is a equity beta of 1.60. Unleverering and correcting for mean reversion yields an asset beta of 1.06. Combined with a risk-free rate of 2.0% and an equity risk premium of 6.0% this yields cost of equity of 11.5%. With pre-tax cost of borrowing at 7.0%, a tax rate of 25.0% and target debt/equity of 0.7 this results in a long-term WACC of 9.0%.

2.39

14.1

15.5

DCF (EURm) (except per share data and beta)	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	Terminal value
NOPAT	-84.5	-132.9	36.8	160.7	203.1	204.7	239.5	275.2	
Depreciation & amortization	11.2	32.6	52.2	81.6	81.0	80.4	79.9	79.4	
Change in working capital	-22.3	-4.4	-19.0	-45.0	-35.0	-41.5	-24.3	66.4	
Chg. in long-term provisions	0.6	1.9	225.8	321.7	117.0	0.0	0.0	0.0	
Capex	-150.2	-750.2	-644.5	-80.7	-83.0	-83.0	-83.0	-83.0	
Cash flow	-245.1	-853.0	-348.8	438.3	283.2	160.7	212.1	338.0	4,900.6
Present value	-238.6	-758.0	-283.0	324.7	192.2	100.2	123.0	185.8	2,606.6
WACC	9.5%	9.5%	9.5%	9.5%	9.4%	9.3%	9.0%	8.5%	9.0%

DCF avg. growth and earnings assumptions

DCF per share derived from	
Total present value	2,252.9
Mid-year adj. total present value	2,355.0
Net debt / cash at start of year	-78.7
Financial assets	22.1
Provisions and off b/s debt	0.3
Equity value	2,455.8
No. of shares outstanding	180.5
Discounted cash flow / share	10.34
upside/(downside)	333.5%

-2.0%

Planning horizon avg. revenue growth (2024E-2031E)	86.9%
Terminal value growth (2031E - infinity)	2.0%
Terminal year ROCE	14.2%
Terminal year WACC	9.0%
Terminal WACC derived from	
Cost of harrowing (hafara tayon)	7.0%

Terminal WACC derived from	
Cost of borrowing (before taxes)	7.0%
Long-term tax rate	25.0%
Equity beta	1.60
Unlevered beta (industry or company)	1.06
Target debt / equity	0.7
Relevered beta	1.59
Risk-free rate	2.0%
Equity risk premium	6.0%
Cost of equity	11.5%

Sensitivity anal	ysis DCF							
		Long term g	rowth				Share of present value	
ပ္ပ		1.0%	1.5%	2.0%	2.5%	3.0%		
WAC nts)	2.0%	5.7	6.1	6.6	7.1	7.6	2024E-2027E	-42.4%
in W	1.0%	7.1	7.6	8.2	8.9	9.6	2028E-2031E	26.7%
Change in '	0.0%	8.8	9.5	10.3	11.3	12.3	terminal value	115.7%
nan (%)	-1.0%	11.1	12.1	13.2	14.5	16.2		
$\overline{\circ}$	-2.0%	14.1	15.5	17.2	19.3	21.9		

19.3

21.9

17.2

Source: mwb research

Share price





## **FCF Yield Model**

Due to the fact that companies rarely bear sufficient resemblance to peers in terms of geographical exposure, size or competitive strength and in order to adjust for the pitfalls of weak long-term visibility, an Adjusted Free Cash Flow analysis (Adjusted FCF) has been conducted.

The adjusted Free Cash Flow Yield results in a fair value between EUR -3.87 per share based on 2024E and EUR 18.42 per share on 2028E estimates.

The main driver of this model is the level of return available to a controlling investor, influenced by the cost of that investors' capital (opportunity costs) and the purchase price – in this case the enterprise value of the company. Here, the adjusted FCF yield is used as a proxy for the required return and is defined as EBITDA less minority interest, taxes and investments required to maintain existing assets (maintenance capex).

