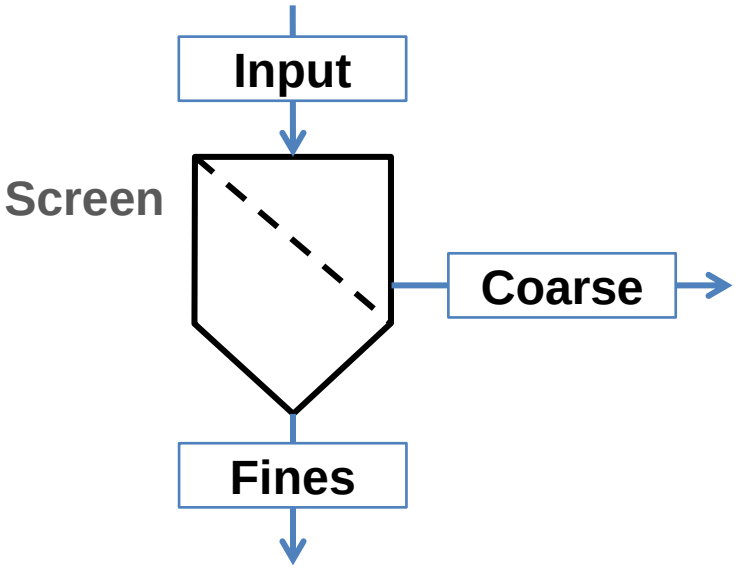
Screen Molerus & Hoffmann

General description

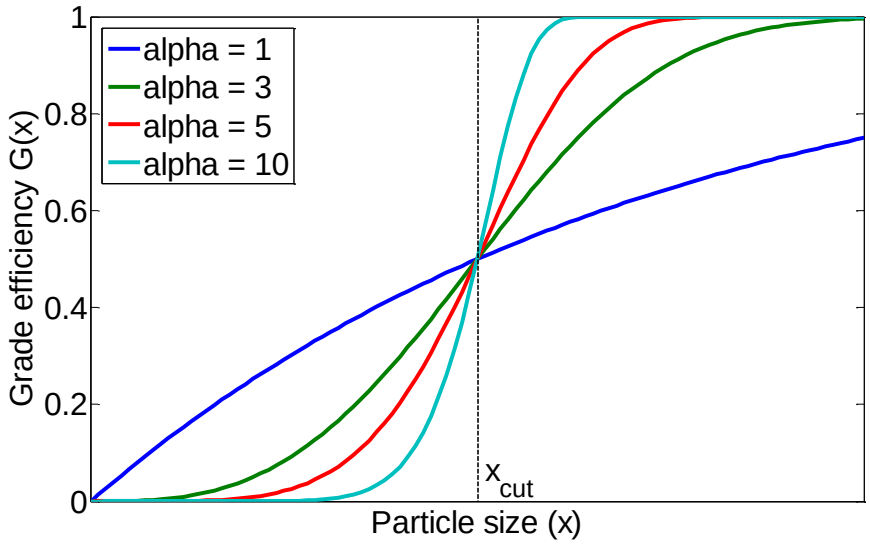


Screen unit is designed for classification of input material into two fractions according to the particle size distribution. Grade efficiency of the model is described as

$$G(x_i) = \frac{1}{1 + \left(\frac{x_{cut}}{x_i}\right)^2 \cdot exp\left(\alpha\left(1 - \left(\frac{x_i}{x_{cut}}\right)^2\right)\right)}$$

- $G(x_i)$ is the grade efficiency – a mass fraction of material within the size class i in the feed that leaves the screen in the coarse stream
- x_{cut} is the cut size of the classification model
- α is the sharpness of separation
- x_i is the size of a particle

In the following figure several grade efficiency curves for different parameters of separations sharpness are schematically shown.



Unit parameters

Name	Symbol	Description	Units	Valid values
Xcut	x_{cut}	Cut size of the classification model	[m]	Xcut > 0
Alpha	α	Sharpness of separation	[-]	0 < Alpha ≤ 100

Application examples

- *Example Flowsheets/Units/Screen Molerus-Hoffmann.dlfw*
- *Example Flowsheets/Processes/Sieve-Mill Process.dlfw*

References

O. Molerus, H. Hoffmann, Darstellung von Windsichtertrennkurven durch ein stochastisches Modell, Chemie Ingenieur Technik 41 (5+6) (1969) 340-344.