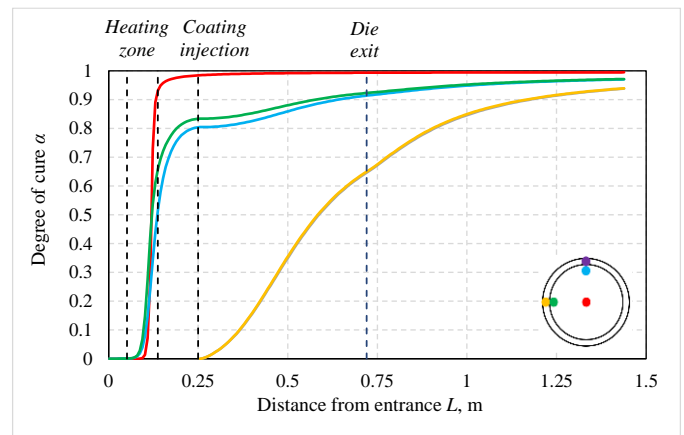
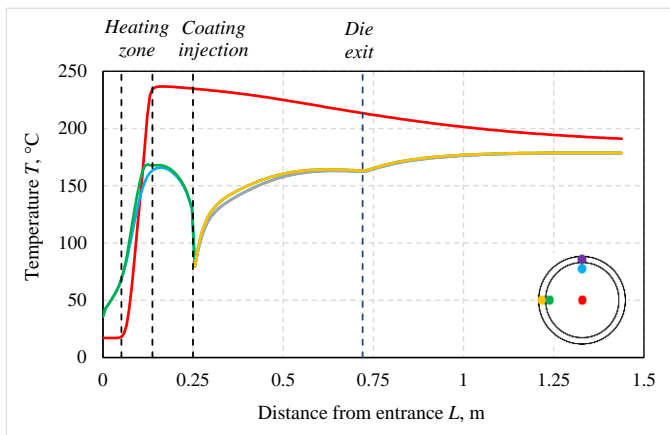
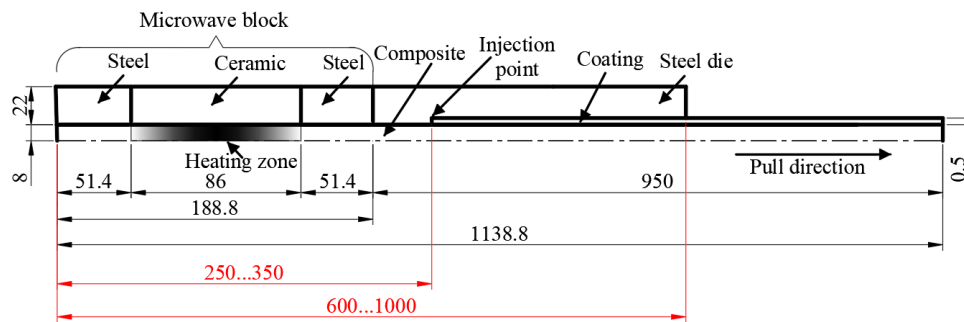


**Work stages:** Activity 3

**Milestone:** 10

**Milestone name:** Design rules (know-how) for advanced pultrusion processes

To reduce the number of production steps and by this way to decrease considerably the cost of coated profiles, in-line one-stage microwave assisted pultrusion process which is free of volatile organic compounds (VOCs) and small particles emissions has been developed. Design rules for a novel multi-functional die configuration determining the injection points, section dimensions and other parameters of microwave assisted pultrusion process has been formulated by using the results of parametric study and optimisation.



Process parameters	Minimisation of energy consumption	Maximisation of pull speed
Microwave power applied, kW	1.21	1.30
Pull speed, m/min	1.07	1.10
Multi-functional die length, m	0.72	0.77
Location of coating injection point, m	0.25	0.25
Energy consumption, W/m	18.9	19.7

High quality pultruded profiles with protective coatings providing specific properties to the composites, such as corrosion resistance in aggressive environments, fire resistance or improved surface properties will contribute to faster implementation of lightweight composite materials in different industrial sectors.

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