FCF yield in EURm	2024E	2025E	2026E	2027E	2028E
EBITDA	-44.8	-67.9	107.2	357.7	443.9
- Maintenance capex	11.2	32.6	52.2	81.6	81.0
- Minorities	42.5	57.5	4.5	46.4	69.1
- tax expenses	-31.5	-42.6	-3.7	51.5	76.7
= Adjusted FCF	-67.0	-115.4	54.3	178.2	217.1
Actual Market Cap	449.0	449.0	449.0	449.0	449.0
+ Net debt (cash)	-396.6	386.4	758.2	326.0	15.8
+ Pension provisions	0.0	0.0	0.0	0.0	0.0
+ Off b/s financing	0.0	0.0	0.0	0.0	0.0
- Financial assets	22.1	22.1	22.1	22.1	22.1
- Acc. dividend payments	0.0	0.0	0.0	0.0	0.0
EV Reconciliations	-418.7	364.3	736.1	304.0	-6.3
= Actual EV'	30.3	813.3	1,185.2	753.0	442.7
Adjusted FCF yield	-221.0%	-14.2%	4.6%	23.7%	49.0%
base hurdle rate	7.0%	7.0%	7.0%	7.0%	7.0%
ESG adjustment	1.0%	1.0%	1.0%	1.0%	1.0%
adjusted hurdle rate	6.0%	6.0%	6.0%	6.0%	6.0%
Fair EV	-1,116.8	-1,923.3	905.1	2,970.5	3,618.9
- EV Reconciliations	-418.7	364.3	736.1	304.0	-6.3
Fair Market Cap	-698.1	-2,287.6	169.0	2,666.6	3,625.2
No. of shares (million)	180.5	193.5	196.9	196.9	196.9
Fair value per share in EUR	-3.87	-11.82	0.86	13.55	18.42
Premium (-) / discount (+)	-262.1%	-595.4%	-64.0%	467.7%	671.8%
Sensitivity analysis fair value					
4.0%	-7.0	-16.8	3.2	21.1	27.6
Adjuste 5.0%	-5.1	-13.8	1.8	16.6	22.1
d hurdle 6.0%	-3.9	-11.8	0.9	13.5	18.4
rate 7.0%	-3.0	-10.4	0.2	11.4	15.8
8.0%	-2.3	-9.3	-0.3	9.8	13.8

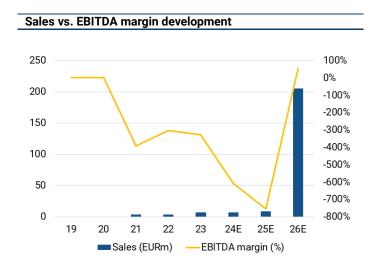
Source: Company data; mwb research

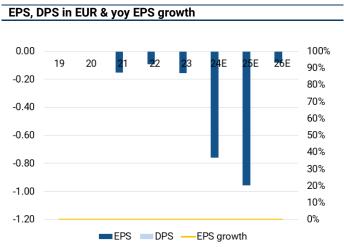
Simply put, the model assumes that investors require companies to generate a minimum return on the investor's purchase price. The required after-tax return equals the model's hurdle rate of 7.0%. Anything less suggests the stock is expensive; anything more suggests the stock is cheap. **ESG adjustments might be applicable.** A high score indicates high awareness for environmental, social or governance issues and thus might lower the overall risk an investment in the company might carry. A low score on the contrary might increase the risk of an investment and might therefore trigger a higher required hurdle rate.

