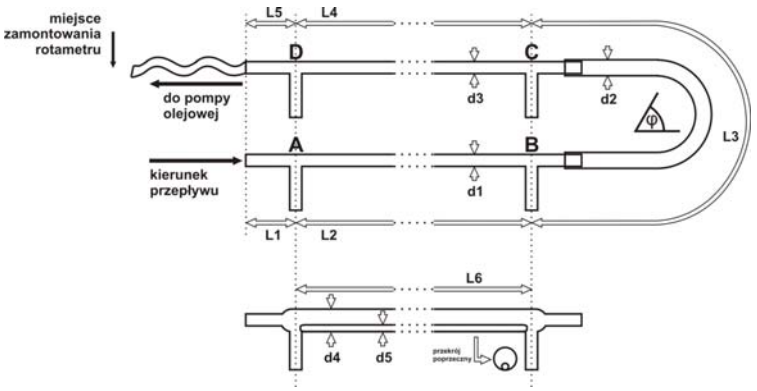
TECHNOLOGIA CHEMICZNA
LABORATORIUM

**DZIAŁ: HYDRODYNAMIKA**
**ĆWICZENIE B: Wyznaczanie oporów przy przepływie płynów**
**[MATERIAŁY DODATKOWE - RYSUNKI]**

opracowanie: A.W.

## CZ. I. MODEL RUROCIĄGU



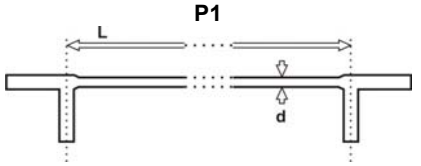

## ELEMENTY DO BUDOWY SCHEMATU:

## TABELA WYMIARÓW GEOMETRYCZNYCH:

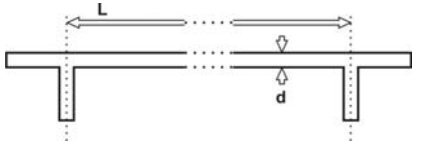
| l.p. | symbol | element | d rurki zewn [mm] | d rurki wewn [mm] | d wkładu zewn [mm] | ilość wkładów | długość [cm] |
|---|---|---|---|---|---|---|---|
| 1. | **P1** | szklana rurka prosta | | 4,2 | | 0 | ~ 100 |
| 2. | **P2** | szklana rurka prosta | 9 | 6 | | 0 | ~ 100 |
| 3. | **PW1** | szklana rurka prosta z wkładem | 12 | 10 | 4,2 | 1 | ~ 100 |
| 4. | **PW2** | szklana rurka prosta z wkładem | 15 | 12,3 | 4,2 | | ~ 100 |
| 5. | **PW3** | szklana rurka prosta z wkładem | 20 | 17,7 | 4,2 | | ~ 100 |
| 6. | **PE** | igielitowe elastyczne rurki do połączeń | | 8 | | 0 | ~ 30-40 |



