

Title (en)

Pre-nozzle for a propulsion system of a water vehicle for improving energy efficiency

Title (de)

Vordüse für ein Antriebssystem eines Wasserfahrzeuges zur Verbesserung der Energieeffizienz

Title (fr)

Pré-buse pour propulsion de véhicule nautique afin d'améliorer l'efficience énergétique

Publication

**EP 2597030 A3 20130807 (DE)**

Application

**EP 13156118 A 20110712**

Priority

- DE 202011000439 U 20110225
- EP 11173670 A 20110712

Abstract (en)

[origin: EP2492185A1] The front-nozzle (10a) has a water inlet opening and a water outlet opening, where a fin system is arranged within the front-nozzle. An inlet region of the front-nozzle is provided without fin system. The front-nozzle is formed in a rotationally asymmetric manner. A water-inlet-side opening area (19) of the front-nozzle is greater than a water-inlet-side opening area of a rotationally symmetrical front-nozzle with the same center radius.

IPC 8 full level

**B63H 1/28** (2006.01); **B63H 5/16** (2006.01)

CPC (source: EP KR US)

**B63H 1/28** (2013.01 - EP KR US); **B63H 5/16** (2013.01 - EP KR US)

Citation (search report)

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- [Y] KR 20080055615 A 20080619 - UNIVERSAL SHIPBUILDING CORP [JP]
- [Y] EP 2100808 A1 20090916 - BECKER MARINE SYS GMBH & CO KG [DE]
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CN104002950A

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

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**EP 2492185 A1 20120829; EP 2492185 B1 20140402**; CA 2769332 A1 20120825; CA 2769332 C 20150602; CN 102673760 A 20120919; CN 102673760 B 20150722; CN 104309791 A 20150128; CN 104309791 B 20170609; CN 104648641 A 20150527; CN 104648641 B 20170912; CN 104648642 A 20150527; CN 104648642 B 20170728; DE 202011000439 U1 20120821; DE 202011110549 U1 20140725; DE 202011110550 U1 20140725; DK 2492185 T3 20140707; DK 2597029 T3 20160919; DK 2597030 T3 20171113; EP 2597029 A2 20130529; EP 2597029 A3 20130710; EP 2597029 B1 20160608; EP 2597030 A2 20130529; EP 2597030 A3 20130807; EP 2597030 B1 20170802; ES 2475994 T3 20140711; ES 2590044 T3 20161117; ES 2645399 T3 20171205; HK 1172301 A1 20130419; HK 1182675 A1 20131206; HK 1205077 A1 20151211; HR P20140573 T1 20140801; HR P20161152 T1 20161118; HR P20171654 T1 20171215; JP 2012180085 A 20120920; JP 2014111458 A 20140619; JP 2015057348 A 20150326; JP 5676506 B2 20150225; JP 6212027 B2 20171011; KR 20120098514 A 20120905; KR 20150003446 U 20150916; KR 20150116806 A 20151016; KR 20150120897 A 20151028; NO 2903476 T3 20180303; PL 2492185 T3 20140930; PL 2597029 T3 20161230; PL 2597030 T3 20180228; PT 2492185 E 20140711; PT 2597030 T 20171113; SG 10201400515X A 20140529; SG 183644 A1 20120927; TW 201242841 A 20121101; TW 201512036 A 20150401; TW 201512037 A 20150401; TW I498253 B 20150901; TW I583597 B 20170521; TW I583598 B 20170521; US 2013059491 A1 20130307; US 8944869 B2 20150203

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**EP 11173670 A 20110712**; CA 2769332 A 20120224; CN 201210047950 A 20120227; CN 201410461109 A 20120227; CN 201510064031 A 20120227; CN 201510065092 A 20120227; DE 202011000439 U 20110225; DE 202011110549 U 20110712; DE 202011110550 U 20110712; DK 11173670 T 20110712; DK 13156115 T 20110712; DK 13156118 T 20110712; EP 13156115 A 20110712; EP 13156118 A 20110712; ES 11173670 T 20110712; ES 13156115 T 20110712; ES 13156118 T 20110712; HK 12113114 A 20121219; HK 13109490 A 20130813; HK 15105963 A 20150623; HR P20140573 T 20140618; HR P20161152 T 20160907; HR P20171654 T 20171030; JP 2012039530 A 20120227; JP 2014059887 A 20140324; JP 2014262445 A 20141225; KR 20120019839 A 20120227; KR 20150005913 U 20150904; KR 20150127781 A 20150909; KR 20150135562 A 20150924; NO 13783466 A 20130731; PL 11173670 T 20110712; PL 13156115 T 20110712; PL 13156118 T 20110712; PT 11173670 T 20110712; PT 13156118 T 20110712; SG 10201400515X A 20120222; SG 2012012357 A 20120222; TW 101106222 A 20120224; TW 103145726 A 20120224; TW 103145728 A 20120224; US 201213403586 A 20120223