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INDUSTRIAL

Component

Core Insert for Plastic Injection Molding

Material

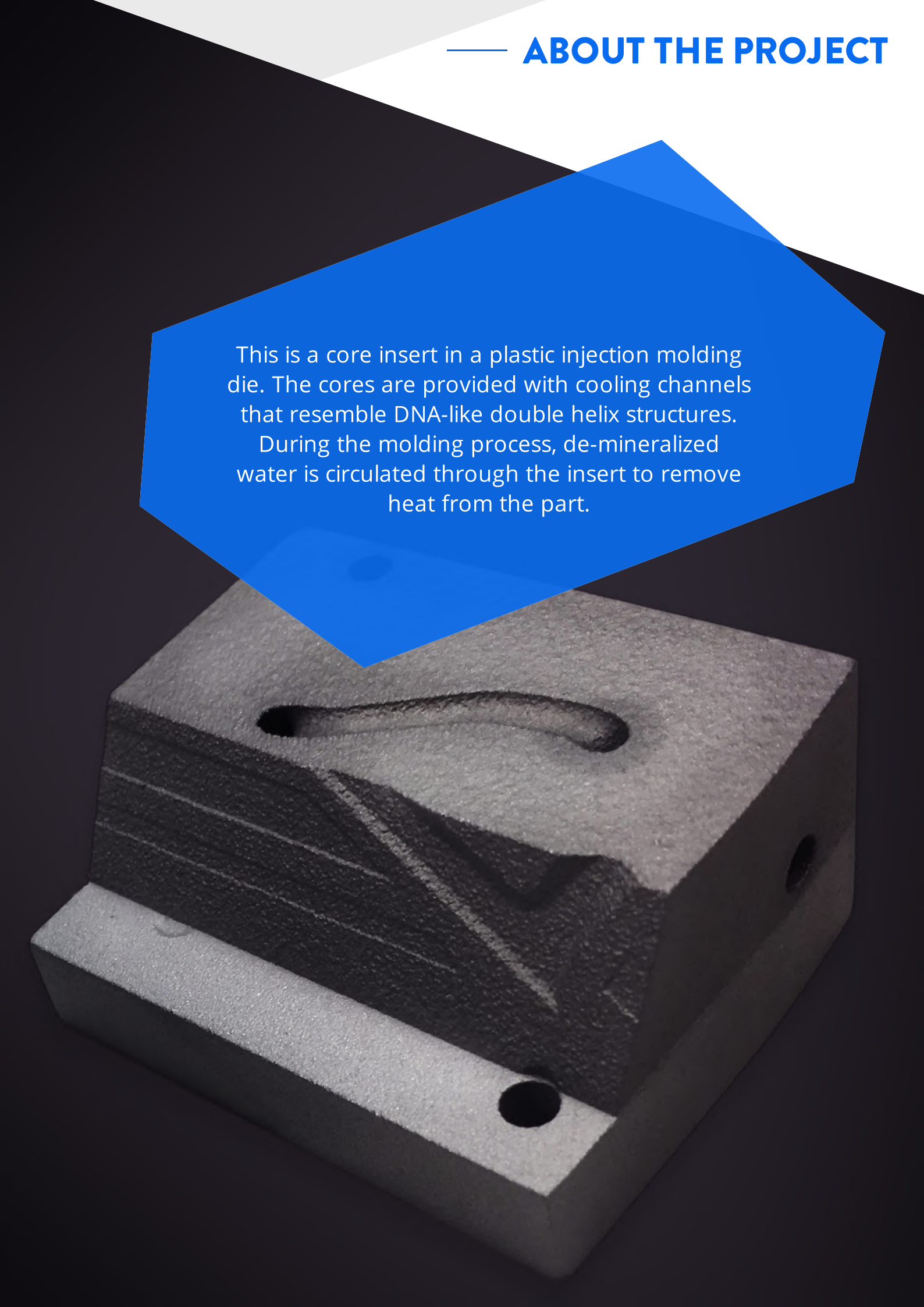
Maraging Steel

Engineering design, and therefore production of components in the industrial sector, is primarily decided by the technical capabilities of conventional manufacturing techniques that revolve around forming, joining, shaping, and so forth. Conventional techniques are also limited by aspects such as set up costs, time, minimum quantities that justify a business case, and geometry constraints imposed by conventional manufacturing.

In case of tooling inserts, complex forms and designs with integrated cooling or tempering channels can easily be improved upon—giving greater cooling efficiency, and thereby increasing the life of the insert, while at the same time enhancing the quality of the manufactured plastic components. The overall cost of using the technology is much lesser considering the set-up costs, rejection rates, and material usage inefficiency present in conventional methods.

ABOUT THE PROJECT

This is a core insert in a plastic injection molding die. The cores are provided with cooling channels that resemble DNA-like double helix structures. During the molding process, de-mineralized water is circulated through the insert to remove heat from the part.



AM COMPETENCIES USED

The helical cooling channels were achieved by WIPRO3D.