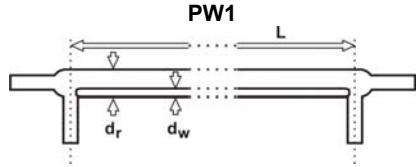
**P1**



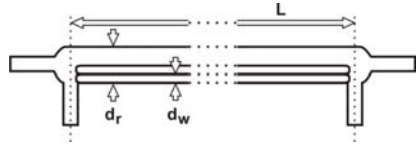

**P2**



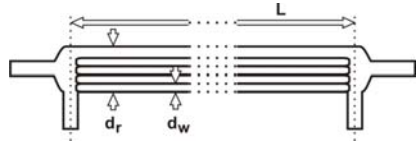

**PW1**



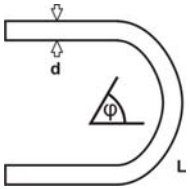

**PW2**

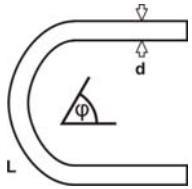



**PW3**



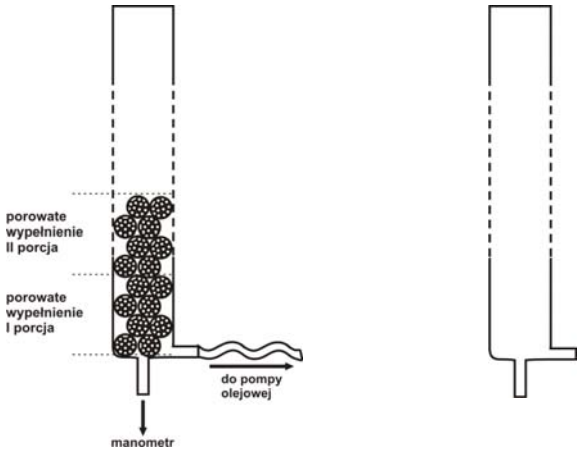

**PE**



## CZ. II. MODEL KOLUMNY Z WYPEŁNIENIEM lub REAKTORA ZE ZŁOŻEM KATALITYCZNYM

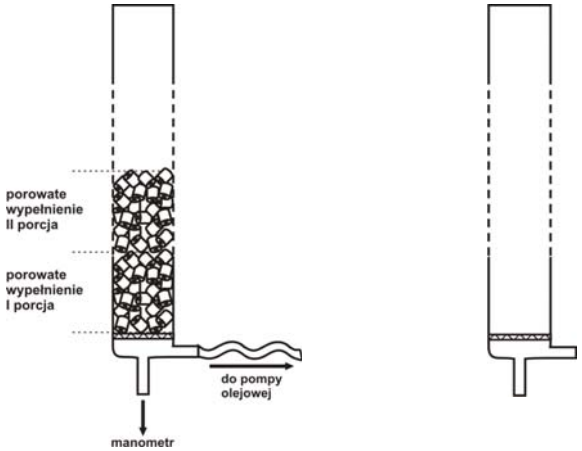
**kolumna - reaktor duży RD**






**W1**
**wypełnienie porowate**
**TETRATEC**

**kolumna - reaktor mały RM**

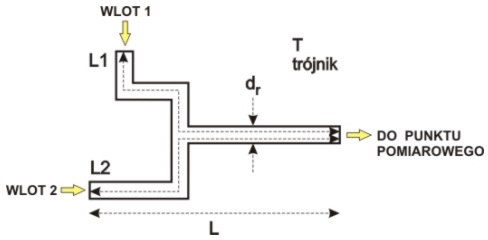


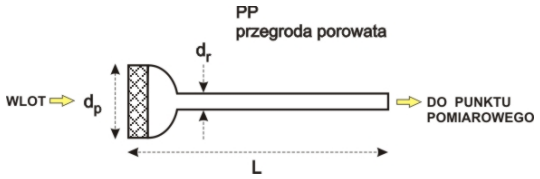



**W3**
**wypełnienie porowate**
**IGIELITOWE**

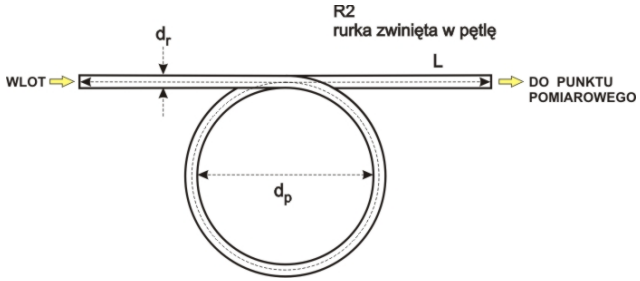


## CZ. III. ELEMENTY DODATKOWE:

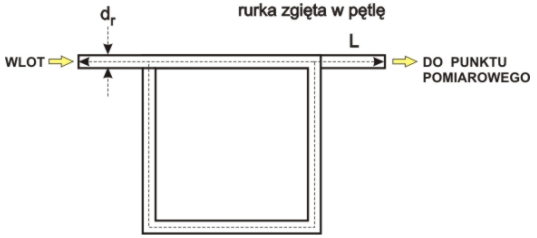


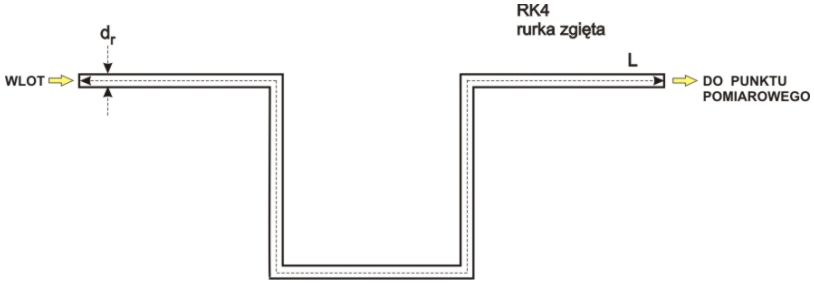




