

Thank you for using Brainworx plug-ins.



## bx\_refinement – M/S Harshness Control

*Faithfully musical and outstandingly tasteful.*

Breathe exceptional life into your recordings with bx\_refinement.

Imagine working on a recording and removing the harshness with no negative impact to the sound otherwise. bx\_refinement was designed to be such an enhancing and de-harshing tool.

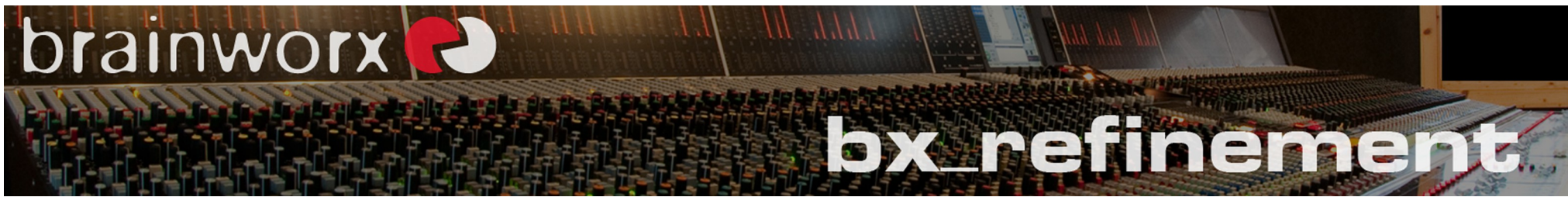
For many engineers, their favorite processors are often the ones that smooth things out. When you get down to it, one of the main things people like about analog equipment and their emulations in general is their ability to round off harsh edge.

bx\_refinement was developed to focus directly on this task in the most musical and transparent way, specifically focusing on de-harshing and cleaning things up. The internal algorithm is based on a careful combination of time-tested approaches, modern techniques, and the latest science about the sensitivity of the human ear.

The main goal was to be non-compromising, tasteful and musical – to bring the mindset of an analog mastering setup to the digital domain. The result is bx\_refinement, the most musical digital processor for de-harshing.

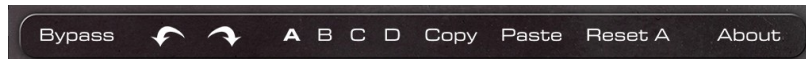
Mastering Engineer Gebre Waddell of Stonebridge Mastering developed the prototype of bx\_refinement while writing the book "Complete Audio Mastering: Practical Techniques". The concepts of the book related to harshness and relevant techniques were perfected and blended into a VST prototype he programmed and tweaked. A crucial part of the development was critical listening and discussions with other engineers. Gebre later presented the prototype to Brainworx. We then took on the task to optimize the underlying algorithms and port the processor to the various platforms via our unique plug-in framework.

While bx\_refinement is exceptional as a mastering tool, many mixing engineers will also enjoy the unparalleled control over harshness on individual mix signals, as the processor can be used to generally widen stereo signals and make them more defined and clearer.



### Tube Graphic

bx\_refinement is not a 1:1 emulation of a certain tube sound. Instead it combines several desired musical aspects of audio enhancing found in tube-based equipment to give you an easy-to-operate and very effective tool. Many people associate tubes with a smoothing and de-harshing effect, which bx\_refinement is designed to do extremely well. The tube graphic gives you precise visual feedback about how intensely the process is being applied. It's easy to see how fast and how dynamic the processing is by simply by looking at the tube's glow in the display.



### Brainworx toolbar

The top toolbar will enable you to bypass the plug-in. 32 steps of Undo / Redo give you the freedom to experiment without losing your initial ideas. 4 settings can be used to store and recall momentary snapshots that also can be automated. You can Copy / Paste settings as expected and reset individual settings as well.



