MECO MACHINES

ISF (Incremental Sheet Forming)

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3D ISF
(Incremental Sheet Forming)
is a sheet forming technology
that allows **metal parts in complex shapes to be manufactured quickly and simply.**

Unlike conventional processes, the main advantage of **ISF** is that it **does not require investment** into costly tools, such as dies.

ISF is based on two manufacturing concepts:

1. **3D incremental forming:** the part is formed as a result of slight deformations applied successively layer by layer through the CAM program.

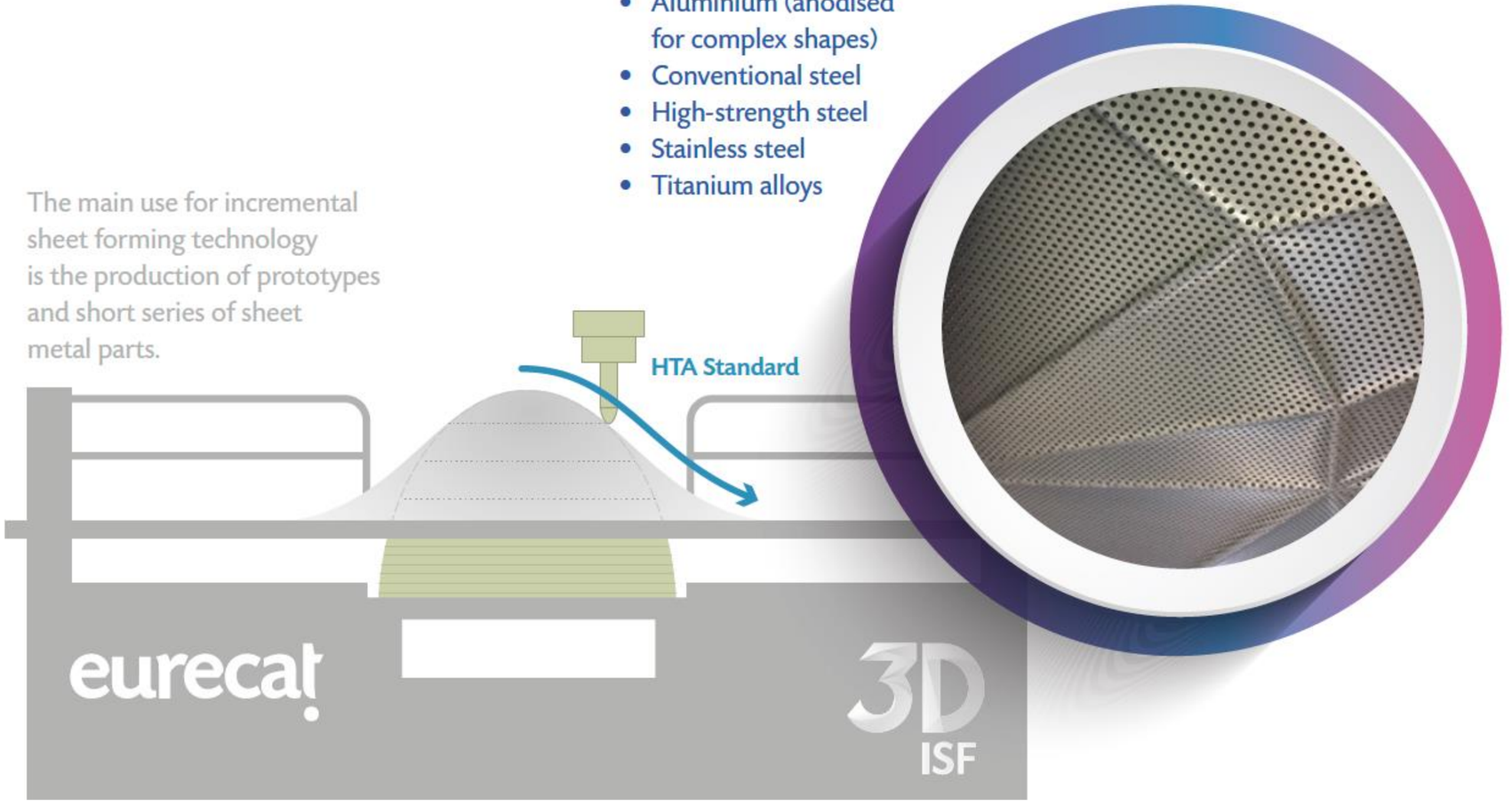
2. **Rapid manufacturing:** the part can be made directly from the 3D file, with no need to make tools, thus accelerating the production process like 3D additive manufacturing technologies.

