

MICROWAVE DRILLS FOR CONCRETE

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This paper describes the evolution of three prototypes developed recently for drilling into concrete, based on the microwave-drill concept [1-3]. The first, simplest microwave-drill prototype can drill holes of up to 4-mm diameter and 3 cm depth. It can be used also to insert nails and pins directly into concrete. The second prototype combines a slight mechanical rotation of the coaxial applicator, and is capable of drilling 12-mm diameter holes into 10-cm depth in concrete. The third, more robust prototype is developed to remove larger volumes of concrete. The paper describes the development process and its difficulties, and discusses the advantages (e.g. the silent operation) of the new technology versus its limitations (e.g. the radiation hazard), trying to evaluate its potential applicability.

REFERENCES

1. US Patent 6,114,676
2. E. Jerby, V. Dikhtyar, O. Aktushev, and U. Groszlick, "The Microwave Drill," *Science Magazine*, Vol. 298, pp. 587-589, Oct. 18, 2002.
3. For more information, see www.microwave-drill.com

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