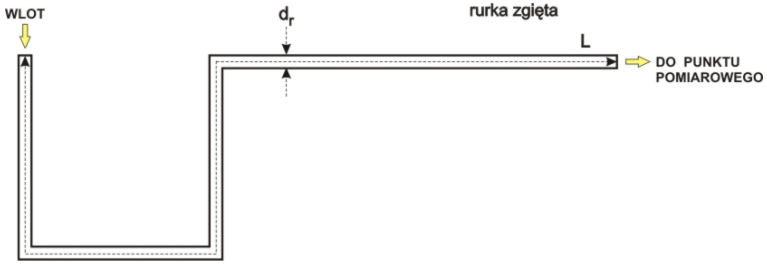
RKP
rurka zgięta w pętlę



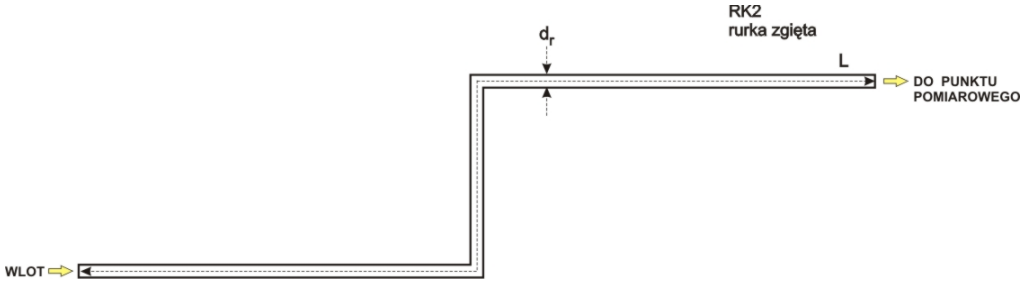

RK4
rurka zgięta




RK3
rurka zgięta

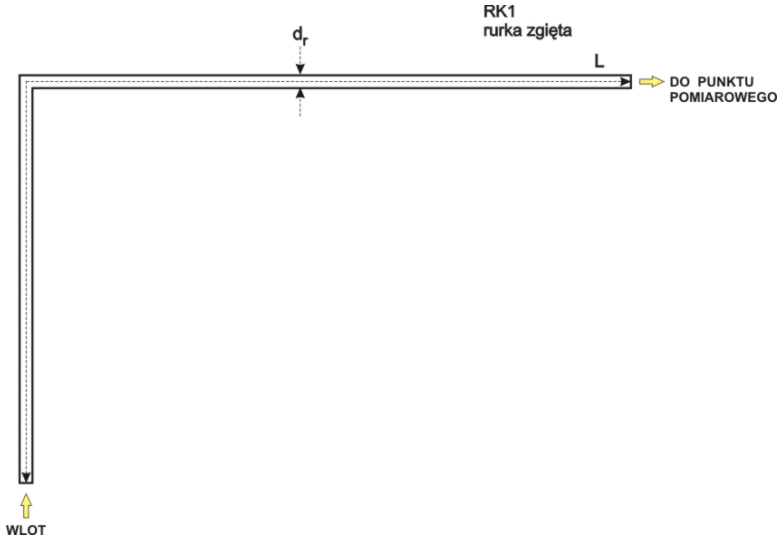



RK2
rurka zgięta

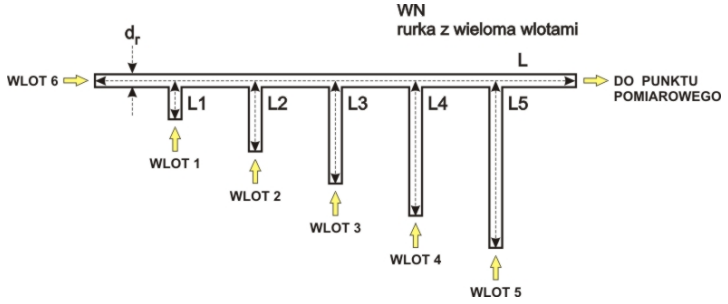




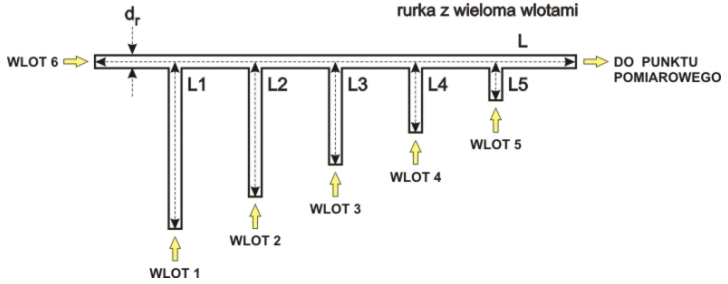

RK1
rurka zgięta

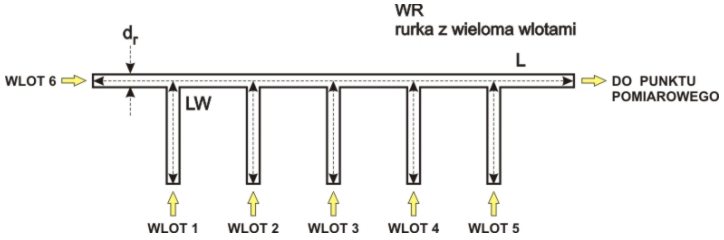


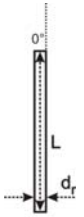

WN
rurka z wieloma wlotami



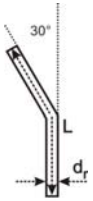

WN
rurka z wieloma wlotami



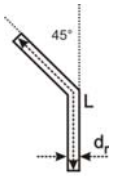


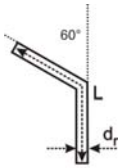

K0



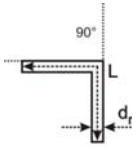

K30



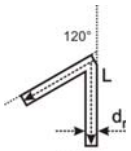

K45



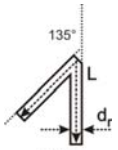

K60



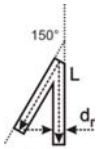

K90




K120




K135




K150

**KOLANKA**