ISF (Incremental Sheet Forming)

Work materials for ISF technology

- Aluminium (anodised for complex shapes)
- Conventional steel
- High-strength steel
- Stainless steel
- Titanium alloys

The main use for incremental sheet forming technology is the production of prototypes and short series of sheet metal parts.



ISF (Incremental Sheet Forming)

Eurecat offers an integral ISF technology service:

from prototype and short series manufacturing to complete transfer of technology to companies, involving a tailor-made Eurecat ISF machine to meet their manufacturing needs.

ISF technology is mainly aimed at:

- Deep drawing and stamping companies that make short series.
- Sheet metal transformation companies that work for companies that make products with a sheet metal shell or special vehicles, such as hearses, ambulances, tow trucks, coaches, etc.
- Sheet metal transformation companies that work for vehicle restorers.
- Composite component manufacturers that use RTM (resin transfer moulding). Durable moulds can be made.

ISF (Incremental Sheet Forming)

Part manufacturing services:

Part manufacturing service.
Use of Eurecat's machinery in Cerdanyola.

Specific services

- Prototypes
- Prototype series
- Short series (1-500 parts)
- Formability studies on ferrous and non-ferrous materials
- Part customisation (e.g. stamping + logo)

Dimensions (gantry machine)

Max. sheet size: 2100 x 1450 mm.

Max. forming area: 2000 x 1300 mm.

Max. forming depth: 500 mm.

Materials

	Material	Re [Mpa]	Rm [Mpa]	Thickness [mm]
Mild steel	St. 2 (1.0330)	300	400	0,5 - 2,5
	St. 4 (1.0338)	250	350	0,5 - 2,5
Galvanised steel	DX54D+Z 100	300	400	0,5 - 2,5
High-strength steels	DP450	450	600	1
	DP600	600	800	1,5
	DP750	750	1.000	1
Stainless steel	AISI 304	300	700	0,5 - 2
	AISI 316	350	650	0,5 - 2
Aluminium	1050	100	150	0,5 - 2
	5052	175	250	0,5 - 2
	5754	185	250	0,5 - 2
Titanium	CP4	280	350	1

ISF (Incremental Sheet Forming)

Part manufacturing services:

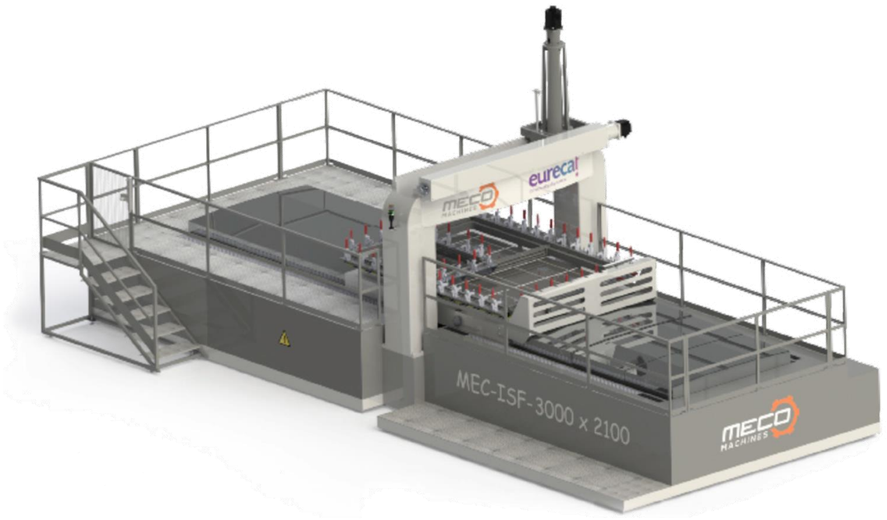
R+D lines
in incremental forming

- New incremental forming processes
- New materials
- Integration with other subsequent processes such as cutting and folding
- Specific applications

Manufacturing of ISF manchine.

Example of machine specifications

- General Dimensions (length, height and width): 10400 x 4700 x 4850 [mm]
- Working Area (length, height and width): 3000 x 2000 x 900 [mm]
- Maximum Load over table: 4500 kg
- Automatic Tool Changing: 7 tolos
- Maximum Forces: X: 40 kN, Y : 18 kN, Z: 18 kN, W: 25 kN
- Maximum Speed: X: 15 m/min, Y : 15 m/min, Z: 15 m/min, W: 2,3 m/min

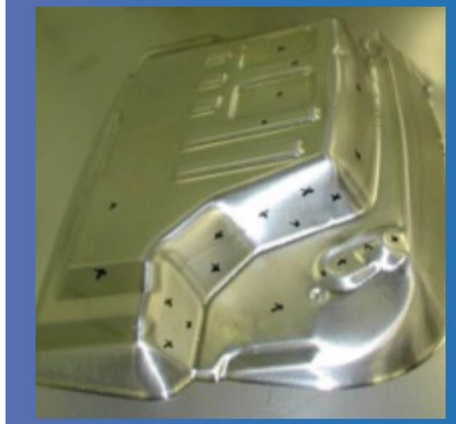


https://www.youtube.com/watch?v=hm0AFfIgWM4

ISF (Incremental Sheet Forming)

