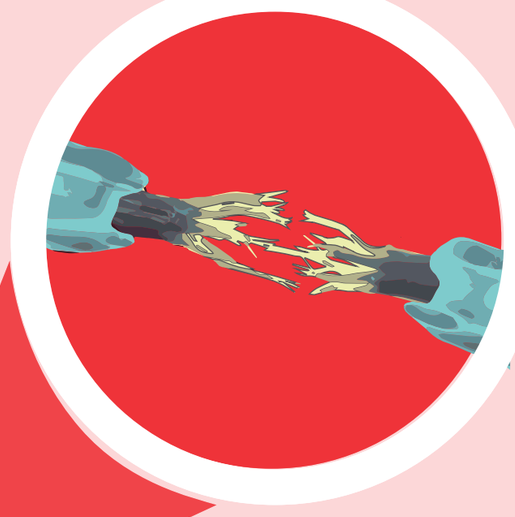
Hand arm vibrations

Vibration exposure is a significant problem in the construction industry, which causes causes injury end eventual disability. Avoiding exposure is difficult since there is no viable way of protection whithout sacrificing productivity.

Using the developed protection device, enables the user to work safely, for longer periods of time, while providing insight into the exposure in real time.

Vibrations
are emitted by power tools

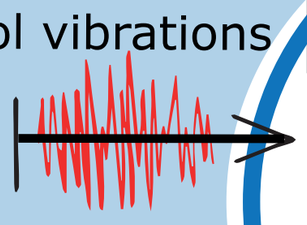
Nerve damage
caused by vibration exposure

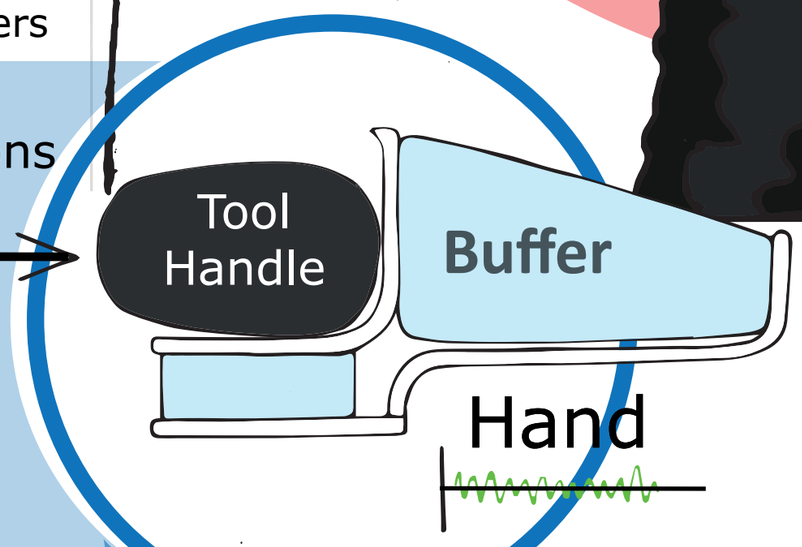


Vibration exposure to the hands causes nerves and capillary arteries to deteriorate which causes diminished innervation and loss of sensosory and motor function.

Isolation from vibrations
by means of elastomer buffers

The elastomer buffers isolate the hand from the tool handle, significantly reducing the vibration exposure. The buffers are designed to form a stable connection between hand and tool. This way the user maintains mechanical control over their power tool while being protected from vibrations.

