Grinder Conversion & Calibration Matrix v1.1 (BrewBuddy)

Purpose
This overview documents how BrewBuddy converts the internal grind reference to each supported grinder scale and how user feedback off

Internal reference model
? BrewBuddy computes a method/process-adjusted base grind in a **Comandante-equivalent** scale (grindBase.comandante).
? For Fellow, an additional grindBase.fellow base is used where available.
? User feedback changes are applied via a grinder-neutral grindOffset and mapped with grinder-specific sensitivity.

Conversion matrix (v1)

| Grinder | Output Unit | Base Mapping | Offset Mapping | Clamp |
| --- | --- | --- | --- | --- |
| Comandante MK3/MK4 | clicks | round(base * 1.0) | + offset * 1.0 | min 1 |
| Fellow Ode Gen 2 | dial value | grindBase.fellow | + offset * 0.1 | min 0.1 |
| Fellow Ode Gen 1 | dial value | (grindBase.fellow - 1.5) | + offset * 0.1 | min 0.1 |
| Timemore S3 | clicks | round(base * 2.0) | + offset * 2.0 | min 1 |
| Timemore C2 | clicks | round(base * 0.82) | + offset * 0.82 | min 1 |
| 1Zpresso JX | rotations | base * (1.1/30) | + offset * (1.1/30) | min 0.1 rot |
| Baratza Encore | stepped number | round(base * 0.8) | + offset * 0.8 | 1..40 |

Calibration matrix (v1.1)

The v1.1 layer adds a practical calibration overview for operations and QA.

| Grinder | Recommended Pour-Over Start Band* | Offset Sensitivity | Confidence Band | Suggested Cap per Brew |
| --- | --- | --- | --- | --- |
| Comandante MK3/MK4 | 21?25 clicks | 1 offset = 1 click | High | 3 clicks |
| Fellow Ode Gen 2 | 3.0?5.0 | 1 offset = 0.1 dial | Medium-High | 0.3 |
| Fellow Ode Gen 1 | 2.0?4.0 (Gen2-equivalent shifted) | 1 offset = 0.1 dial | Medium | 0.3 |
| Timemore S3 | 45?70 clicks | 1 offset ? 2 clicks | Medium | 6 clicks |
| Timemore C2 | 14?22 clicks | 1 offset ? 0.82 clicks | Medium-Low | 4 clicks |
| 1Zpresso JX | 0.7?1.2 rotations | 1 offset ? 0.04 rot | Medium | 0.15 rot |
| Baratza Encore | 12?20 | 1 offset ? 0.8 steps | Medium-Low | 4 steps |

\*Start band means first recommendation window for filter/pour-over style brews and should be interpreted alongside processing/method/wa

v1.1 interpretation rules
1. Keep the existing conversion formula as the primary output.
2. If output is outside the start band by >20%, show a "low confidence" hint in future UI iterations.
3. Apply step caps first, then re-taste and iterate (single-variable changes preferred when signals conflict).
4. Treat v1.1 bands as calibration guardrails, not hard limits.

Why this structure
? One centralized profile table avoids hidden per-case drift.
? Offset sensitivity is explicit and tunable per grinder.
? Legacy keys remain compatible (fellow, timemore, comandante).

Recommendations for future calibration
1. Add optional per-device calibration saved per user/grinder profile.
2. Introduce confidence bands (e.g., "18?20 clicks") where model uncertainty is higher.
3. Collect anonymized brew outcome deltas to continuously tune factors.

Rule pipeline context
Final grind recommendation is still produced after this chain:

processing -> altitude -> cultivar -> origin -> water hardness -> roast age -> brew method -> grinder conversion