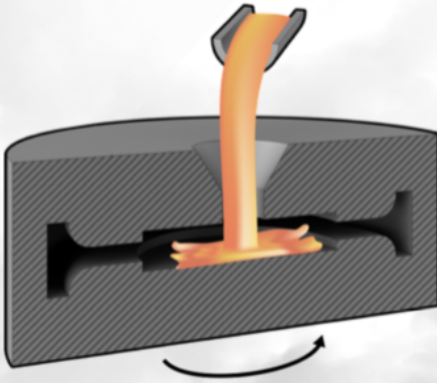


VULCANADO

CLAESSENS • HERBERT • KWAN • REED



"THE WORLD'S FIRST MODULAR CAVITY SPIN CASTER"



BACKGROUND

Spin casting allows for increased mould complexity due to the centrifugal force, allowing the molten casting compound to be pushed to the outermost extremities of the mold. The form factor generally results in moulds having multiple repeating cavities around a two-part cylindrical disk mould. Typically, these moulds are made from vulcanized rubber or steel.

PROBLEM STATEMENT

Spin casting requires the entire mould to be cast even if only one cavity is required. This leads to excessive setup and casting time when desired products are on different moulds. This also wastes virgin casting compound.

OBJECTIVES

To design a spin casting machine that:

- Reduces set-up time and waste
- Can cast A360 & A380 Aluminum
- Reduces Impurities

DESIGN SOLUTIONS

Modular Functionality:

Multiple interchangeable cavities

Material Selection:

Steel construction coated with Boron nitride

Vacuumed Pressure:

Removal of air from mould forces fluid into the cavity

SPECIFICATIONS

Speed Range: 400 - 900 RPM

Vacuum Pressure: (1) to (5) Bar

Max Mould Diameter: 9"

Dimensions: 15 x 19 x 15

Power: 1/4 HP

Voltage Requirements: 120V AC

Traditional Spincasting

Require: ★ x 3 ▲ x 1



Result: ★ x 4 ▲ x 4

Waste: ★ x 1 ▲ x 3

Modular Spin Casting

Require: ★ x 3 ▲ x 1



Result: ★ x 3 ▲ x 1

CONCLUSION

Through the incorporation of modular cavity design, the Vulcanado expands upon the capabilities of existing spin casters in terms of flexibility for both materials and mould setup. Ultimately, the innovative design improves the method's efficiency based on time and waste.