Examples of parts made with ISF technology

Complex shapes



Functional Prototypes



ISF (Incremental Sheet Forming)

Examples of parts made with ISF technology

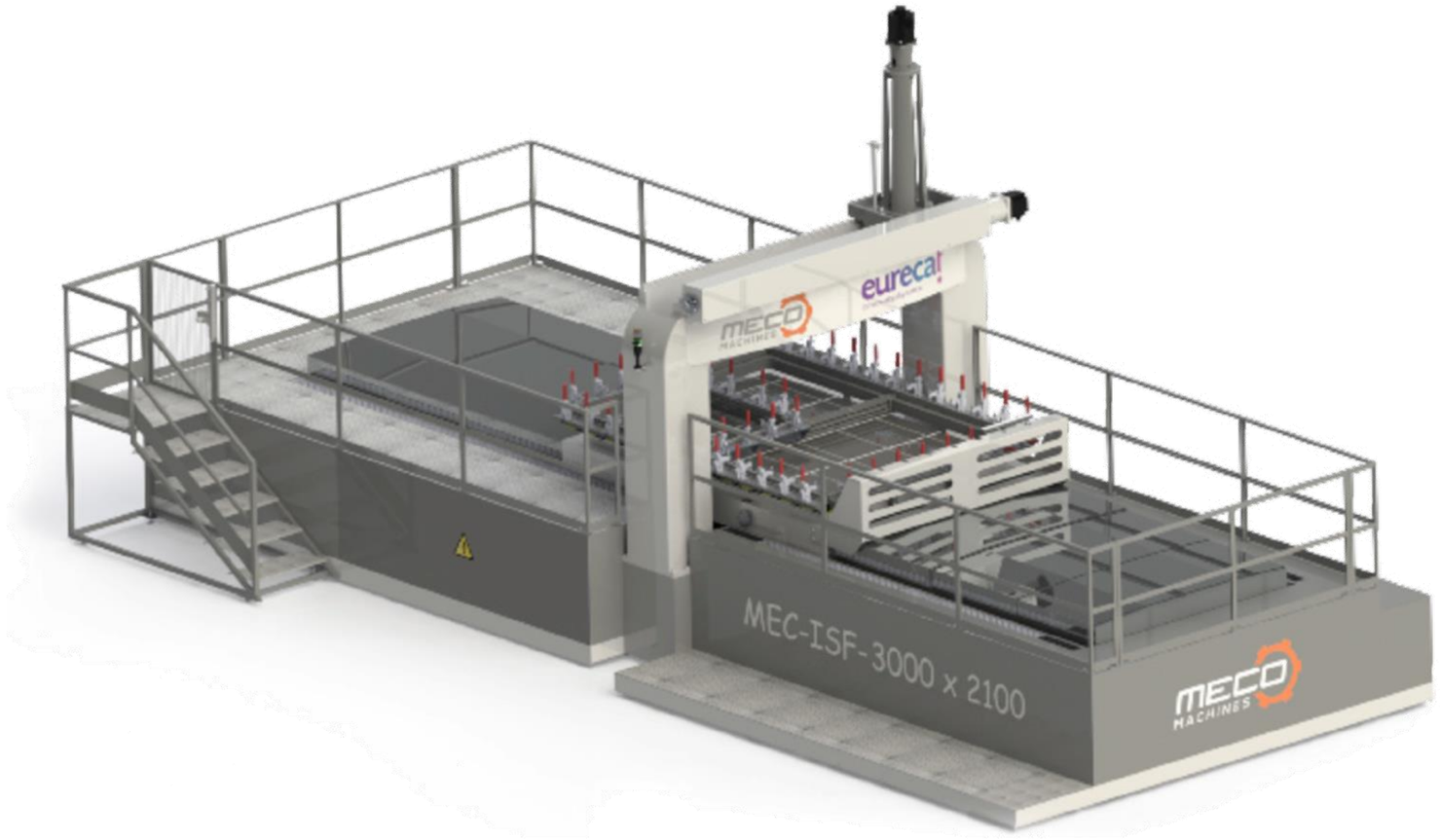
Final parts/production of short series

ISF (Incremental Sheet Forming)

We have over 10 years' experience in ISF technology.

We develop machinery that is adapted to the client's needs, using Eurecat's technology and expertise.

the biggest ISF machine in Spain.



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