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SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:
EP 21 82 13 80

Classification of the application (IPC):
A61M 25/085*, *A61B 17/12*, *A61M 5/14*, *A61M 60/13*, *A61M 60/135*, *A61M 60/237*, *A61M 60/30*, *A61M 60/804*, *A61M 60/81*, *A61M 60/861*, *A61M 25/04*, *A61M 27/00

Technical fields searched (IPC):
A61M

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
Y	US 9433713 B2 (ABIOMED INC [US]) 06 September 2016 (2016-09-06) * the pump housing component 102 is electropolished.modified index of hemolysis (MIH);figures 1,8,9 *	1-15
Y	US 10514044 B2 (HERAEUS DEUTSCHLAND GMBH & CO KG [DE]) 24 December 2019 (2019-12-24) * a roughness within a range from 0.025 to 4 Ra;column 5, lines 8-12 *	1-15
Y	US 2017049944 A1 (KINOSHITA HISA [JP] ET AL) 23 February 2017 (2017-02-23) * arithmetic average roughness (Ra) of the first sliding surface 14 and the second sliding surface 24 is ..., for example, 0.05 [mu]m to 0.10 [mu]m. *50-100 nanometers*;paragraph [0102]; figure 3 *	1-15
Y	WO 2019180179 A1 (ABIOMED EUROPE GMBH [DE]) 26 September 2019 (2019-09-26) * surfaces .. radial sliding bearing .. a surface roughness of 0.1 pm or less.;page 7, lines 15-17 * * radial sliding bearing 31; tubular pump housing 32;page 11, lines 27-28; figure 3 *	1-15
Y	WO 2019113541 A1 (JARVIK HEART INC [US]) 13 June 2019 (2019-06-13) * All surfaces of the complete pump rotor assembly are then polished to a mirror finish.;page 7, paragraph 2 *	1-15
Y	US 2019105436 A1 (UCHIDA MASAMI [JP]) 11 April 2019 (2019-04-11) * " ..a mirror finish is applied to the approximately horizontal surface 111 of the base body 110."; "... a value of Ra (arithmetic average roughness) be approximately 1.0 or less, and it is more preferable that a value of Ra (arithmetic average roughness) be approximately 0.2 or less."; ".. , blood minimally adheres to the surface whereby the generation of a thrombus by a congest can be further effectively prevented.";paragraph [0214] *	1-15

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
The Hague	10 April 2024	Van Veen, Jennifer

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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A: technological background
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DOCUMENTS CONSIDERED TO BE RELEVANT		
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Y	WO 2012036238 A1 (TERUMO CORP [JP]; NAGATA SEIKI KK [JP] ET AL.) 22 March 2012 (2012-03-22) * manufacturing a medical device; blood pump device with dynamic pressure grooves; reducing platelet adhesion; electron beam irradiation; ". The measured surface roughness was distance: 149.00 [mu]m, Ra: 0.055 [mu]m (*55 nm*), Ry: 0.290 [mu]m, Rz: 0.262 [mu]m." *	1-15
Y	EP 0629412 A2 (SUN MED TECH RES CORP [JP]; SEIKO EPSON CORP [JP]) 21 December 1994 (1994-12-21) * "maximum roughness of about 0.1 micron. ";column 10, lines 10-15; figures 8,9 *	1-15
Y	WO 2008106103 A2 (HEARTWARE INC [US]) 04 September 2008 (2008-09-04) * housing 12 .. a surface roughness of about 4 micro inches or less.;page 6, lines 36-39; figures 1-3 * * rotor 56 ... a surface roughness of about 4 micro inches or less. .. electropolishing or drag polishing;paragraph [0049] *	1-15

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search	Date of completion of the search	Examiner
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For more details about this annex: see Official Journal of the European Patent Office, No. 12/82

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