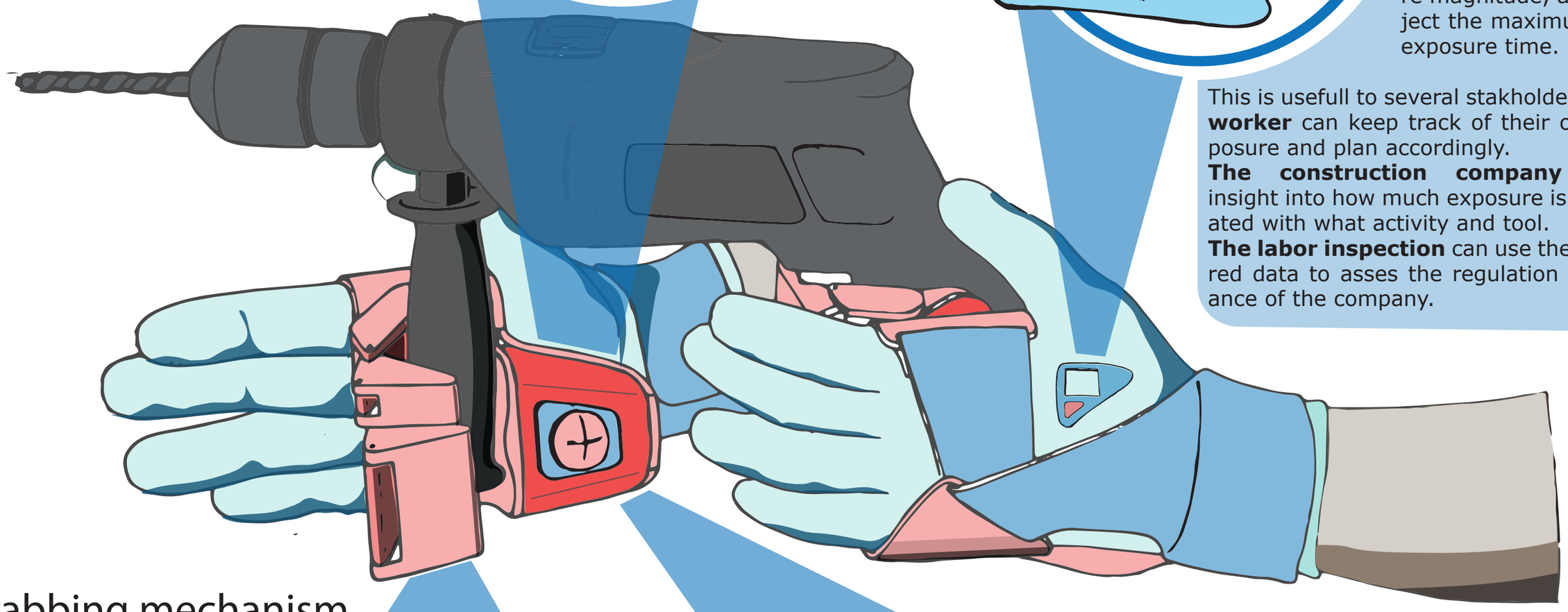




Vibration monitoring
gives insight into exposure

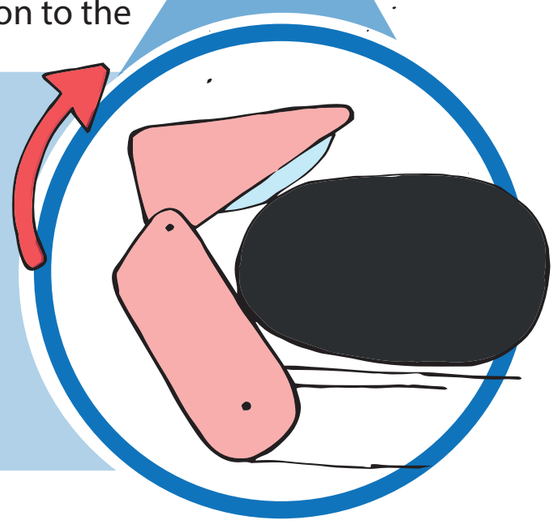
Two sensors embedded in the protection device monitor the vibrations emitted by the power tool, and transferred to the user in real time. This data can be used to indicate the exposure magnitude, and project the maximum safe exposure time.

This is usefull to several stakholders: **The worker** can keep track of their own exposure and plan accordingly.
The construction company gains insight into how much exposure is associated with what activity and tool.
The labor inspection can use the gathered data to asses the regulation compliance of the company.



