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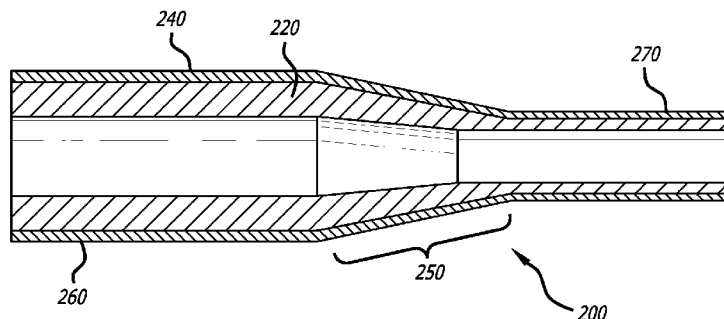
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- with international search report (Art. 21(3))
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16 June 2011

(54) **Title:** ROBUST CATHETER TUBING COMPRISING NYLON

**FIG. 7**



(57) **Abstract:** A balloon catheter having a multilayer catheter shaft is formed to have an inner layer and an outer layer, where the inner layer and outer layer are selected from materials that enhance the pushability of the catheter while preserving the flexibility. Using a combination of a high Shore D durometer value material and a lower Shore D durometer value material, various combinations of multilayer catheter shafts are disclosed utilizing different glass transition temperatures and block copolyamides to obtain the desired characteristics.



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# INTERNATIONAL SEARCH REPORT

International application No  
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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. A61L29/06      A61L29/08 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) A61L A61M		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  EPO-Internal, WPI Data		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/262470 A1 (LEE JEONG S [US] ET AL) 23 October 2008 (2008-10-23) claims	1-19
A	----- EP 0 962 227 A1 (TERUMO CORP [JP]) 8 December 1999 (1999-12-08) examples 6,8-9	1-19
A	----- US 2007/060863 A1 (GOEKEN KARA [US] ET AL) 15 March 2007 (2007-03-15) examples; paragraph [0046] - paragraph [0051]	1-19
A	----- US 2007/240817 A1 (STRONG JEFFERY J [US] ET AL STRONG JEFFREY JOHN [US] ET AL) 18 October 2007 (2007-10-18) paragraph [0040] - paragraph [0043]; claims 28-31 ----- -/--	1-19
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family	
Date of the actual completion of the international search  <p style="text-align: center; font-size: large;">19 April 2011</p>	Date of mailing of the international search report  <p style="text-align: center; font-size: large;">28/04/2011</p>	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  <p style="text-align: center; font-size: large;">Messemanne, Jasmine</p>	

**INTERNATIONAL SEARCH REPORT**

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/131445 A1 (HOLMAN THOMAS J [US] ET AL) 16 June 2005 (2005-06-16) claims; paragraph [0048] - paragraph [0049] -----	20-32
A	US 6 071 266 A (KELLEY DONALD W [US]) 6 June 2000 (2000-06-06) claims -----	20-32

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2010/037313

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-19

An elongate, flexible catheter, comprising:  
a shaft having a proximal end, a distal end, and a lumen extending therein, the shaft having an inner layer comprising an amorphous polyamide having a Shore D durometer value of greater than 78, and an outer layer comprising a polyamide or copolyamide having a Shore D durometer value of less than 76; and  
a working device disposed on the distal end of the shaft.  
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2. claims: 20-32

An elongate, flexible catheter, comprising:  
a shaft having a proximal end, a distal end, and a lumen extending therein, the shaft having an inner layer comprising high density polyethylene and an outer layer comprising a blend of two polymers, a first polymer having a Shore D durometer value of greater than 78 and a second polymer having a Shore D durometer value of no more than 76; and  
a working device disposed on the distal end of the shaft.  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/037313

Patent document cited in search report	A1	Publication date	Patent family member(s)	Publication date
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