

Title (en)

Heat exchanger using cyclones with a bottom exhaust gases tube

Title (de)

Wärmetauscher mit Zylklen mit nach unten herausgeführttem Tauchrohr

Title (fr)

Echangeur de chaleur à cyclones avec le tube d'échappement des gaz dirigé vers le bas

Publication

**EP 0578140 B1 19961016 (DE)**

Application

**EP 93110554 A 19930701**

Priority

DE 4222593 A 19920709

Abstract (en)

[origin: EP0578140A1] The invention relates to a multi-stage cyclone heat exchanger, in which the exhaust gas tube of the cyclone separators is guided to the outside through the lower part of the cyclone separators and is connected via an elbow to the connection pipe leading to the cyclone separator of the next stage, the cyclone separators of at least all the stages following the first stage in the direction of flow of the gas being arranged at approximately the same height. Such a heat exchanger is characterised by an especially low construction height.

IPC 1-7

**F28C 3/12; F27B 7/20; B04C 3/04; F27B 15/00**

IPC 8 full level

**B04C 3/04** (2006.01); **F27B 7/20** (2006.01); **F27B 15/00** (2006.01); **F28C 3/12** (2006.01)

CPC (source: EP)

**B04C 3/04** (2013.01); **F27B 7/2025** (2013.01); **F27B 15/003** (2013.01)

Designated contracting state (EPC)

BE CH DE DK ES FR GB IT LI PT

DOCDB simple family (publication)

**EP 0578140 A1 19940112; EP 0578140 B1 19961016**; DE 4222593 A1 19940113; DE 59304168 D1 19961121; DK 0578140 T3 19970324;  
ES 2092731 T3 19961201

DOCDB simple family (application)

**EP 93110554 A 19930701**; DE 4222593 A 19920709; DE 59304168 T 19930701; DK 93110554 T 19930701; ES 93110554 T 19930701