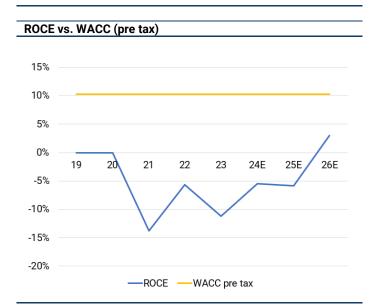


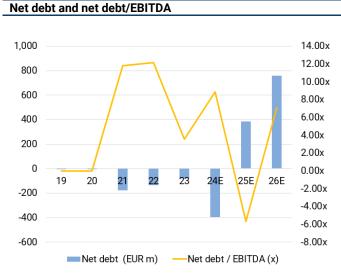


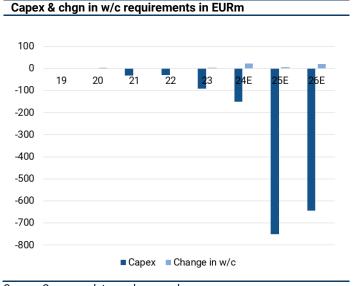
# Financials in six charts

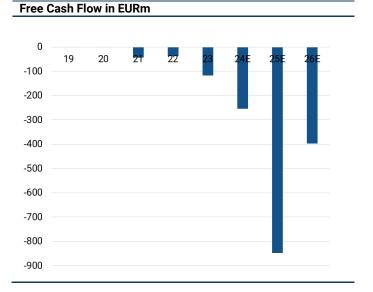
















# Financials

Profit and loss (EURm)	2021	2022	2023	2024E	2025E	2026E
Sales	3.8	3.6	6.8	7.3	9.0	204.9
Sales growth	na	-4.7%	87.3%	8.3%	22.5%	2,176.7%
Cost of sales	-1.2	-0.4	-16.3	6.0	40.0	64.6
Gross profit	5.0	4.0	23.1	1.3	-31.0	140.3
SG&A expenses	21.2	14.1	31.8	50.0	65.0	75.0
Research and development	0.0	0.0	0.0	0.0	0.0	0.0
Other operating expenses (income)	-1.3	1.5	20.1	7.3	4.5	10.2
EBITDA	-14.9	-11.0	-22.3	-44.8	-67.9	107.2
Depreciation	2.1	2.3	5.9	11.2	32.6	52.2
EBITA	-14.4	-13.3	-28.2	-56.0	-100.5	55.1
Amortisation of goodwill and intangible assets	0.5	0.6	0.7	0.0	0.0	0.0
EBIT	-17.7	-13.9	-28.8	-56.0	-100.5	55.1
Financial result	-0.8	0.3	3.4	-70.0	-70.0	-70.0
Recurring pretax income from continuing operations	-18.5	-13.6	-25.4	-126.0	-170.5	-14.9
Extraordinary income/loss	0.0	0.0	-1.1	0.0	0.0	0.0
Earnings before taxes	-18.5	-13.6	-26.6	-126.0	-170.5	-14.9
Taxes	0.4	-0.1	-1.8	-31.5	-42.6	-3.7
Net income from continuing operations	-18.9	-13.4	-24.7	-94.5	-127.9	-11.2
Result from discontinued operations (net of tax)	0.0	0.0	0.0	0.0	0.0	0.0
Net income	-18.9	-13.4	-24.7	-94.5	-127.9	-11.2
Minority interest	0.0	0.0	0.0	-42.5	-57.5	-4.5
Net profit (reported)	-18.9	-13.4	-24.7	-137.0	-185.4	-15.7
Average number of shares	124.67	143.33	159.33	180.52	193.52	196.86
EPS reported	-0.15	-0.09	-0.16	-0.76	-0.96	-0.08

