Mill Feed and Delivery Openings from Ratios (Hugot)

Feed opening, empty delivery and empty feed settings of a mill from its working delivery opening and Hugot's ratios m (feed/delivery) and ψ (empty/working).

Method: Hugot; Handbook of Cane Sugar Engineering; ...

Input parameters

Unit system: SI

Parameter	Value	Unit
Working delivery opening	21.000	mm
Feed / delivery opening ratio Hugot (Java practice): first mill 2.2 after a crusher (2.6 without), then 1.9, 1.8, 1.7.	1.9000	
Empty / working delivery opening Hugot: crusher 0.6, first mill 0.5, second 0.4, intermediate 0.35, penultimate 0.3, final 0.25.	0.40000	

Calculated results

Parameter	Value	Unit
Working feed opening	39.900	mm
Empty (setting) delivery opening	8.4000	mm
Empty (setting) feed opening, vertical housings	27.300	mm

Notes for this case

- The empty feed opening is for vertical housings; for inclined housings apply Hugot's correction (eqn 13.10).
- Add 1–2 mm for new rollers and 3–4 mm for worn ones, as Hugot advises, before setting the mill.

Formula and method

$$E_A = m\,e_A, \quad s_0 = \psi\,e_A, \quad E_0 = s_0 + E_A - e_A$$

Variables

e_A	Working delivery opening	m
m	Feed / delivery opening ratio	-
ψ	Empty / working delivery opening	-
E_A	Working feed opening	m
s_0	Empty (setting) delivery opening	m
E_0	Empty (setting) feed opening, vertical housings	m

Method and standards

Hugot's setting ratios.

Assumptions and limits

- Vertical housings; inclined housings need the correction of Hugot eqn 13.10.

References

- Hugot
- Handbook of Cane Sugar Engineering
- 3rd ed. (Elsevier, 1986)
- ch. 13
- eqns 13.6–13.7 and Tables 13.2–13.4
- pp. 205–214

Report details

Report reference	FCC-XFKD-RCSH (the same inputs always give the same reference)
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Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/sugar-ethanol/milling/mill-feed-delivery-openings

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.