### Damping

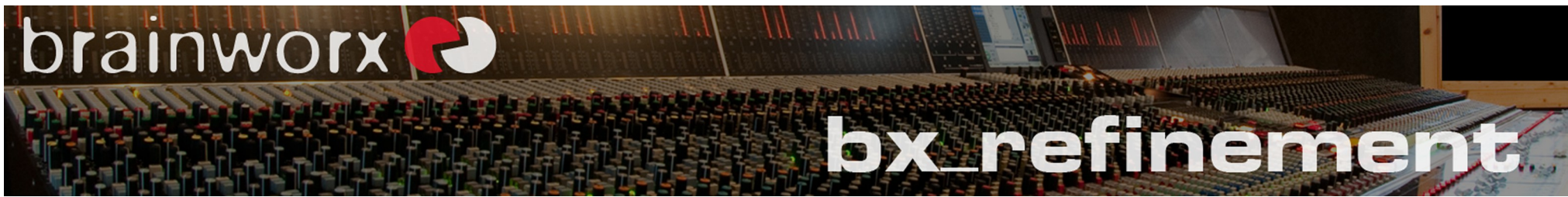
The Damping control reduces harshness with a peak band EQ by a fixed dB value. It sets the constant baseline of reduction, which can be altered / increased by a variable value using the "Dynamics" or "Oscillator" options – see the "Damping modulation" section on page 4. For example the picture on the left shows a constant reduction of harshness of -6.36 dB.

### Soft / Hard

The soft/hard option sets the character of the processing. The soft option uses typical second-order filtering while the hard option uses high-order filtering (fourth-order). bx\_refinement features digital high-order dynamic filtering.

### Solo Filter

With this knob you can listen to the reduced harsh frequencies isolated, which is especially handy when you use Dynamic Modes (Damping Modulation). What you hear is what will be filtered out in the mix.



## Saturation

bx\_refinement's saturation algorithm was designed to offer a bit of character without changing the sound dramatically. The intent is to add little flavour rather than producing a dramatic effect. Alternatively, you can of course use bx\_refinement along with any character processor you choose, such as Brainworx's bx\_saturator V2. The saturation also adds a bit of brightness, so if you're looking to brighten something as you are de-harshing, you can reach for either the presence control (see below) or the saturation control.

## Presence

bx\_refinement's presence control is a shelving filter designed to boost highs and air in a transparent way. Once you've tamed the harshness with the core bx\_refinement controls, you may want to adjust this range suitably. Some mastering engineers may prefer to tame this range with one of their many tools for the job and use only the core bx\_refinement processing. However, this control was designed to work in almost every situation. One technique is to exaggerate the de-harshing using a combination of the damping and dynamics controls with the mix knob all the way up. Set the presence with it exaggerated, then use the damping and dynamics controls to set the de-harshness to suit the recording, then mix the effect in.

## Mix

In the typical workflow, once you have things set as you like, this control may be adjusted to easily increase or reduce the amount of processing being applied. Parallel de-harshing in the box made easy.

## Mid / Mid+Side

This knob allows the processing to be applied only to the Mid channel or to both, the Mid and Side channels equally. Sometimes it will sound better with just the mid channel selected but most often, it will sound best when the processing is being applied to both channels.

### *What is Mid / Side (M/S)?*

We have some online info and videos for you [here](#).



## Damping Modulation: Dynamics Option

Enabling the Dynamics option modulates the de-harshing filter according to the peak level of the input material. The dynamic reduction will be added to the fixed reduction dialed in via the Damping knob (see above).



### Range

This control lets you adjust how much damping will be added by the modulation.

### Speed

This control adjusts how fast bx\_refinement will react to the incoming signal, depending on the loudness of the recording being processed.

### Meter

In addition to seeing how much of the filtering is being applied by looking at the tube graphic, you can also monitor the meter in the dynamics section.

## Damping Modulation: Oscillator Option

The oscillation option allows you to create nice warming effects. The general harshness damping dialed in (see above) will now additionally be modulated by a sine. You can adjust the speed of the oscillator with the duration knob in both modes (free / sync, see below). The dynamic reduction will be added to the fixed reduction of the Damping knob.

### Depth

This option adjusts how much of the process is being applied during oscillation in both modes (free / sync, see below). The dB value represents the maximum added damping on the peak of the sine.



### Duration (Free Mode)

In this mode the modulation will not be synced to the song tempo of your DAW (audio host). Instead, you can dial in a length in seconds.

### Duration (Sync Mode)

This option allows the oscillator to be synced to the tempo set in the DAW. The sine will be quantized and follow a typical groove pattern (1/1, 1/2, 1/4, etc.). You can shift the accent of the modulation by dragging the sine graphics on the bar window to cut or boost in a rhythmical pattern, for example to emphasize or reduce certain hi-hat hits in a beat.

## Plugin Alliance Toolbar

This plug-in can be installed and operated like any other Alliance plugin. Please check [www.plugin-alliance.com](http://www.plugin-alliance.com) for general info about the activation, system requirements, etc.