

Porous Quartz Filter Discs

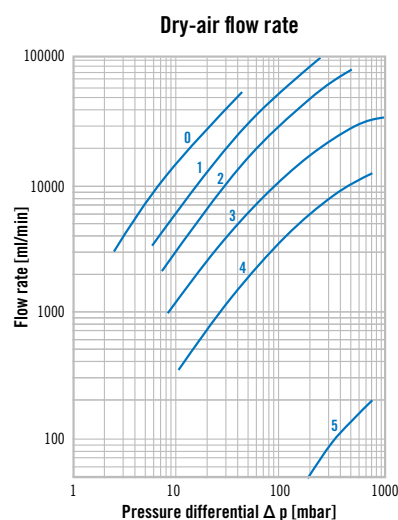
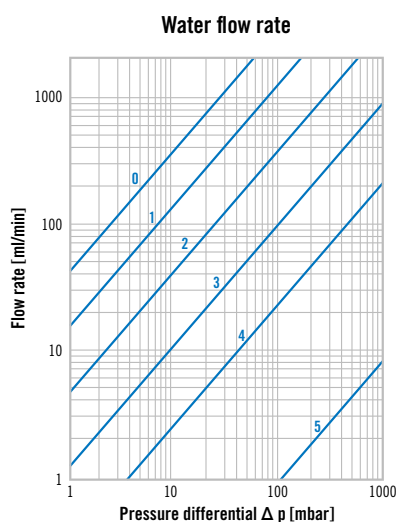
The key to success when working with quartz glass filters is selection of the correct porosity. Glass filters vary in porosity according to grades that are labeled 0 to 5. The table below shows the porosity ranges and the main fields of application for each grade. The pore size indicated always refers to the largest pore in the disc. This also indicates the diameter of the smallest particle retained during filtration. Porosities are determined using the Bechhold bubble-pressure method which has often been described in literature.



| Porosity | Nominal max. pore size (µm) | Fields of applications, examples |
|----------|-----------------------------|---|
| 00 | 250 - 550 | Liquid and gas distribution |
| 0 | 160 - 250 | Gas distribution Gas distribution in liquids at low pressure Filtration of very coarse precipitates |
| 1 | 100 - 160 | Coarse filtration, Filtration of coarse precipitates, gas distribution in liquids Liquid distribution, coarse gas filtration Extraction apparatus for coarse grain materials Loose filter layer substrates for gelatinous precipitates |
| 2 | 40 - 100 | Preparatory fine filtration Preparatory work with crystalline precipitates Mercury filtration |
| 3 | 16 - 40 | Analytical filtration Analytical work with medium-fine precipitates Preparatory work with fine precipitates Filtration in cellulose chemistry, fine gas filtration Extraction apparatus for fine-grained materials |
| 4 | 10 - 16 | Analytical fine filtration Analytical work with very fine precipitates (e. g. BaSO ₄ , Cu ₂ O) Preparative work with precipitates of appropriate fineness. Non-return and stop valves for mercury |

Flow rates

Water and air flow rate through filter discs of various porosities as a function of pressure differential. For disc diameter 30 mm.



Ultra-fine Filtration

Ultra-fine filtration is one of the most important methods for treatment of biological solutions without using high temperatures, which often lead to changes in or decomposition of the active ingredients in the solution. For liquid filtration, sintered glass filter funnels of standard design are used. Dilute suspension of bacteria (15,000 to 90,000 per milliliter) can be sterilely filtered using porosity 3 filters. The pores are already so narrow that all bacteria in dilute suspensions adhere to the pore walls. However, a bacterium-free filtrate could not be obtained when filtering dense suspensions through them. In the case of dense suspensions, bacteria can still pass through once the pore walls become saturated. Real straining is only achieved with a maximum pore size of 2 μm and below; i.e. it is only here that the pores are smaller than the bacteria to be separated.

For **bacterium-free filtration of gases**, e.g. in ventilation of fungal and bacterial cultures, pipeline filters are used. In this case, porosity 3 is adequate provided that the space in front of the dry filter disc on the air inlet side is stuffed evenly and loosely with cotton wool.

Other dimensions, porosities and tighter tolerances upon request

Standard filter discs

Round

| OD | OD Tol | Porosity | Thickness | Thickness Tol |
|-----|--------|----------|-----------|---------------|
| 6 | ±0,5 | 1-4 | 2-4 | ±0,5 |
| 10 | ±0,5 | 0-4 | 2-4 | ±0,5 |
| 15 | ±0,5 | 0-4 | 4-8 | ±0,5 |
| 20 | ±0,5 | 0-4 | 4-8 | ±1,0 |
| 25 | ±0,5 | 0-4 | 4-8 | ±1,0 |
| 30 | ±0,5 | 00/0-4 | 4-8 | ±1,0 |
| 35 | ±0,5 | 00/0-4 | 4-8 | ±1,0 |
| 40 | ±0,5 | 00/0-4 | 4-8 | ±1,0 |
| 45 | ±0,5 | 00/0-4 | 4-8 | ±1,0 |
| 50 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 55 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 60 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 70 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 80 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 90 | ±0,5 | 00/0-4 | 5-8 | ±1,0 |
| 100 | ±1,0 | 00/0-4 | 8-30 | ±2,0 |
| 110 | ±1,0 | 00/0-4 | 8-30 | ±2,0 |
| 120 | ±1,0 | 00/0-4 | 8-30 | ±2,0 |
| 130 | ±1,0 | 00/0-4 | 8-30 | ±2,0 |
| 140 | ±1,0 | 00/0-4 | 8-30 | ±2,0 |
| 150 | ±1,0 | 00/0-3 | 8-30 | ±2,0 |
| 200 | ±1,0 | 00/0-3 | 8-30 | ±2,0 |
| 250 | ±1,0 | 00/0-2 | 8-30 | ±2,0 |
| 300 | ±1,0 | 00/0-2 | 8-30 | ±2,0 |

Germany

Heraeus Quarzglas GmbH & Co. KG
Heraeus Conamic
 Kleinostheim, Germany
 Phone: +49 6181 35-7444
 conamic.basematerials.eu@heraeus.com

USA

Heraeus Quartz North America, LLC.
Heraeus Conamic
 Chandler, Arizona, USA
 Phone: +1 678 714-4306
 conamic.basematerials.us@heraeus.com

UK

Heraeus Conamic UK Ltd.
 Wallsend, UK
 Phone: +44 191 2598-411
 conamic.basematerials.eu@heraeus.com

Korea

Heraeus Korea Corporation
Heraeus Conamic Anseong Factory
 Miyang-myeon, Gyeonggi-do, Korea
 Phone: +82 31 671-7601
 conamic.basematerials.kr@heraeus.com

China

Heraeus ShinEtsu Quartz (China) Inc.
 Pudong, Shanghai, China
 Phone: +86 21 6867 2266-809
 conamic.basematerials.cn@heraeus.com

Japan

Shin-Etsu Quartz Products Co., Ltd.
 Shinagawa, Tokyo, Japan
 Phone: +81 3 6737-0221
 division3@sqp.co.jp

Taiwan

Heraeus Materials Technology Taiwan Ltd.
 Taipei, Taiwan
 Phone: +886 2 2627-1111
 conamic.basematerials.tw@heraeus.com

www.heraeus-conamic.com