Schlappi Engineering — Angle Grinder

- Manual PDF

Schlappi Engineering Angle Grinder Manual (PDF)

Using the Schlappi Engineering Angle Grinder to Create Full-Length Songs in Eurorack

The **Angle Grinder** is a deep multi-functional module, serving as a **quadrature sine wave VCO**, **state variable filter**, and a unique **waveshaping/wavefolding processor**. While it excels at classic duties like basslines, leads, drones, and metallic textures, its flexible routing and voltage control open up many strategies for building evolving, dynamic, and full-length arrangements in your Eurorack system.

Below are detailed suggestions on using the Angle Grinder, in combination with other modules, to move beyond simple patterns and create complete musical journeys.

Key Features for Song Construction

- **Oscillator & Filter Duality**: Switch dynamically between oscillator and filter modes within a patch.
- **Four Phase-Related Outputs**: Use quadrature (0°, 90°, 180°, 270°) sine phases for stereo, quad-panning, or inter-modulation.

- **Voltage Controlled Grind**: Morph and automate wavefolding intensity throughout a track.
- **FM/Sync Capabilities**: Complex, evolving timbres via internal/external modulation and sync.
- **Audio & CV Processing**: Angle Grinder is both a sound source and audio/CV processor.
- **External Input/Inject**: Use as a core filter or effect, bringing in sequenced/melodic material from other modules.

Strategies for Composing Full-Length Songs

1. Macro Song Structure via Modulation

- **Automate Major Transitions**:
  Use timed voltage sources (CV sequencers, function generators, manual control, or workflow-oriented sequencers like **Intellijel Metropolix**, **Malekko Voltage Block**, or **Endorphines AUTOPILOT**) to move between oscillator and filter modes by modulating the **GRIND -> SPIN** and **DAMPING** controls over the arc of a performance, morphing from pure tones to filtered noise/waveshaping over time.
- **Automated Timbre Evolution**:
  Sequence or randomly modulate the **GRIND SLIDERS** and their associated CV inputs. Remap these modulations to different song sections (e.g., verse: subtle, chorus: aggressive, bridge: metallic/noisy).

2. Polyphony & Interlocking Patterns via Quadrature Outputs

- **Polyphonic/Fake-Polyphonic Arrangements**:
  Use the four phase outputs as separate voices:
- Envelope generators (e.g., **ALM Pamela's New Workout**, **Make Noise Maths**) can trigger separate events based on these outputs.

- Route each phase to different chains—one for a lead, another processed for bass or pads, the third to a wavefolder, and the fourth for modulation.
- **Quad Panning/Spatialization**:
  Pan each phase to different outputs via **VCAs** and a quad panner (e.g., **Doepfer A-134-1** or using a matrix mixer) to spatially animate your mix.

3. Song Section Morphing with Patch Programming

- **Exploit Filter Modes**:
  Morph between VCO, LPF, BPF, and HPF outputs to change textural roles. With the right switching or manual control, you can smoothly transition sections (think ambient intro -> acid bassline -> metallic breakdown).
- **Inject External Audio for Sectional Change**:
  Use the **INJECT** input to process entirely different melodic or percussive voices, bringing dramatic texture changes (i.e., live sampling or buffer-based melodies routed through Angle Grinder for a “drop”/fill/bridge).

4. Synchronize Sections with FM & Sync

- **Use FM1/FM2 for Rhythm & Tonality**:
  Sequence FM depth to sync with your drum patterns, accentuate transitions, or create risers/noise swells during fills using connected modulator oscillators synced to your clock/dividers.

5. Automation & Morphing – Maximize Voltage Control

- **Scene-Based Automation**:
  Combine with **preset managers** (e.g., **Voltage Block**, **Hermod**, **Vector Sequencer**) for programmable control of all CV-able parameters—let you jump or morph between entire parameter sets at key song points.
- **Use with Compare/Logic Modules**:
  Trigger changes using CV comparators/logic (e.g., **Mutable**

Instruments Kinks), e.g., flip filter mode, GRIND level, or inject, only when all voices hit a certain volume or section cue.

Example Song Flow Using Angle Grinder

1. **Intro Section**:
    - *LFO Mode*: Use Angle Grinder as a quadrature LFO for quad panning/slow undulating drones feeding reverb.
    - *Transition*: Raise **GRIND -> SPIN**, and automate via sequencer to morph into oscillator mode.
2. **Main Groove/Verse**:
    - *Audio-Rate Oscillation*: Use as the main bass or lead. FM/AM inputs with clocks/rhythmic CV for evolving lines.
    - *Melody/Countermelody*: Use multiple quadrature outputs for melodic/rhythmic interlocking parts, routed to wavefolders or VCA envelopes triggered by sequencer.
3. **Breakdown/Bridge**:
    - *Filter Mode*: Inject external drum/bass, process with non-linear filtering and slider automation for mangled breakdown textures.
    - *Noise/Soundscapes*: Push DAMPING and GRIND to extremes for metallic sound, drone, and noise washes.
4. **Chorus/Drop**:
    - *Full Automation*: Swell sliders with sequencer automation, switch back to oscillation, and envelop-sync for “drop” impact.
5. **Outro**:
    - *Fade Out*: Use quadrature outs for stereo pads, automate DAMPING out to silence, or close all sliders for a gentle return to ambient.

Module Pairings to Enhance Song Creation

- **Sequencers/Controllers**: Voltage Block, Hermod, Rene, Five12 Vector, or any controller for scene programming.
- **VCAs/Matrix Mixers**: Animate Quadrature out levels (e.g., Doepfer A-135-2, Dnipro Dot).
- **Clock/Logic/Divider Modules**: Pam's New Workout, Acid Rain Maestro.
- **Random/Probabilistic Modulators**: Mutable Marbles, Wogglebug.
- **Effect Processors**: Clouds, Magneto, Data Bender for textural change and transitions.
- **Performance Mixers**: For smooth stereo panning/level control.
- **Switches/Sequential Switches**: To re-route Angle Grinder outs for dramatic song structure changes.

Takeaways

Angle Grinder is much more than a tone generator—by liberally exploiting its voltage control, phase-related outputs, dual oscillator/filter identity, and growling grind section, you can infuse your compositions with **rich timbral transitions**, **structural contrasts**, **automated morphing**, and **spatial movement** across full-length songs.

Approach your patch as a series of dynamic scenes rather than a static groove, and let Angle Grinder's flexibility drive dramatic compositional shifts.
