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Choice of Sieve Sizes

For most size analyses it is usually impracticable, and indeed quite unnecessary, to use all the available screens in any Standard Sieve Series. However, the best range of sieves to use in a given test can present a problem.

There are many criteria that may affect the choice of aperture size. The end user will be best placed to understand their individual requirements and understand the material that they wish to test and, ultimately, what they want to achieve from the testing.

Reference should be made to standard test methods which can be obtained from national – e.g. BSI – (www.bsi-global.com) – and international sources (www.iso.ch). Industry specific organisations may also provide guidance in this matter and might well have prescribed test methods that should be used. An effective customer/supplier relationship can also be a good starting point.

Broadly speaking, if sieves in the mid-range of a given series are employed, not more than about 5% of the sample should pass the finest sieve or be retained on the coarsest. For detailed work these limits may be lowered. Once the top and bottom sieves have been decided on, the intermediate sieves can then be chosen.

For many purposes, alternate sieves in the range are quite adequate. Over certain size ranges of particular interest, or for accurate work, consecutive sieves may be used. The intermediate sieves should never be chosen at random.

The following four examples indicate some of the choices that could be made from BS/ISO sieves in the range 710 – 180 µm:

(a)	710	600	500	425	355	300	250	212	180
(b)	710		500		355		250		180
(c)	710		500	425	355	300	250		180
(d)	710	600				300		212	180

(a) Consecutive sieves which follow the R40/3 relationship (approx $\sqrt[4]{2}$). Necessary only for detailed size analysis over the whole range.

(b) Alternate sieves which follow the R20/3 relationship (approx $\sqrt{2}$). Adequate for most purposes.

(c) Combination of the R40/3 and R20/3 series ($\sqrt{2}$ and $\sqrt[4]{2}$). Useful if a detailed analysis is required over part of the range.

(d) Bad choice. Random selection. Difficult to interpret data either in tabular form or graphically.

The full range of Endecotts sieves can be seen at our website – www.endecotts.com

If necessary, Endecotts are able to carry out a sieving trial to assist in ascertaining the specific sieve range to suit a given sample. Please note that this is not a test or analysis service and the trial sample will not be suitable for repatriation with bulk. The final choice of sieves rests with the end user.

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