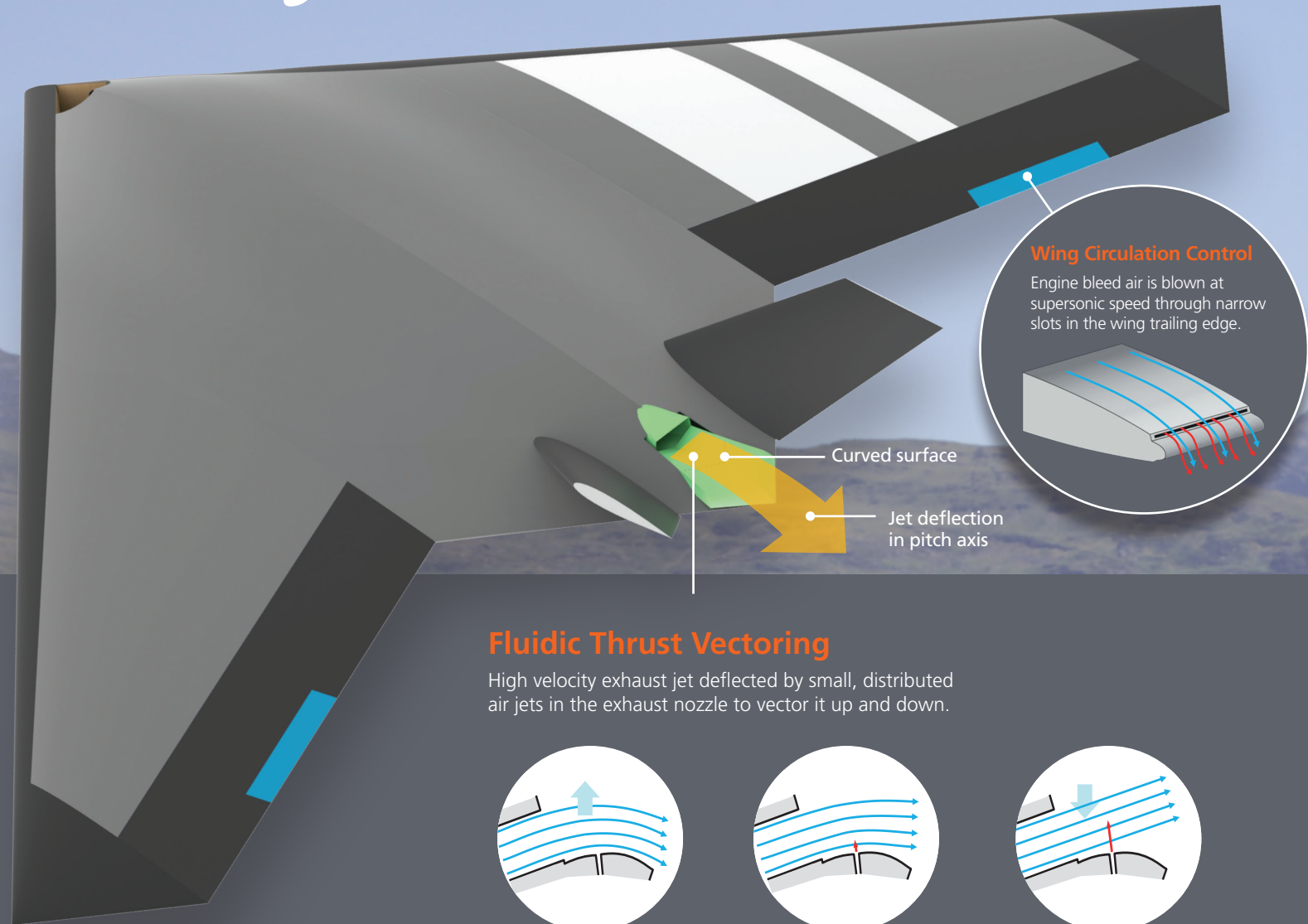


# Flap-free flight

In a first for aviation, an aircraft has flown using supersonically blown air to control its movement in flight.

MAGMA is an unmanned air vehicle (UAV) designed and built in collaboration with The University of Manchester to demonstrate novel control technologies.



## Adaptable Airframe

Removing the need for complex moving surfaces with a simpler 'blown air' solution, engineers could create future aircraft that are lighter, cheaper and better performing.

**BAE SYSTEMS**

Fully attached flow  
(no blowing, max. nose down  
thrust vectoring)

Partially attached flow  
(partial blowing, neutral  
thrust vectoring)

Fully detached flow (max.  
blowing, max. "nose up"  
thrust vectoring)