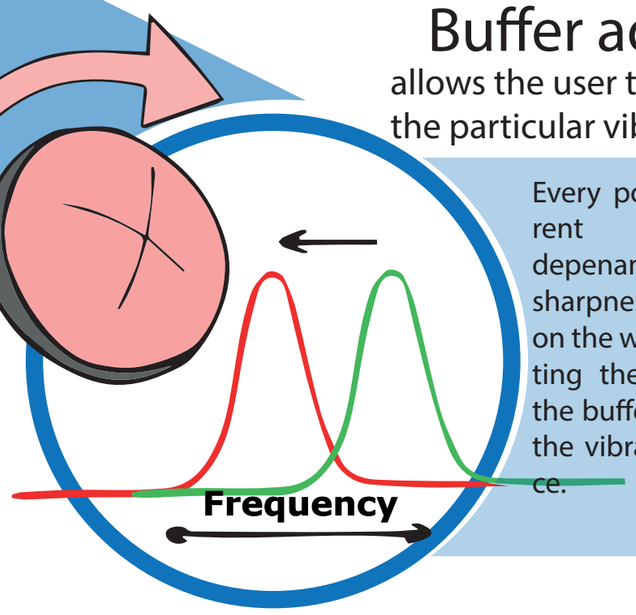
Grabbing mechanism
provides a reliable connection to the power tool handle.

The grabbing mechanism acts as a secondary hand that holds the powertool. This way the user needs less muscle contraction to hold the tool, which renders the hands less vulnerable to vibrations



Buffer adjustment
allows the user to tune the buffer to the particular vibration of their tool.

Every power tool has a different vibration profile depenant on its age, on the sharpness of the tool bit, and on the worked material. Adjusting the buffer ensures that the buffer in no case amplifies the vibration due to resonance.



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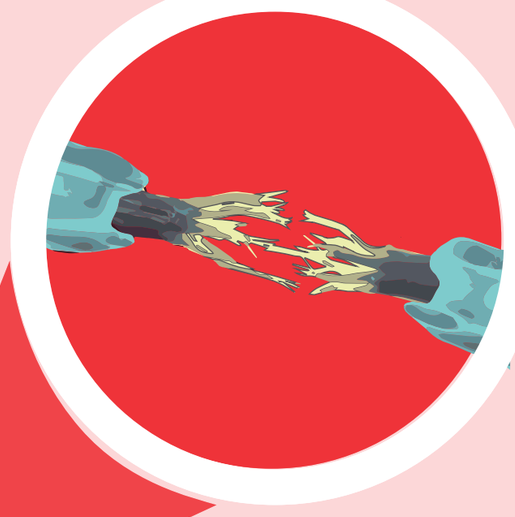

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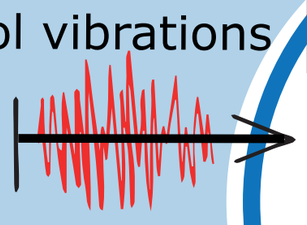