Profit and loss (common size)	2021	2022	2023	2024E	2025E	2026E
Sales	100%	100%	100%	100%	100%	100%
Cost of sales	-31%	-10%	-240%	82%	444%	32%
Gross profit	131%	110%	340%	18%	-344%	68%
SG&A expenses	558%	389%	469%	681%	722%	37%
Research and development	0%	0%	0%	0%	0%	0%
Other operating expenses (income)	-34%	41%	296%	100%	50%	5%
EBITDA	-392%	-304%	-329%	-609%	-754%	52%
Depreciation	57%	63%	87%	153%	362%	25%
EBITA	-380%	-368%	-415%	-762%	-1,116%	27%
Amortisation of goodwill and intangible assets	13%	16%	10%	0%	0%	0%
EBIT	-467%	-383%	-425%	-762%	-1,117%	27%
Financial result	-20%	9%	50%	-953%	-778%	-34%
Recurring pretax income from continuing operations	-487%	-374%	-375%	-1,715%	-1,894%	-7%
Extraordinary income/loss	0%	0%	-17%	0%	0%	0%
Earnings before taxes	-487%	-374%	-392%	-1,715%	-1,894%	-7%
Taxes	10%	-3%	-27%	-429%	-474%	-2%
Net income from continuing operations	-496%	-371%	-365%	-1,286%	-1,421%	-5%
Result from discontinued operations (net of tax)	0%	0%	0%	0%	0%	0%
Net income	-496%	-371%	-365%	-1,286%	-1,421%	-5%
Minority interest	0%	0%	0%	-579%	-639%	-2%
Net profit (reported)	-496%	-371%	-365%	-1,865%	-2,060%	-8%





