

Title (en)  
Silencer with resonator

Title (de)  
Resonatorschalldämpfer

Title (fr)  
Silencieux à résonateur

Publication  
**EP 1400662 B1 20070808 (DE)**

Application  
**EP 03103301 A 20030905**

Priority  
DE 10243884 A 20020921

Abstract (en)  
[origin: EP1400662A1] The silencer consists of a sleeve (11) inserted in the exhaust pipe that has an integral Helmholtz resonator. This has a number of chambers (13) coupled by tapered orifices (12). The greater the included angle of the taper the thinner the wall section (s) of the sleeve tube for a required resonance frequency.

IPC 8 full level  
**F01N 1/02** (2006.01); **F02M 35/12** (2006.01); **F02B 37/00** (2006.01)

CPC (source: EP)  
**F01N 1/02** (2013.01); **F01N 1/023** (2013.01); **F02M 35/1216** (2013.01); **F02M 35/1261** (2013.01); **F02M 35/1266** (2013.01); **F01N 2450/18** (2013.01); **F01N 2450/22** (2013.01); **F01N 2450/28** (2013.01); **F01N 2450/40** (2013.01); **F01N 2470/04** (2013.01); **F01N 2470/24** (2013.01); **F01N 2490/155** (2013.01); **F01N 2530/00** (2013.01); **F01N 2530/18** (2013.01); **F02B 37/00** (2013.01)

Cited by  
DE102010020064A1; DE102010020064B4; CN107407484A; EP2534343A4; WO2016061604A1; US10712004B2; US11808187B2; EP2757235A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)  
**EP 1400662 A1 20040324; EP 1400662 B1 20070808**; AT E369485 T1 20070815; DE 10243884 A1 20040401; DE 50307856 D1 20070920

DOCDB simple family (application)  
**EP 03103301 A 20030905**; AT 03103301 T 20030905; DE 10243884 A 20020921; DE 50307856 T 20030905