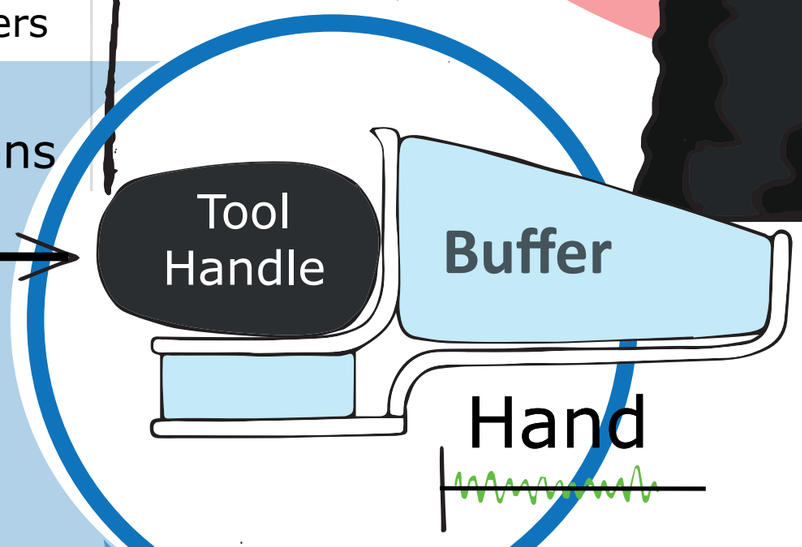

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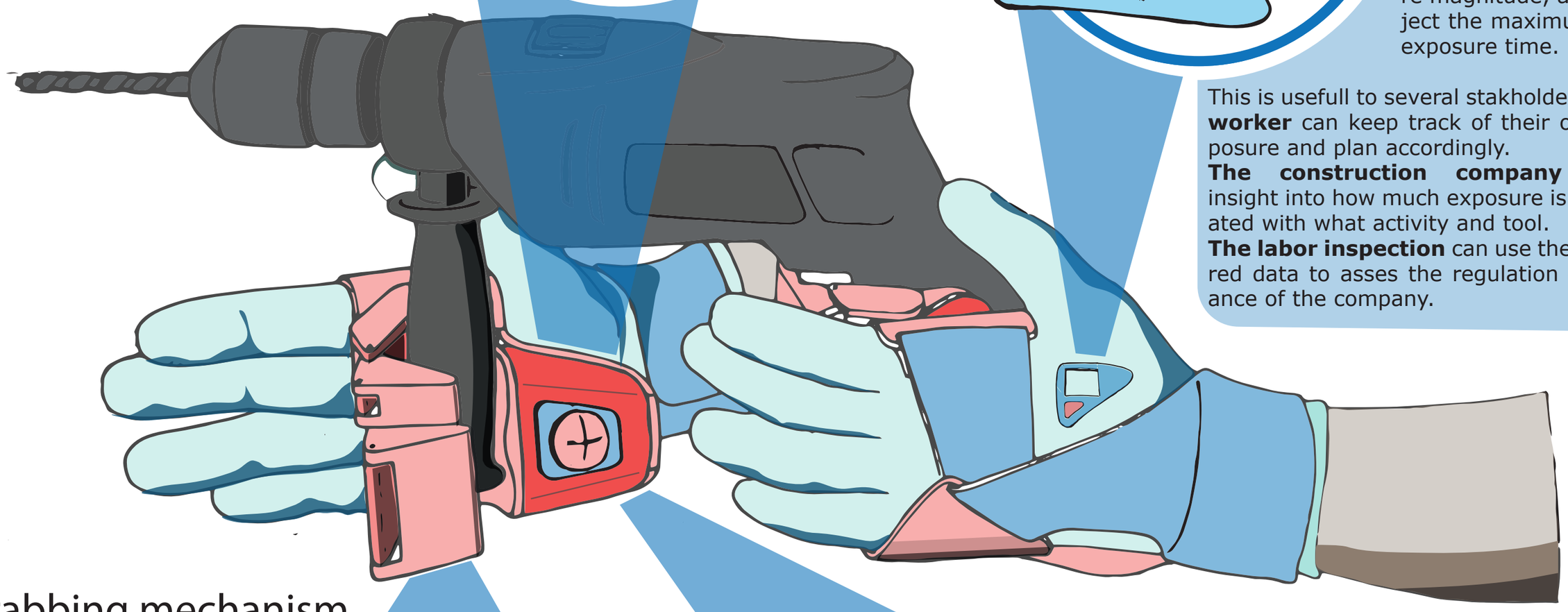

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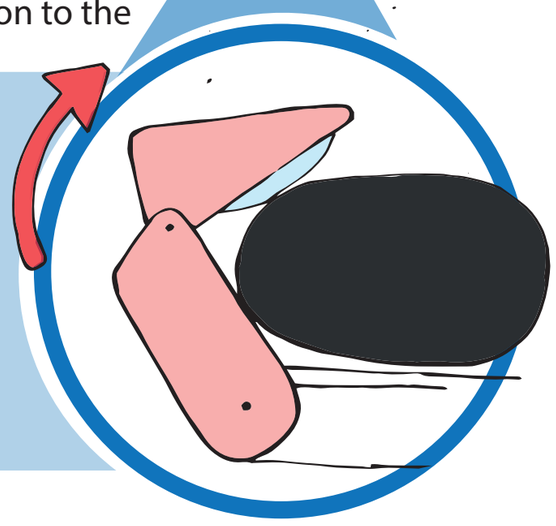

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