

Title (en)  
PULSE TUBE COOLER

Title (de)  
SCHWINGROHRKÄLTEMASCHINE

Title (fr)  
RÉFRIGÉRATEUR À TUBE PULSÉ

Publication  
**EP 3004753 A2 20160413 (EN)**

Application  
**EP 14730968 A 20140606**

Priority  
• GB 201310111 A 20130606  
• GB 2014051753 W 20140606

Abstract (en)  
[origin: GB2514830A] A cold head 2 for a pulse tube cooler has a regenerator 4, a pulse tube 14, and a heat exchanger 10 connected therebetween. The heat exchanger connects between a first end 12 of the pulse tube and a second end 8 of the regenerator, and a first end of the regenerator 6 is connectable to a compressor. A phase control device is connected to a second end 16 of the pulse tube, and in use controls flow dynamics (e.g. the relative phases of the pressure and mass flow variations) within the pulse tube to provide cooling at the heat exchanger, thereby maintaining a negative temperature gradient between the first and second ends of the regenerator. The pulse tube has a wall 15 which has a porous portion 28 to for allowing a working gas to enter or leave the pulse tube directly through the porous portion, as indicated by arrows 30. The porous portion is nearer to being parallel than perpendicular to the temperature gradient between the first and second ends of the regenerator.

IPC 8 full level  
**F25B 9/14** (2006.01)

CPC (source: EP GB US)  
**F25B 9/145** (2013.01 - EP GB US); **F25B 2309/1406** (2013.01 - EP US); **F25B 2309/1412** (2013.01 - EP); **F25B 2309/1414** (2013.01 - EP GB US)

Citation (search report)  
See references of WO 2014195725A2

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**GB 201310111 D0 20130724; GB 2514830 A 20141210; GB 2514830 B 20160406**; EP 3004753 A2 20160413; EP 3004753 B1 20200902; US 2016131399 A1 20160512; WO 2014195725 A2 20141211; WO 2014195725 A3 20150409

DOCDB simple family (application)  
**GB 201310111 A 20130606**; EP 14730968 A 20140606; GB 2014051753 W 20140606; US 201414895709 A 20140606