Title (en)
METHOD FOR MANUFACTURING PLUNGER PUMP AND PLUNGER PUMP

Title (de)
VERFAHREN ZUR HERSTELLUNG EINER KOLBENPUMPE SOWIE KOLBENPUMPE

Title (fr)
PROCÉDÉ POUR FABRIQUER UNE POMPE À PLONGEUR ET POMPE À PLONGEUR

Publication
EP 3943748 A4 20221102 (EN)

Application
EP 20777597 A 20200316

Priority
- JP 2019055719 A 20190322
- JP 2020011513 W 20200316

Abstract (en)
[origin: EP3943748A1] A method of manufacturing a plunger pump includes a temperature difference generation process of generating a difference in temperature with respect to a normal temperature state for either one of an outer cylinder or an inner cylinder, a cylinder insertion process of inserting the inner cylinder inside the outer cylinder in a state in which the inner cylinder has a smaller outer diameter than an inner diameter of the outer cylinder as a result of the temperature difference generated by the temperature difference generation process, an elimination process of eliminating the generated temperature difference, and a plunger placement process of placing a circular tube-shaped plunger in a pressure chamber of the inner cylinder so as to enable of reciprocating motion by the plunger.

IPC 8 full level
F04B 15/02 (2006.01); **F04B 53/16** (2006.01)

CPC (source: EP US)
B21D 39/046 (2013.01 - US); **F04B 15/02** (2013.01 - EP); **F04B 19/22** (2013.01 - US); **F04B 53/14** (2013.01 - EP); **F04B 53/166** (2013.01 - EP); **F04B 53/168** (2013.01 - EP)

Citation (search report)
- [XI] US 2013327212 A1 20131212 - FICHT REINHOLD [DE]
- [X] US 2018135622 A1 20180517 - BEAN SUNIL J [US], et al
- [A] DE 4301126 A1 19940721 - DANFOSS AS [DK]
- See references of WO 2020196047A1

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)
EP 3943748 A1 20220126; **EP 3943748 A4 20221102**; CN 113614370 A 20211105; CN 113614370 B 20231128; JP 2020153360 A 20200924; JP 7386499 B2 20231127; US 2022193751 A1 20220623; WO 2020196047 A1 20201001

DOCDB simple family (application)
EP 20777597 A 20200316; CN 202080022874 A 20200316; JP 2019055719 A 20190322; JP 2020011513 W 20200316; US 202017440348 A 20200316