

AM INTERACTION DAYS

Morten Kollerup Bak

*Additive Manufacturing of casing for Vibration Sensor
(ViSeAM)*



EU Industry Week
#EUIndustryWeek
2021



FUTURE MATERIALS

NORWEGIAN
CATAPULT
CENTRE



AMable



European
Commission

Horizon 2020
European Union funding
for Research & Innovation

FUTURE MATERIALS

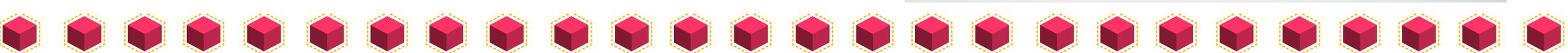
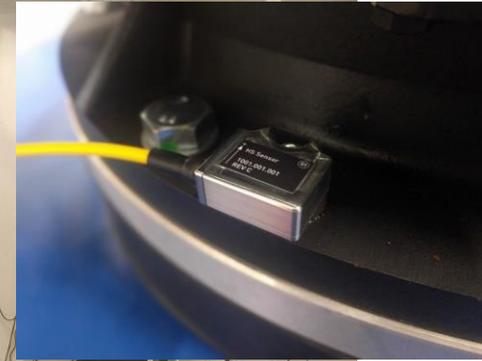
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Foresight Maritime

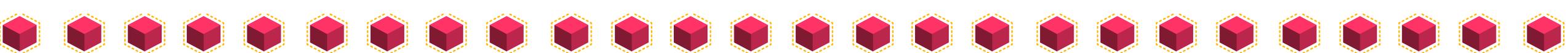
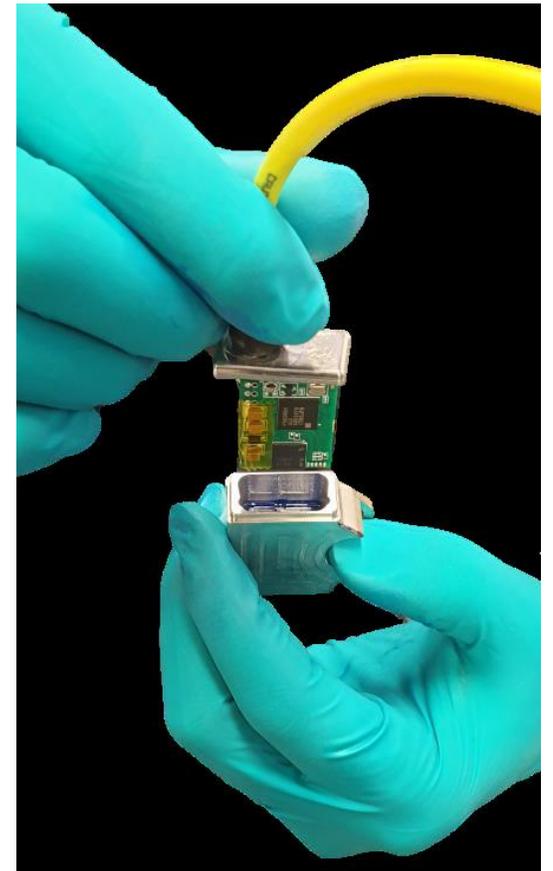


ARE YOU—
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— READY?



