

Title (en)  
SHAPE OPTIMIZED HEADERS AND METHODS OF MANUFACTURE THEREOF

Title (de)  
FORMOPTIMIERTE KOPFTEILE UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)  
COLLECTEURS DE FORME OPTIMISÉE ET LEURS PROCÉDÉS DE FABRICATION

Publication  
**EP 2798269 A1 20141105 (EN)**

Application  
**EP 11813847 A 20111221**

Priority  
US 2011066425 W 20111221

Abstract (en)  
[origin: WO2013095424A1] Disclosed herein is a shape optimized header (200) comprising a shell (202) that is operative for collecting a fluid; wherein an internal diameter and/or a wall thickness of the shell vary with a change in pressure and/or a change in a fluid flow rate in the shell (202); and tubes (204); wherein the tubes (204) are in communication with the shell (202) and are operative to transfer fluid into the shell (202). Disclosed herein is a method comprising fixedly attaching tubes to a shell; wherein the shell is operative for collecting a fluid; wherein an internal diameter and/or a wall thickness of the shell vary with a change in pressure and/or a change in a fluid flow rate in the shell; and wherein the tubes are in communication with the shell and are operative to transfer fluid into the shell.

IPC 8 full level  
**F22B 37/22** (2006.01); **F16L 41/08** (2006.01); **F28F 9/02** (2006.01)

CPC (source: EP KR)  
**F16L 41/08** (2013.01 - KR); **F22B 37/22** (2013.01 - EP); **F28F 9/00** (2013.01 - KR); **F28F 9/02** (2013.01 - KR); **F28F 9/0243** (2013.01 - EP); **F28F 9/0263** (2013.01 - EP)

Citation (search report)  
See references of WO 2013095424A1

Citation (examination)  
• CH 156669 A 19320815 - KOHLER CONRAD [CH]  
• DE 3310236 A1 19840927 - AUTOKUEHLER GES MBH [DE]  
• HANS JUNG: "Über die Berechnung von Druck-Hohlkörpern", CHEMIE-INGENIEUR-TECHNIK, vol. 32, no. 12, 1 December 1960 (1960-12-01), pages 816 - 819, XP055525501

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

DOCDB simple family (publication)  
**WO 2013095424 A1 20130627**; CN 104024731 A 20140903; CN 104024731 B 20170118; EP 2798269 A1 20141105; JP 2015507164 A 20150305; JP 6209531 B2 20171004; KR 101736559 B1 20170516; KR 20140103334 A 20140826; ZA 201403568 B 20151223

DOCDB simple family (application)  
**US 2011066425 W 20111221**; CN 201180075748 A 20111221; EP 11813847 A 20111221; JP 2014548756 A 20111221; KR 20147019608 A 20111221; ZA 201403568 A 20140516