Balance sheet (EURm)	2021	2022	2023	2024E	2025E	2026E
Intangible assets (exl. Goodwill)	3.6	3.1	1.7	1.8	2.0	6.5
Goodwill	0.0	0.0	0.0	0.0	0.0	0.0
Property, plant and equipment	71.9	100.4	187.1	325.9	1,043.3	1,631.1
Financial assets	5.9	6.0	22.1	22.1	22.1	22.1
FIXED ASSETS	81.5	109.5	210.8	349.7	1,067.3	1,659.7
Inventories	0.1	0.2	0.3	4.2	12.0	23.0
Accounts receivable	4.0	6.3	6.9	8.1	12.3	28.1
Other current assets	0.1	0.0	0.1	0.1	0.1	0.1
Liquid assets	175.4	134.1	78.7	1,396.6	613.6	241.8
Deferred taxes	0.0	0.0	0.0	0.0	0.0	0.0
Deferred charges and prepaid expenses	0.0	0.0	0.0	0.0	0.0	0.0
CURRENT ASSETS	179.7	140.6	86.1	1,409.0	638.1	293.0
TOTAL ASSETS	261.1	250.1	296.9	1,758.7	1,705.4	1,952.7
SHAREHOLDERS EQUITY	247.3	233.2	268.3	239.3	176.4	190.2
MINORITY INTEREST	0.0	0.0	0.0	507.5	507.5	507.5
	0.0	0.0	0.0	1,000.0	1,000.0	1,000.0
Long-term debt	0.0	0.0	0.0	0.0	0.0	0.0
Provisions for pensions and similar obligations	4.1	5.9	7.8	8.5	10.4	236.1
Other provisions  Non-current liabilities	4.1	5.9	7.8		1,010.4	
				1,008.5		1,236.1
short-term liabilities to banks	0.0	0.0	0.0	0.0	0.0	0.0
Accounts payable	6.2	6.5	9.5	3.3	11.0	17.7
Advance payments received on orders	0.0	0.0	0.0	0.0	0.0	0.0
Other liabilities (incl. from lease and rental contracts)	3.2	4.5	11.2	0.0	0.0	1.0
Deferred taxes	0.3	0.1	0.1	0.1	0.1	0.1
Deferred income	0.0	0.0	0.0	0.0	0.0	0.0
Current liabilities	9.7	11.0	20.8	3.4	11.1	18.8
TOTAL LIABILITIES AND SHAREHOLDERS EQUITY	261.1	250.1	296.9	1,758.7	1,705.4	1,952.7
	0004	2222	0000	22245	20055	22255
Balance sheet (common size)	2021	2022	2023	2024E	2025E	2026E
Intangible assets (excl. Goodwill)	1%	1%	1%	0%	0%	0%
Goodwill	0%	0%	0%	0%	0%	0%
Property, plant and equipment	28%	40%	63%	19%	61%	84%
Financial assets	2%	2%	7%	1%	1%	1%
FIXED ASSETS	31%	44%	71%	20%	63%	85%
Inventories	0%	0%	0%	0%	1%	1%
Accounts receivable	2%	3%	2%	0%	1%	1%
Other current assets	0%	0%	0%	0%	0%	0%
Liquid assets	67%	54%	27%	79%	36%	12%
Deferred taxes						
	0%	0%	0%	0%	0%	0%
Deferred charges and prepaid expenses	0% 0%			0% 0%	0% 0%	0% 0%
Deferred charges and prepaid expenses  CURRENT ASSETS		0%	0%			
• 1 1	0%	0% 0%	0% 0%	0%	0%	0%
CURRENT ASSETS TOTAL ASSETS	0% <b>69%</b>	0% 0% <b>56%</b>	0% 0% <b>29%</b>	0% <b>80%</b>	0% <b>37%</b>	0% <b>15%</b>
