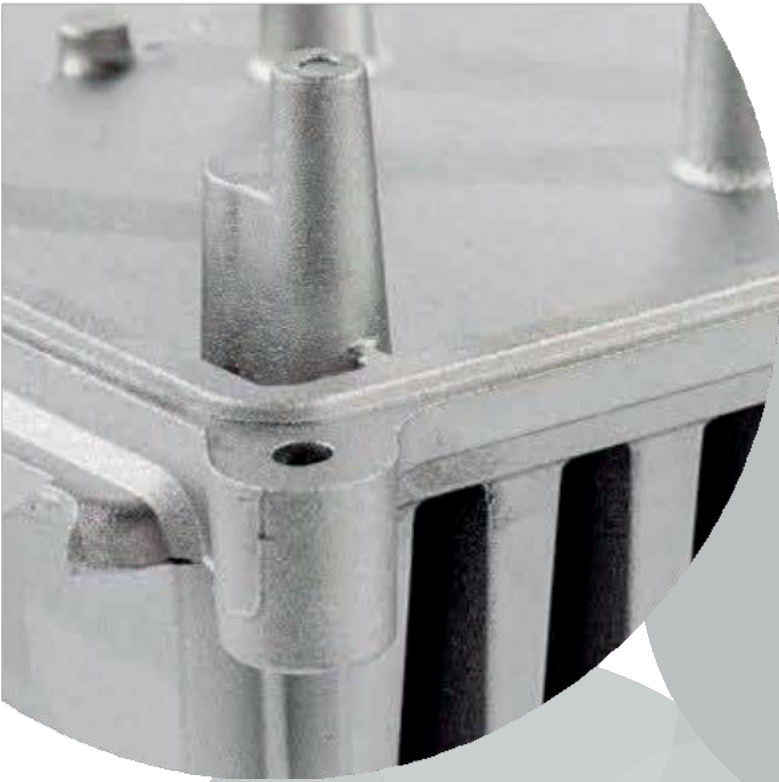




**Alteams**



**Aluminium Casting Solutions** | Your Global Partner

## Summary

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The history of Alteams stretches back over half a century, with roots in industrial foundry operations in Finland and Sweden in the 1940s. Alteams is today a privately owned Finnish company.

Building on this solid foundation in the northern industrial environment, Alteams has expanded into a truly global enterprise with annual sales level of one hundred million Euros, international support

services, and five production facilities located in Finland, China, Poland, and India. Alteams employs over 1,700 real professionals. The company has regional customer support units in all manufacturing locations, as well as in Japan.

Alteams offers more than aluminium casting using three different casting methods. The company has its own dedicated tool design and manufacturing facility in China. In cooperation with its long-term strategic partners, the company offers an even broader range of castings. This means that Alteams has a wide capacity range, from single prototype units to mass production and from one hundred grams up to one ton.

Technological development has given Alteams a range of competencies that goes beyond regular foundry operations, from initial R&D and prototyping all the way to mass production and deliveries. Alteams has its own R&D operations and a vast experience in producing innovations in aluminium casting and added value processes. This makes Alteams your excellent partner and ideal choice for you at every stage of your product development and manufacturing. Alteams works closely with customers to solve their casting design, aluminium alloy, heat transfer, shielding, and sealing challenges.



### High quality and continuous improvement

The quality objectives at Alteams are to produce high-quality products on time and at a cost effective and competitive price level. It results in the best customer satisfaction and continuous improvements

in process efficiency. Operational Excellence is a part of the continuous improvement program. The target is to minimize non-value-added activities in daily operations and minimize quality costs. Best practices are shared systematically between our factories.

Alteams Quality Management System is certified according to the ISO 9001, 14001 and the automotive standard IATF 16949 requirements in Alteams factories in Poland, China, Finland, and India.

