

Title (en)

WATER CIRCULATION MODULE AND HOT WATER SYSTEM USING THE SAME

Title (de)

WASSERKREISLAUFMODUL UND WARMWASSERSYSTEM MIT VERWENDUNG DAVON

Title (fr)

MODULE DE CIRCULATION D'EAU ET SYSTÈME D'EAU CHAUDE L'UTILISANT

Publication

**EP 3333493 A1 20180613 (EN)**

Application

**EP 17205702 A 20171206**

Priority

- CN 201611194663 A 20161212
- CN 201720770743 U 20170615

Abstract (en)

The present invention discloses a water circulation module adapted to be installed in a hot water system including a water heating appliance having an water inlet and a water outlet, a cold water pipeline in communication with the water inlet, and a hot water pipeline in communication with the water outlet. The water circulation module is disposed outside the water heating appliance and connected between the hot water pipeline and the cold water pipeline, so as to selectively establish a water circulation path between itself and the water heating appliance and thereby heating cold water in the water circulation path. The water circulation module includes a main waterway, a temperature sensing device associated with the main waterway for detecting temperature of water within the main waterway, and a water pump disposed in the main waterway for being started or stopped in accordance with the water temperature detected by the temperature sensing device. In this way, the water circulation module is able to determine to start or stop the preheating circulation by itself and control the preheating circulation of the water consuming system where it locates individually.

IPC 8 full level

**F24D 17/00** (2006.01); **E03B 7/04** (2006.01)

CPC (source: EP)

**E03B 7/045** (2013.01); **F24D 17/0078** (2013.01)

Citation (applicant)

- CN 105299875 A 20160203 - VAILLANT WUXI HEATING EQUIPMENT CO LTD
- CN 205332549 U 20160622 - A O SMITH CHINA WATER HEATER CO LTD

Citation (search report)

- [XAI] EP 2554919 A1 20130206 - CUERVO-ARANGO Y DE CACHAVERA ALFONSO [ES]
- [XAI] CN 201476168 U 20100519 - CHINA SOUTHWEST ARCHITECTURAL DESIGN & RES INST CO LTD
- [XAI] FR 2992986 A1 20140110 - PUJEOLLE THIERRY FRANCIS JEAN [FR]
- [XAI] US 2008223451 A1 20080918 - ACKER LARRY K [US]

Cited by

CN109084042A; CN111397200A; CN111374547A; CN115451453A; CN113693535A; CN110440451A; CN113849024A; CN113325250A; CN114963499A; CN112412369A; CN113465015A; CN109339156A

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)

**EP 3333493 A1 20180613**; **EP 3333493 B1 20200610**; ES 2814450 T3 20210329

DOCDB simple family (application)

**EP 17205702 A 20171206**; ES 17205702 T 20171206