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY	0% <b>69%</b> <b>100%</b>	0% 0% 56% 100% 93%	0% 0% <b>29%</b> 100%	0% <b>80%</b> <b>100%</b>	0% 37% 100% 10%	0% 15% 100%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST	0% 69% 100% 95%	0% 0% <b>56%</b> <b>100%</b> <b>93%</b> 0%	0% 0% <b>29%</b> 100% 90%	0% 80% 100% 14% 29%	0% <b>37%</b> <b>100%</b>	0% 15% 100% 10%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt	0% 69% 100% 95% 0%	0% 0% 56% 100% 93%	0% 0% 29% 100% 90%	0% <b>80%</b> <b>100%</b> <b>14%</b>	0% 37% 100% 10% 30%	0% 15% 100% 10% 26%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations	0% 69% 100% 95% 0% 0%	0% 0% 56% 100% 93% 0% 0%	0% 0% 29% 100% 90% 0% 0%	0% 80% 100% 14% 29% 57% 0%	0% 37% 100% 10% 30% 59% 0%	0% 15% 100% 10% 26% 51% 0%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations Other provisions	0% 69% 100% 95% 0%	0% 0% 56% 100% 93% 0% 0% 0%	0% 0% 29% 100% 90% 0% 0% 3%	0% 80% 100% 14% 29% 57% 0%	0% 37% 100% 10% 30% 59%	0% 15% 100% 10% 26% 51% 0% 12%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations Other provisions Non-current liabilities	0% 69% 100% 95% 0% 0% 2% 2%	0% 0% 56% 100% 93% 0% 0% 2% 2%	0% 0% 29% 100% 90% 0% 0% 3% 3%	0% 80% 100% 144% 29% 57% 0% 0%	0% 37% 100% 10% 30% 59% 0% 1% 59%	0% 15% 100% 10% 26% 51% 0% 12% 63%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations Other provisions Non-current liabilities short-term liabilities to banks	0% 69% 100% 95% 0% 0% 2% 2% 0%	0% 0% 56% 100% 93% 0% 0% 2% 2% 0%	0% 0% 29% 100% 90% 0% 0% 3% 3%	0% 80% 100% 144% 29% 57% 0% 0% 57%	0% 37% 100% 10% 30% 59% 0% 1% 59% 0%	0% 15% 100% 10% 26% 51% 0% 12% 63%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations Other provisions Non-current liabilities short-term liabilities to banks Accounts payable	0% 69% 100% 95% 0% 0% 2% 2% 0% 2%	0% 0% 56% 100% 93% 0% 0% 2% 2% 0% 3%	0% 0% 29% 100% 90% 0% 0% 3% 3% 3%	0% 80% 100% 144% 29% 57% 0% 0% 57% 0%	0% 37% 100% 10% 30% 59% 0% 1% 59%	0% 15% 100% 10% 26% 51% 0% 12% 63% 0% 1%
CURRENT ASSETS TOTAL ASSETS SHAREHOLDERS EQUITY MINORITY INTEREST Long-term debt Provisions for pensions and similar obligations Other provisions Non-current liabilities short-term liabilities to banks	0% 69% 100% 95% 0% 0% 2% 2% 0%	0% 0% 56% 100% 93% 0% 0% 2% 2% 0%	0% 0% 29% 100% 90% 0% 0% 3% 3%	0% 80% 100% 144% 29% 57% 0% 0% 57%	0% 37% 100% 10% 30% 59% 0% 1% 59% 0%	0% 15% 100% 10% 26% 51% 0% 12% 63%