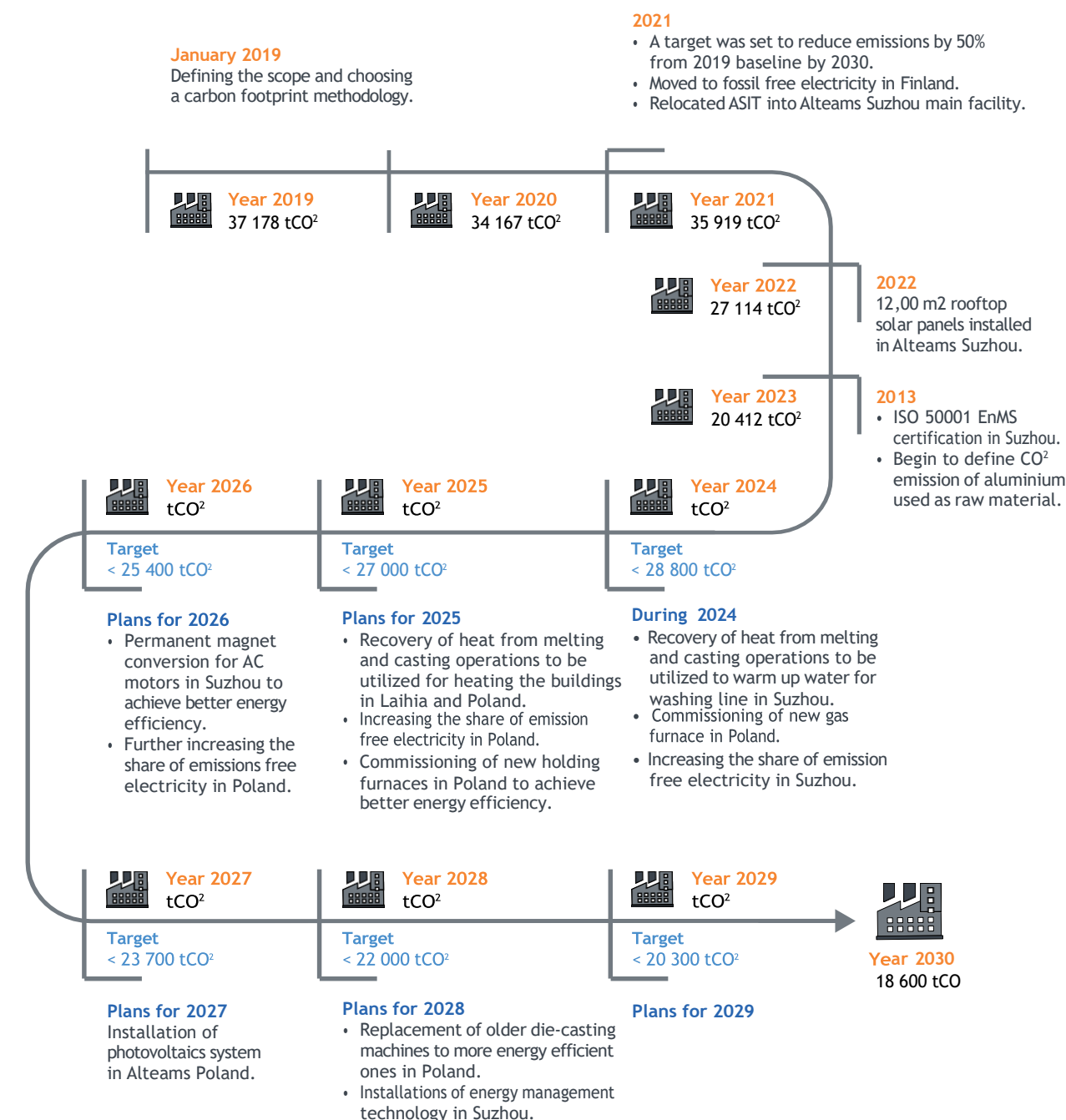
## ABOUT ALTEAMS

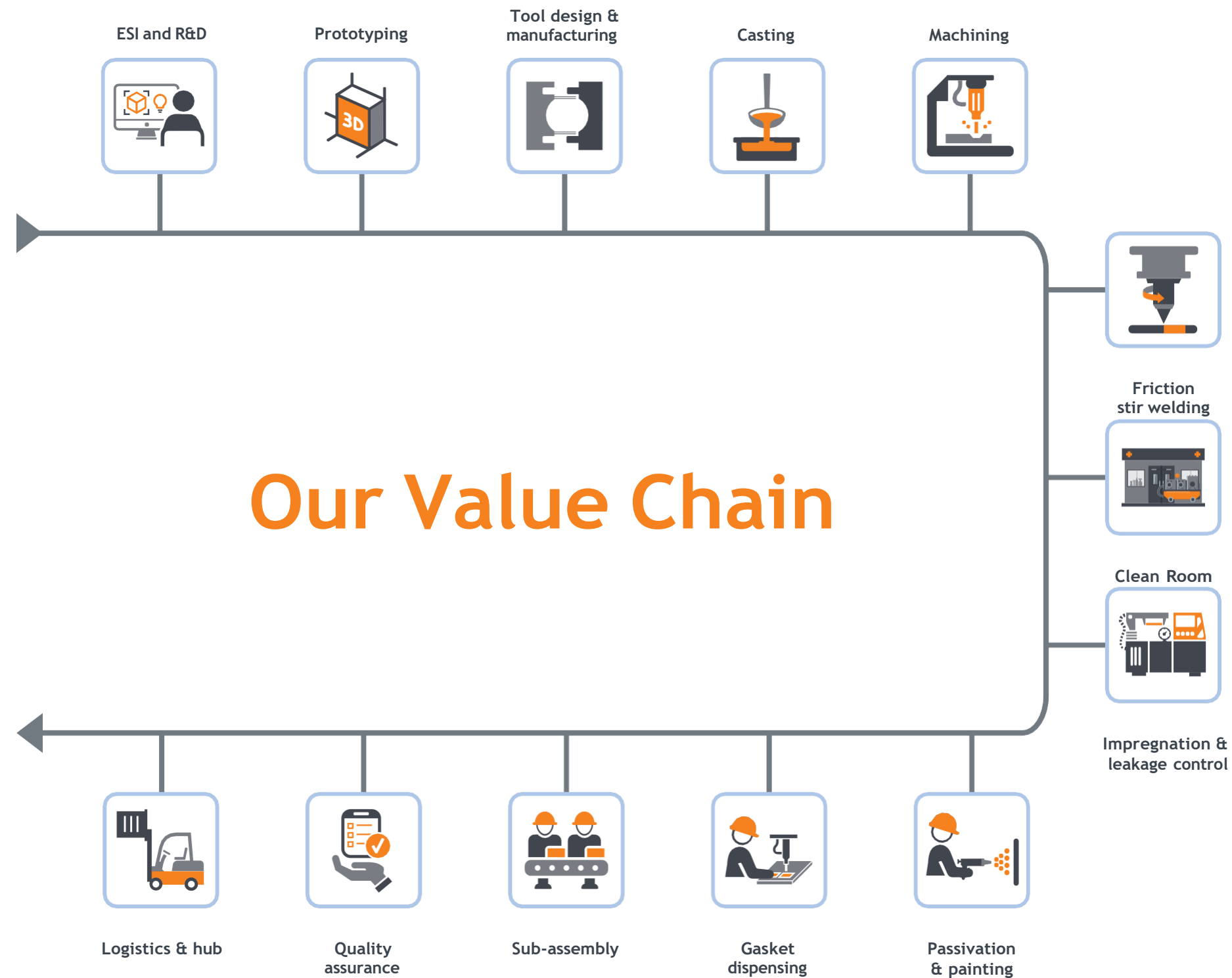
### Alteams Sustainability Program - our commitment to the future

Strong focus on sustainability is an essential part of our operations. Alteams has created a Sustainability Program using the UN's Sustainable Development Goals as a framework. We not only strive to be a responsible operator, but also to inspire others to act more responsibly.

### Alteams Carbon Reduction Roadmap

One of the most significant aims in Alteams Sustainability Program is to reduce our company's carbon footprint. Alteams Carbon Reduction Roadmap provides a structured approach to systematically reduce our carbon footprint while enhancing processes and continuous improvement.





*Alteams - Your Partner from early development until delivery with full value chain.*



Aluminium alloys used at Alteams and approximate equivalences against common standards

Note. Standards are not equal with each others. Specified alloy composition to be clarified case by case.

S = Sand Casting, K = Permanent Die Casting (Low Pressure Casting), D = High Pressure Die Casting, HTC Alloy = High Thermal Conductivity \* old national standard

Alloy types	Casting method	European	International	Finnish	Swedish	German	German	English	American	Italian	French	Japanese
		EN 1706	ISO 3522	SFS*	SS*	DIN*	VDS	BS*	AA ASTM	UNI*	NF*	JIS

