



US 20220361369A1

(19) **United States**(12) **Patent Application Publication**

NGUYEN-XUAN et al.

(10) **Pub. No.: US 2022/0361369 A1**(43) **Pub. Date: Nov. 10, 2022**

(54) **COOLING-ELEMENT PART FOR A COOLING ELEMENT OF AN ELECTRICAL DRIVE UNIT WITH DROPLET-SHAPED PINS, COOLING ELEMENT, ELECTRICAL DRIVE UNIT AND MOTOR VEHICLE**

**Publication Classification**

(51) **Int. Cl.**  
**H05K 7/20** (2006.01)  
(52) **U.S. Cl.**  
**CPC ..... H05K 7/20272 (2013.01); H05K 7/20927 (2013.01)**

(71) Applicant: **Bayerische Motoren Werke Aktiengesellschaft**, Muenchen (DE)

(72) Inventors: **Thinh NGUYEN-XUAN**, Erding (DE);  
**Rene TREFFLER**, Augsburg (DE)

(21) Appl. No.: **17/737,749**

(22) Filed: **May 5, 2022**

**(30) Foreign Application Priority Data**

May 6, 2021 (DE) ..... 10 2021 111 826.3

**(57) ABSTRACT**

The invention relates to a cooling-element part for a cooling element for cooling at least one component of an electrical drive unit of a motor vehicle and can be joined together with a further cooling-element part to form at least one cooling-fluid-carrying cooling duct to the cooling element, and which has a cooling structure configured to increase a flow resistance for the cooling fluid by producing turbulences in the flow having pins that extend at least partially over a height of the cooling duct, wherein the pins are formed as droplet-shaped having a width that decreases in the direction of the flow of the cooling fluid.