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7%

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0%

0%

100%

Source: Company data; mwb research

Deferred taxes

Deferred income

**Current liabilities** 

TOTAL LIABILITIES AND SHAREHOLDERS EQUITY



0%

0%

1%

100%

0%

0%

1%

100%



2021	2022	2023	2024E	2025E	2026E
-18.9	-13.5	-27.0	-94.5	-127.9	-11.2
0.0	1.7	5.2	11.2	32.6	52.2
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.6	0.7	0.0	0.0	0.0
4.4	1.6	-0.6	0.6	1.9	225.8
-14.4	-9.6	-21.7	-82.6	-93.4	266.7
0.0	0.0	0.0	-3.8	-7.8	-11.0
-0.1	-1.0	-0.8	-1.2	-4.3	-15.7
0.5	3.3	-1.7	-6.2	7.7	6.7
0.0	-0.1	0.1	-11.1	0.0	1.0
0.4	2.2	-2.4	-22.3	-4.4	-19.0
-11.3	-7.4	-24.0	-104.9	-97.8	247.7
-32.2	-30.5	-92.6	-150.2	-750.2	-644.5
-31.5	0.0	-0.2	0.0	0.0	0.0
-30.0	-1.2	0.3	0.0	0.0	0.0
29.3	0.0	0.0	0.0	0.0	0.0
-64.4	-31.8	-92.5	-150.2	-750.2	-644.5
-75.7	-39.2	-116.5	-255.1	-848.0	-396.8
0.0	0.0	0.0	1,000.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
171.8	0.0	64.6	573.0	65.0	25.0
0.0	0.0	0.0	0.0	0.0	0.0
0.2	-0.5	-1.8	0.0	0.0	0.0
6.6	-1.7	-1.3	0.0	0.0	0.0
178.6	-2.1	61.4	1,573.0	65.0	25.0
102.9	-41.3	-55.1	1,317.9	-783.0	-371.8
175.4	134.1	78.7	1,396.6	613.6	241.8
	-18.9 0.0 0.0 0.0 4.4 -14.4 0.0 -0.1 0.5 0.0 0.4 -11.3 -32.2 -31.5 -30.0 29.3 -64.4 -75.7 0.0 0.0 171.8 0.0 0.2 6.6 178.6	-18.9	-18.9         -13.5         -27.0           0.0         1.7         5.2           0.0         0.0         0.0           0.0         0.6         0.7           4.4         1.6         -0.6           -14.4         -9.6         -21.7           0.0         0.0         0.0           -0.1         -1.0         -0.8           0.5         3.3         -1.7           0.0         -0.1         0.1           0.4         2.2         -2.4           -11.3         -7.4         -24.0           -32.2         -30.5         -92.6           -31.5         0.0         -0.2           -30.0         -1.2         0.3           29.3         0.0         0.0           -64.4         -31.8         -92.5           -75.7         -39.2         -116.5           0.0         0.0         0.0           0.0         0.0         0.0           171.8         0.0         64.6           0.0         0.0         0.0           0.2         -0.5         -1.8           6.6         -1.7         -1.3 <td< td=""><td>-18.9         -13.5         -27.0         -94.5           0.0         1.7         5.2         11.2           0.0         0.0         0.0         0.0           0.0         0.6         0.7         0.0           4.4         1.6         -0.6         0.6           -14.4         -9.6         -21.7         -82.6           0.0         0.0         0.0         -3.8           -0.1         -1.0         -0.8         -1.2           0.5         3.3         -1.7         -6.2           0.0         -0.1         0.1         -11.1           0.4         2.2         -2.4         -22.3           -11.3         -7.4         -24.0         -104.9           -32.2         -30.5         -92.6         -150.2           -31.5         0.0         -0.2         0.0           -30.0         -1.2         0.3         0.0           29.3         0.0         0.0         0.0           29.3         0.0         0.0         0.0           -64.4         -31.8         -92.5         -150.2           -75.7         -39.2         -116.5         -255.1</td><td>-18.9         -13.5         -27.0         -94.5         -127.9           0.0         1.7         5.2         11.2         32.6           0.0         0.0         0.0         0.0         0.0           0.0         0.6         0.7         0.0         0.0           4.4         1.6         -0.6         0.6         1.9           -14.4         -9.6         -21.7         -82.6         -93.4           0.0         0.0         0.0         -3.8         -7.8           -0.1         -1.0         -0.8         -1.2         -4.3           0.5         3.3         -1.7         -6.2         7.7           0.0         -0.1         0.1         -11.1         0.0           0.4         2.2         -2.4         -22.3         -4.4           -11.3         -7.4         -24.0         -104.9         -97.8           -32.2         -30.5         -92.6         -150.2         -750.2           -31.5         0.0         -0.2         0.0         0.0           29.3         0.0         0.0         0.0         0.0           29.3         0.0         0.0         0.0         0.0</td></td<>	-18.9         -13.5         -27.0         -94.5           0.0         1.7         5.2         11.2           0.0         0.0         0.0         0.0           0.0         0.6         0.7         0.0           4.4         1.6         -0.6         0.6           -14.4         -9.6         -21.7         -82.6           0.0         0.0         0.0         -3.8           -0.1         -1.0         -0.8         -1.2           0.5         3.3         -1.7         -6.2           0.0         -0.1         0.1         -11.1           0.4         2.2         -2.4         -22.3           -11.3         -7.4         -24.0         -104.9           -32.2         -30.5         -92.6         -150.2           -31.5         0.0         -0.2         0.0           -30.0         -1.2         0.3         0.0           29.3         0.0         0.0         0.0           29.3         0.0         0.0         0.0           -64.4         -31.8         -92.5         -150.2           -75.7         -39.2         -116.5         -255.1	-18.9         -13.5         -27.0         -94.5         -127.9           0.0         1.7         5.2         11.2         32.6           0.0         0.0         0.0         0.0         0.0           0.0         0.6         0.7         0.0         0.0           4.4         1.6         -0.6         0.6         1.9           -14.4         -9.6         -21.7         -82.6         -93.4           0.0         0.0         0.0         -3.8         -7.8           -0.1         -1.0         -0.8         -1.2         -4.3           0.5         3.3         -1.7         -6.2         7.7           0.0         -0.1         0.1         -11.1         0.0           0.4         2.2         -2.4         -22.3         -4.4           -11.3         -7.4         -24.0         -104.9         -97.8           -32.2         -30.5         -92.6         -150.2         -750.2           -31.5         0.0         -0.2         0.0         0.0           29.3         0.0         0.0         0.0         0.0           29.3         0.0         0.0         0.0         0.0

Regional sales split (EURm)	2021	2022	2023	2024E	2025E	2026E
Domestic	0.0	0.0	0.0	0.0	0.0	0.0
Europe (ex domestic)	0.0	0.0	0.0	0.0	0.0	0.0
The Americas	0.0	0.0	0.0	0.0	0.0	0.0
Asia	0.0	0.0	0.0	0.0	0.0	0.0
Rest of World	0.0	0.0	0.0	0.0	0.0	0.0
Total sales	3.8	3.6	6.8	7.3	9.0	204.9

