

Title (en)

Ultrasonic transducer with astigmatic transmission-reception characteristics.

Title (de)

Ultraschallwandler mit astigmatischer Sende-/Empfangscharakteristik.

Title (fr)

Transducteurs à ultrasons avec une caractéristique d'émission et de réception astigmatique.

Publication

EP 0308931 B1 19931208 (DE)

Application

EP 88115593 A 19880922

Priority

DE 3732412 A 19870925

Abstract (en)

[origin: EP0308931A2] Transducer whose astigmatic directional characteristic is based on radially non-symmetrical rigidity or sound velocity of the material of the oscillating diaphragm (2) which consists of a fibre composite material. <IMAGE>

IPC 1-7

G10K 13/00

IPC 8 full level

H04R 17/00 (2006.01); **G10K 9/122** (2006.01); **G10K 13/00** (2006.01)

CPC (source: EP US)

G10K 9/122 (2013.01 - EP US); **G10K 13/00** (2013.01 - EP US)

Cited by

DE102012211011A1; FR2787674A1; CN110326039A; EP0393225A1; US11521587B2; WO2017089609A3; WO0178450A1; WO2018153712A1; WO2014000967A2

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DE FR GB IT

DOCDB simple family (publication)

EP 0308931 A2 19890329; EP 0308931 A3 19900321; EP 0308931 B1 19931208; DE 3732412 A1 19890413; DE 3886154 D1 19940120; JP H01119199 A 19890511; US 4907207 A 19900306

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EP 88115593 A 19880922; DE 3732412 A 19870925; DE 3886154 T 19880922; JP 23866288 A 19880922; US 24928188 A 19880926