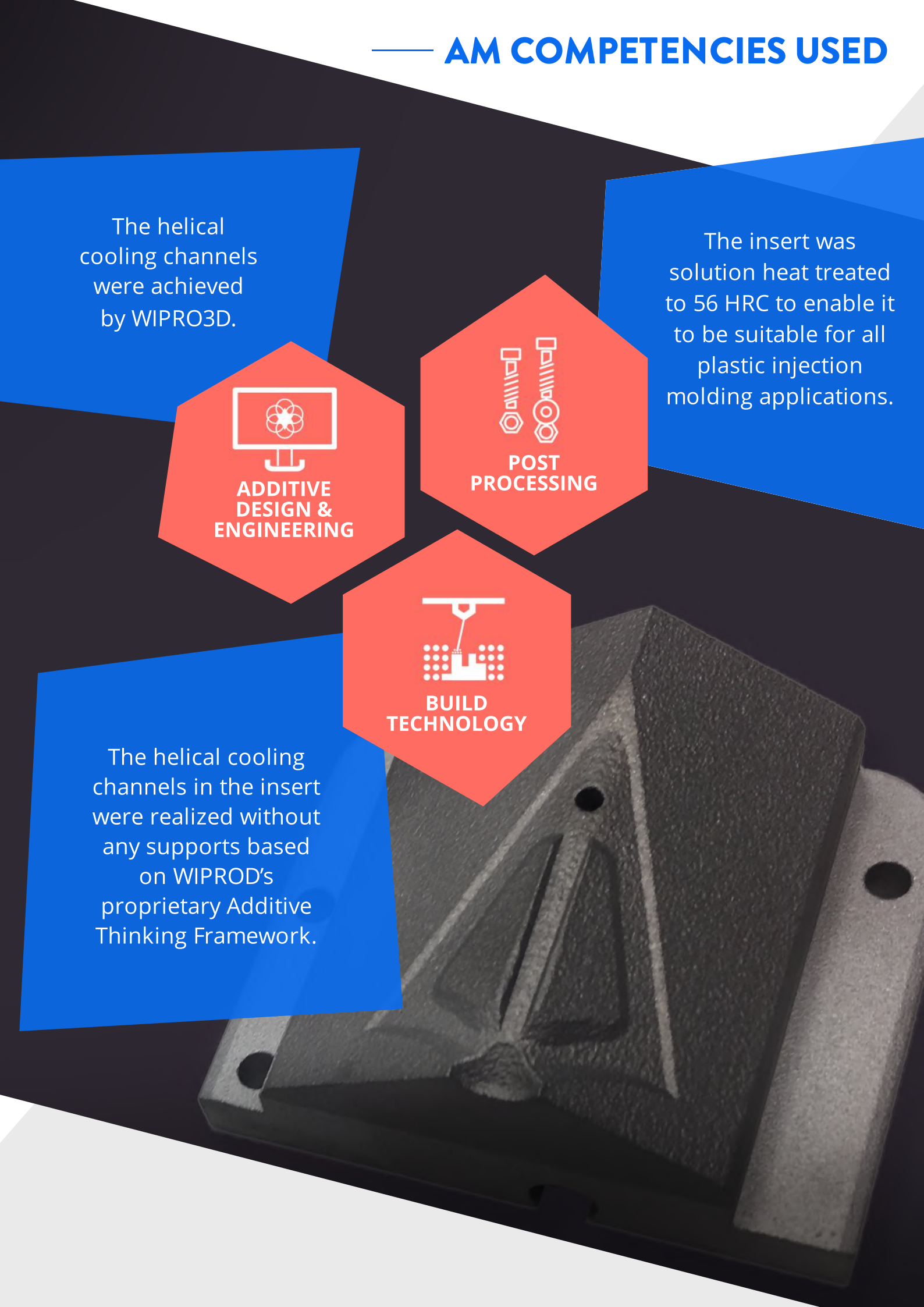
ADDITIVE DESIGN & ENGINEERING

POST PROCESSING

The insert was solution heat treated to 56 HRC to enable it to be suitable for all plastic injection molding applications.

BUILD TECHNOLOGY

The helical cooling channels in the insert were realized without any supports based on WIPROD's proprietary Additive Thinking Framework.



AM VALUE ADDITION

Owing to the helical cooling channels, the amount of water within it is maximized, resulting in faster cooling cycles, thus allowing more parts to be injection molded within the same time frame.

IMPROVED PERFORMANCE

FLEXIBLE PRODUCTION

The core insert can be manufactured as and when required avoiding the need for maintaining inventory.

About Wipro 3D

Wipro 3D is an AS9100 Certified metal AM solutions and services provider, serving Aerospace, Space, Defense, Industrial, Heavy Engineering, Automotive, Energy, Nuclear & Healthcare sectors. Our solutions include AM Consulting, Additive Engineering & Design Offerings, Manufacturing Services, Research & Development based solutions right unto Design - Deployment and Operation of captive metal AM centers.

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