Aluminium Alloys

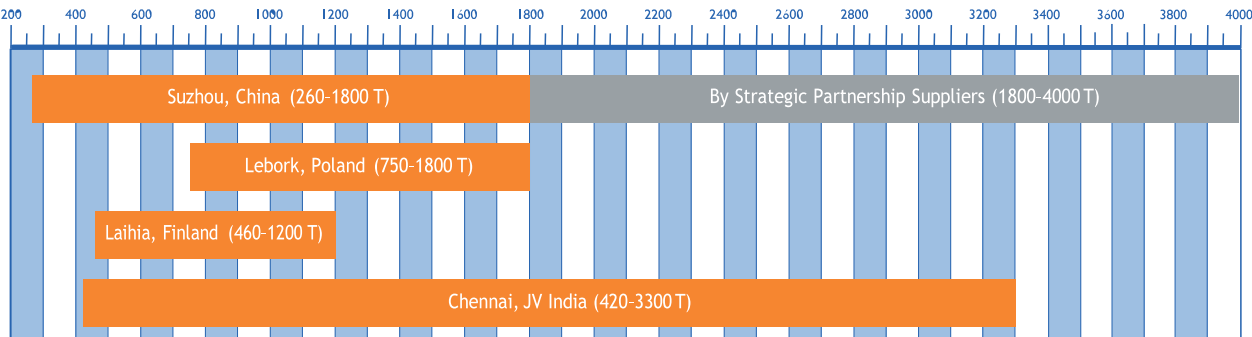
AlSi12	S / K	EN AC-44100	AlSi12	SFS 2566	SS 14 4261	3.2581	230A	LM 6	B413.0	4514	A-S13	AC3A
AlSi12	D	EN AC-44300	AlSi12(Fe)	SFS 2566	SS 14 4263	3.2582	230	LM 20	A413.0	5079	A-S12	ADC1
AlSi10Mg	S / K	EN AC-43100	AlSi10Mg	SFS 2567	SS 14 4253	3.2381	239A	LM 9		3049	A-S10G	AC4A
AlSi10Mg	D	EN AC-43400	AlSi10(Fe)	SFS 2567		3.2382	239		A361.0	5074	A-S9	ADC3
AlSi7Mg	S / K	EN AC-42100	AlSi7Mg0,3	SFS 2574	SS 14 4245	3.2371		LM 25	A356.0	3599	A-S7G	AC4CH
AlSi9Cu3	S	EN AC-46200	AlSi8Cu3	SFS 2568	SS 14 4251	3.2163.01	2264	LM 24	A380.0			
AlSi9Cu3	D	EN AC-46000	AlSi9Cu3(Fe)	SFS 2568	SS 14 4250	3.2163.05	226	LM 24	A380.0	5075	A-S9U3A	AC4B
AlSi10Cu2	D	EN AC-46100	AlSi10Cu2(Fe)					LM 2	A383.0	5076	A-S9U3	ADC10
AlSi7Cu2	S	EN AC-46600	AlSi7Cu2					LM 27				ADC12
AlSi6Cu4Ni	S	EN AC-45000	AlSi6Cu4	SFS 2570		3.2151	225	LM 21		7369	A-S5U2	AC2B
HTC Alloy	D											