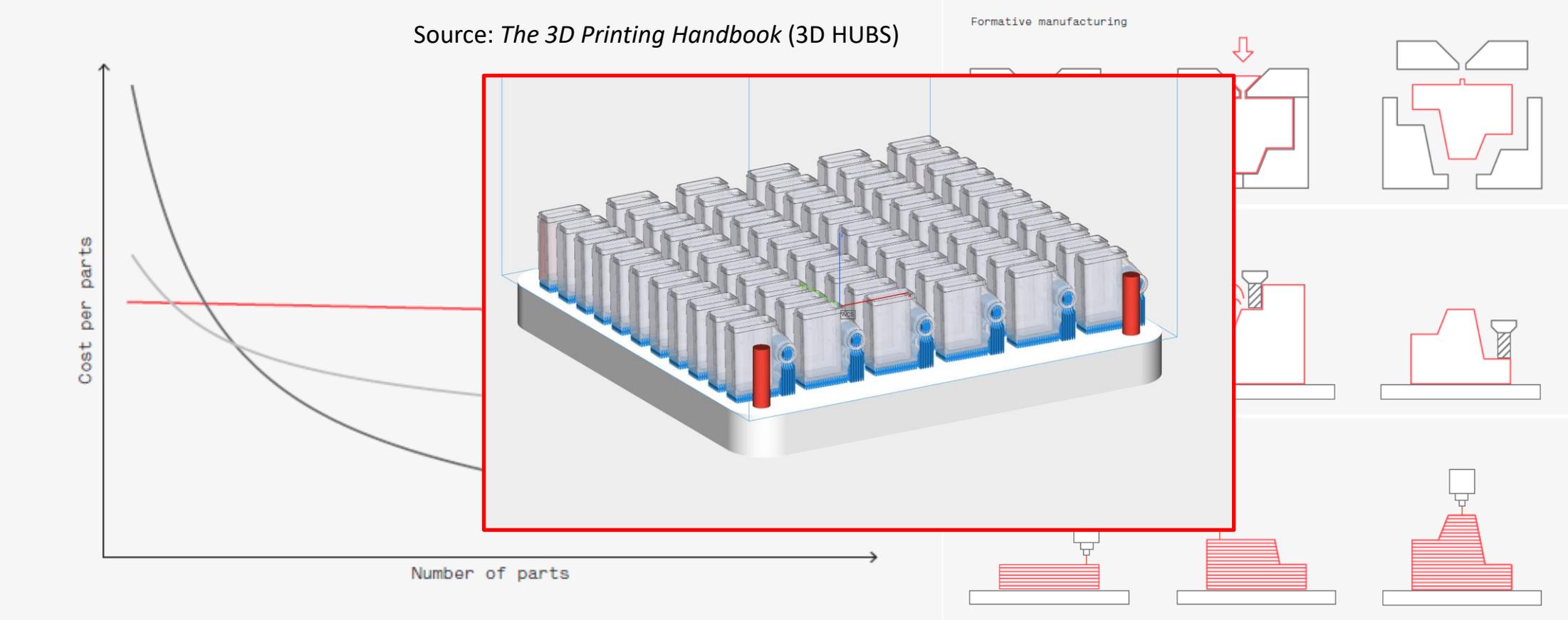
Vibration sensor (prev. gen.)

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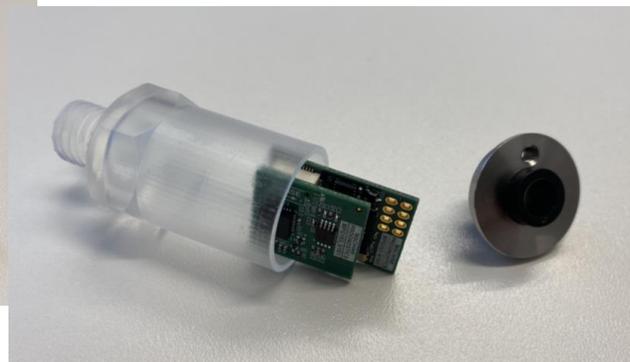
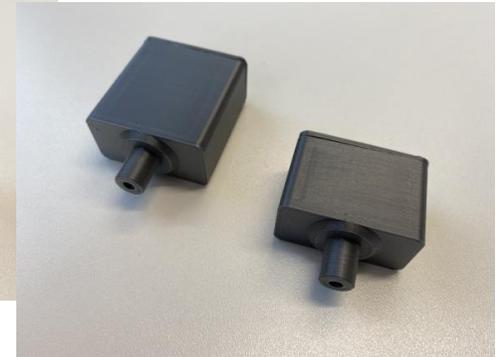
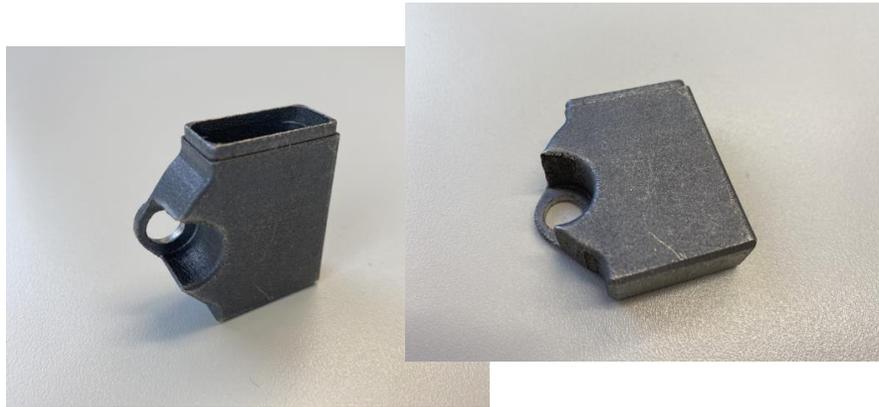
Why AM?

