

Title (en)

MINIATURE X-RAY TUBE WITH MICRO CATHODE

Title (de)

MINIATUR-RÖNTGENRÖHRE MIT MIKROKATHODE

Title (fr)

TUBE A RAYONS X MINIATURE MUNI D'UNE MICROKATHODE

Publication

**EP 1614135 A4 20100428 (EN)**

Application

**EP 04758417 A 20040326**

Priority

- US 2004009346 W 20040326
- US 39749003 A 20030326

Abstract (en)

[origin: WO2004088701A2] A miniature x-ray tube capable of intra vascular use, as for irradiating the interior wall of a blood vessel to prevent restenosis, as well as uses in other natural or surgically-created body cavities, has a micro cathode preferably formed by MEMS techniques. The very fine wire of the cathode filament is formed on a semiconductor base and draws a current sufficiently low that lead wires in a cathode heater circuit, passing through a probe line connected to the x-ray tube, can be very small wires, which helps maintain sufficient dielectric spacing in the high voltage circuit handled by the same probe line. In a preferred embodiment the probe line comprises a glass fiber, providing needed dielectric strength and allowing for a direct seal to the x-ray tube. The glass fiber is held at a small diameter to allow flexibility for navigating small-radius turns within the vessels. In a preferred embodiment the fiber is overcoated with a high-dielectric polymer to significantly increase the dielectric strength of the overall cable, without adding significantly to stiffness. The high voltage ground conductor is a coaxial sheath on the outside of the polymer. Exterior to the ground conductor is a further flexible layer having paths for coolant.

IPC 8 full level

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CPC (source: EP KR)

**A61B 6/00** (2013.01 - KR); **H01J 35/32** (2013.01 - EP); **H05G 1/02** (2013.01 - KR); **G02B 6/4298** (2013.01 - EP)

Citation (search report)

- [XYI] US 6134300 A 20001017 - TREBES JAMES E [US], et al
- [X] US 5955828 A 19990921 - SADWICK LAURENCE P [US], et al
- [YDA] US 6319188 B1 20011120 - LOVOI PAUL A [US]
- See references of WO 2004088701A2

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DOCDB simple family (publication)

**WO 2004088701 A2 20041014**; **WO 2004088701 A3 20050414**; EP 1614135 A2 20060111; EP 1614135 A4 20100428; JP 2007524959 A 20070830; KR 20060002871 A 20060109

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