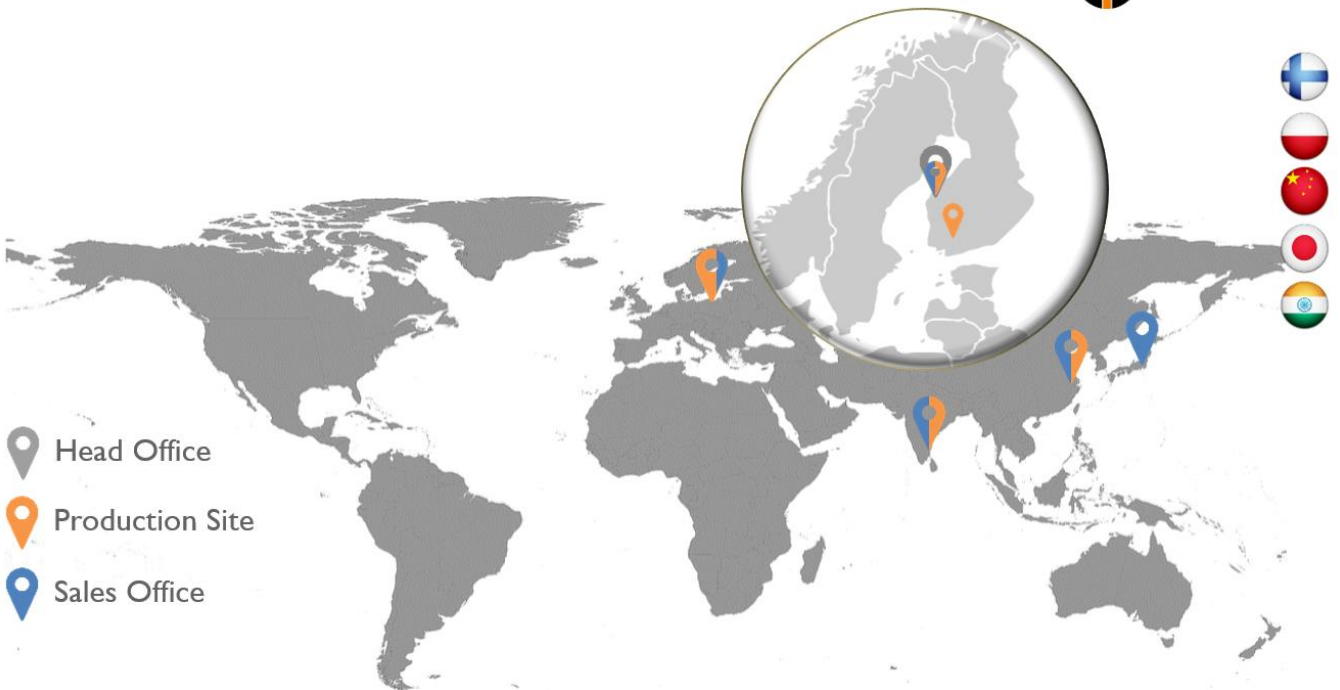


Comparison of Alteams casting methods

	Sand casting	Low pressure die casting	High pressure die casting
Weight of the casting, kg	0.1 - 800	1 - 70	0.05- 30
Annual volume, pcs	0.1 - 800	100 - 10 000	5 000 - 500 000
Pattern / mould cost	Relatively low	Moderate	Relatively high
Cost of changes	Low	Moderate	Relatively high
Flexibility of design	Very high	Relatively high	Relatively high
Minimun wall thickness, mm	4 - 6	3 - 4	0.8 - 1.5
Dimension accuracy	Fairly good	Good	Very good
Possible surface roughness, Ra	≥6.3 (12.3)	≥3.2	≥1.6 (0.8)
Casting alloys	AlSi10Mg AlSi7Mg AlSi9Cu2 AlSi7Cu2	AlSi10Mg AlSi12	AlSi9Cu3Fe AlSi12 AlSi10Mg AlSi10Cu2(Fe) HTC
Delivery time for samples, weeks	3 - 6	8 - 15	8 - 20
Special features	Heat-treatable Friction stir- weldable	Heat-treatable Friction stir- weldable	Heat-treatable Friction stir- weldable HTC
Alteams factory	Loppi (Finland)	Laihia (Finland)	Laihia (Finland) Lebork (Poland) Suzhou (China) Chennai (India)

Range of Alteams high pressure die casting machines (tons)





### HEAD OFFICE

Länsitie 61  
66400 Laihia, Finland  
Tel. +358 201 339 500  
[info@alteams.com](mailto:info@alteams.com)  
[www.alteams.com](http://www.alteams.com)

### FINLAND

Alteams Finland Oy, Laihia  
Länsitie 61  
66400 Laihia, Finland  
Tel. +358 201 339 500

Alteams Finland Oy, Loppi  
Valutie 2  
12700 Loppi, Finland  
Tel. +358 201 339 500

### CHINA

Alteams (Suzhou) Co. Ltd.  
No.388, Chao Hong Road  
215129 Suzhou New District, China  
Tel. +86 512 6665 8400

### POLAND

Alteams Poland Sp.  
z.o.o. ul. Abrahama 10  
84-300 Lebork, Poland  
Tel. +48 887 460 003

### INDIA

Ashley Alteams India Ltd.  
No.8, SIPCOT Industrial park  
Chellaperumpulimedu Village  
Sozhavaram Post  
Akkur (Via), Vembakkam Taluk  
Tamilnadu - 631 701, India  
Tel. +91 404182 675616  
[reachus@ashleyalteams.com](mailto:reachus@ashleyalteams.com)

### JAPAN

Alteams Japan K.K.  
[japansales@alteams.com](mailto:japansales@alteams.com)  
[www.alteams.co.jp](http://www.alteams.co.jp)