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Redesign

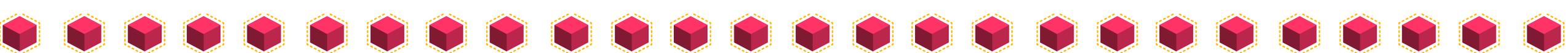
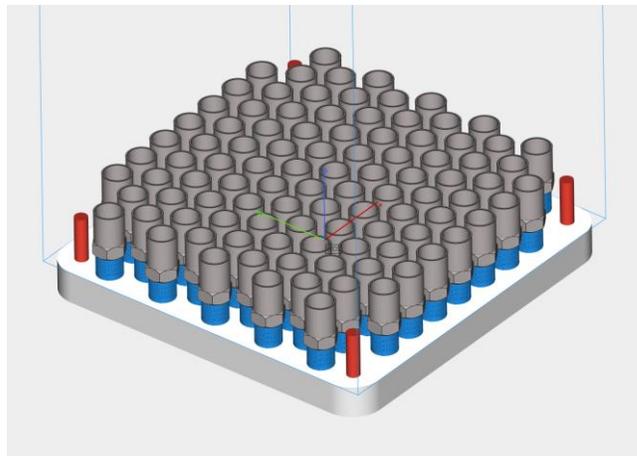
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AM-approach

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Technology:	Laser beam powder bed fusion / selective laser melting
Laser system:	Single 400 W fiber laser
Build volume (LxWxH):	280 mm x 280 mm x 365 mm
Layer height:	60 μ m
Material:	Stainless steel EN 1.4404 / AISI 316L <i>EN 1.4410 / SAF 2507 (superduplex)</i>
Parts pr. build:	100
Build time:	45 hours

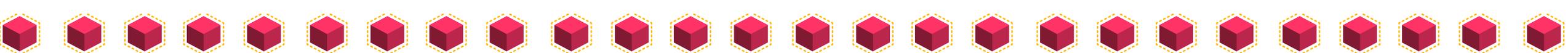
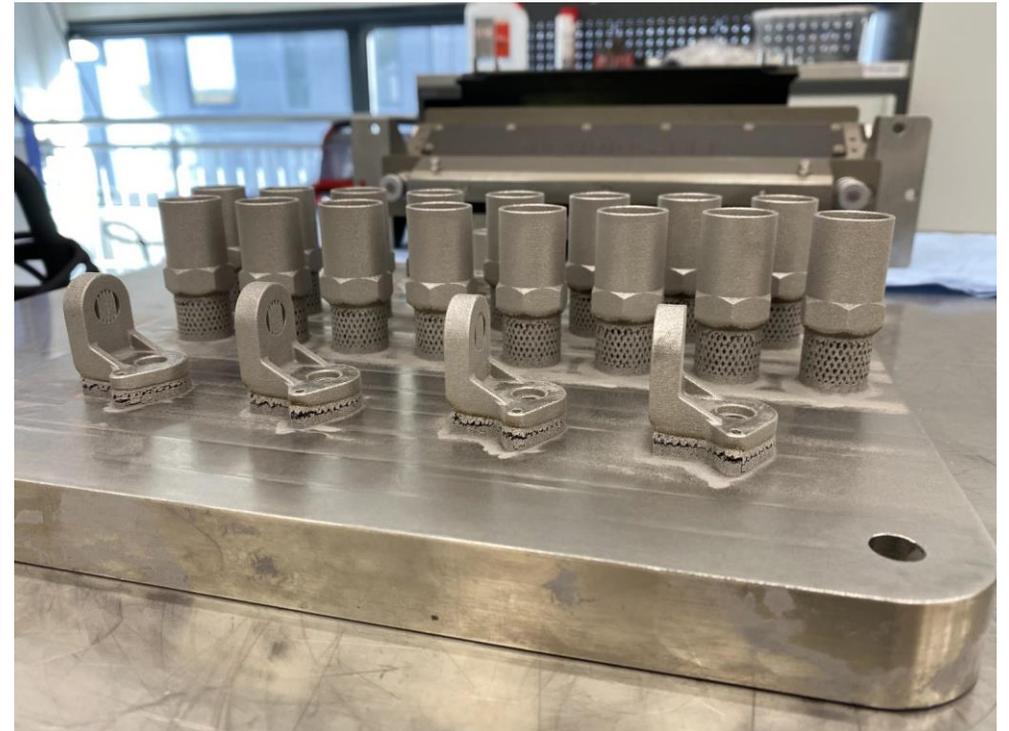