Regional sales split (common size)	2021	2022	2023	2024E	2025E	2026E
Domestic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Europe (ex domestic)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
The Americas	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Asia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rest of World	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total sales	100%	100%	100%	100%	100%	100%
Source: Company data; mwb research						





Ratios	2021	2022	2023	2024E	2025E	2026E
Per share data						
Earnings per share reported	-0.15	-0.09	-0.16	-0.76	-0.96	-0.08
Cash flow per share	-0.09	-0.05	-0.15	-0.64	-0.67	0.99
Book value per share	1.98	1.63	1.68	1.33	0.91	0.97
Dividend per share	0.00	0.00	0.00	0.00	0.00	0.00
Valuation						
P/E	-15.8x	-25.4x	-15.4x	-3.1x	-2.5x	-29.9x
P/CF	-26.2x	-46.1x	-15.8x	-3.7x	-3.5x	2.4x
P/BV	1.2x	1.5x	1.4x	1.8x	2.6x	2.5x
Dividend yield (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FCF yield (%)	-3.8%	-2.2%	-6.3%	-27.0%	-28.2%	41.6%
EV/Sales	67.2x	81.9x	51.9x	4.6x	90.8x	5.8x
EV/EBITDA	-17.1x	-26.9x	-15.8x	-0.8x	-12.0x	11.1x
EV/EBIT	-14.4x	-21.4x	-12.2x	-0.6x	-8.1x	21.6x
Income statement (EURm)						
Sales	3.8	3.6	6.8	7.3	9.0	204.9
yoy chg in %	Infinity%	-4.7%	87.3%	8.3%	22.5%	2,176.7%
Gross profit	5.0	4.0	23.1	1.3	-31.0	140.3
Gross margin in %	131.2%	110.2%	340.1%	18.3%	-344.4%	68.5%
EBITDA	-14.9	-11.0	-22.3	-44.8	-67.9	107.2
EBITDA margin in %	-392.3%	-304.3%	-328.9%	-609.3%	-754.4%	52.3%
EBIT	-17.7	-13.9	-28.8	-56.0	-100.5	55.1
EBIT margin in %	-466.6%	-383.4%	-425.0%	-762.3%	-1,116.7%	26.9%
Net profit	-18.9	-13.4	-24.7	-137.0	-185.4	-15.7
Cash flow statement (EURm)						
CF from operations	-11.3	-7.4	-24.0	-104.9	-97.8	247.7
Capex	-32.2	-30.5	-92.6	-150.2	-750.2	-644.5
Maintenance Capex	0.0	0.0	0.0	11.2	32.6	52.2
Free cash flow	-43.5	-37.9	-116.7	-255.1	-848.0	-396.8
Balance sheet (EURm)						
Intangible assets	3.6	3.1	1.7	1.8	2.0	6.5
Tangible assets	71.9	100.4	187.1	325.9	1,043.3	1,631.1
Shareholders' equity	247.3	233.2	268.3	239.3	176.4	190.2
Pension provisions	0.0	0.0	0.0	0.0	0.0	0.0
Liabilities and provisions	4.1	5.9	7.8	1,008.5	1,010.4	1,236.1
Net financial debt	-175.4	-134.1	-78.7	-396.6	386.4	758.2
w/c requirements	-2.0	-0.0	-2.3	8.9	13.4	33.4
Ratios						
ROE	-7.6%	-5.8%	-9.2%	-39.5%	-72.5%	-5.9%
ROCE	-7.1%	-5.8%	-10.4%	-3.2%	-5.9%	2.8%
Net gearing	-70.9%	-57.5%	-29.3%	-165.8%	219.0%	398.6%
Net debt / EBITDA	11.8x	12.2x	3.5x	8.9x	-5.7x	7.1x
Source: Company data: mwh research						





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