EN 1.4404 / AISI 316L

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EN 1.4410 / SAF 2507



Post processing

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Heat treatment (stress relief)

Support removal

Machining (threads, tolerances etc.)

Surface finishing



Manufacturing costs

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AM-approach	Cost pr. part (NOK)	Cost pr. part (EUR)
AM-build	263,-	24,-
Heat treatment	15,-	1,40
Surface finishing	10,-	0,90
Final machining	50,-	4,60
Total	338,-	31,-



Conventional	Cost pr. part (NOK)	Cost pr. part (EUR)
Machining (order of 100)	598,-	55,-
Machining (order of 1000)	568,-	52,-

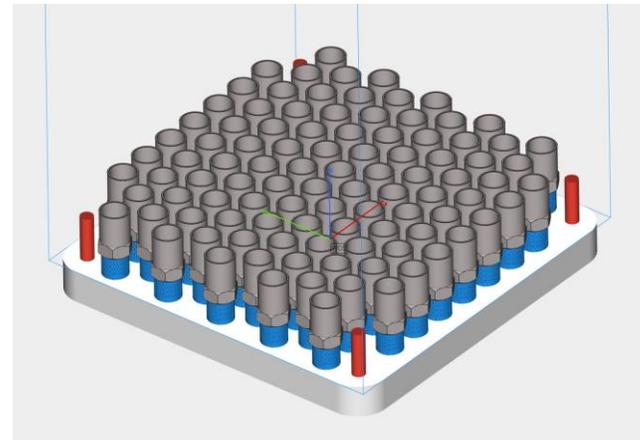
**Cost savings of 40-43 % compared to conventional manufacturing
(dependent on size of order)!!!**

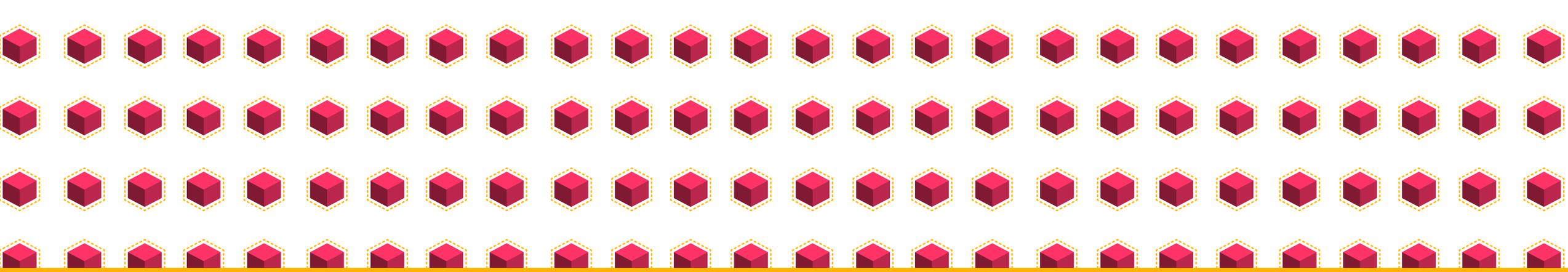


Achievements

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- Manufacturing costs reduced by 40-43 %
- Lead time reduced from 4 weeks to 2 weeks (for batch of 100)
- Enabled local manufacturing and simplified logistics
- Reduced material consumption and waste
- Reduced environmental impact
- No cost of (minor) design change
- ...





Thank you!



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