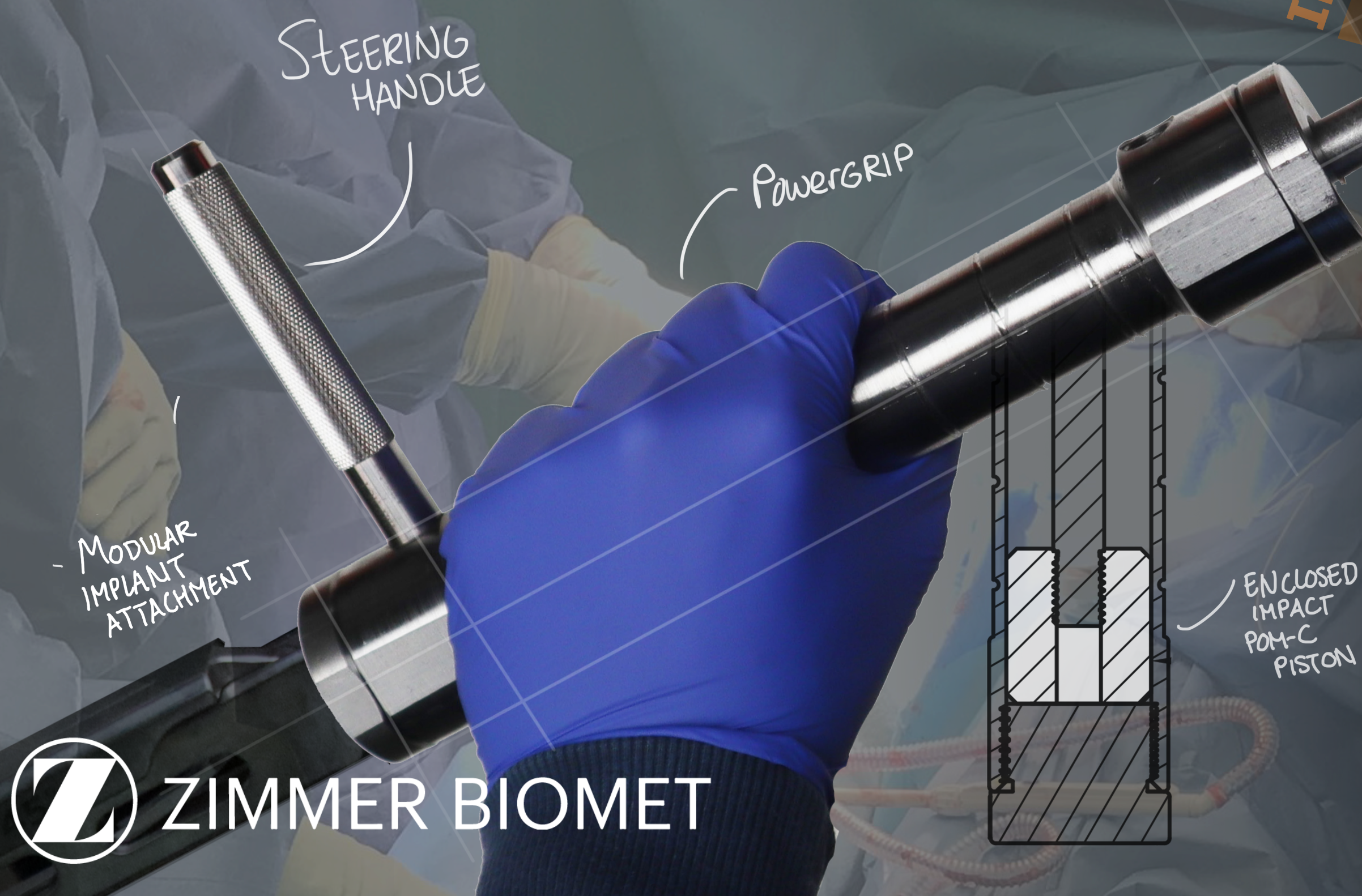


DRIVEFIT®

MODULAR IMPACTOR AND EXTRACTOR SYSTEM

In hip replacement surgery high sound levels are reached due to the usage of surgical instruments. Noise levels range from 120 up to 130 dB resulting in temporary and permanent noise-induced hearing loss for surgeon and nurses. Hearing protection is not the solution, as orthopedic personnel tends not to wear these as it disconnects them from their environment and hinders communication.



IMPACTION

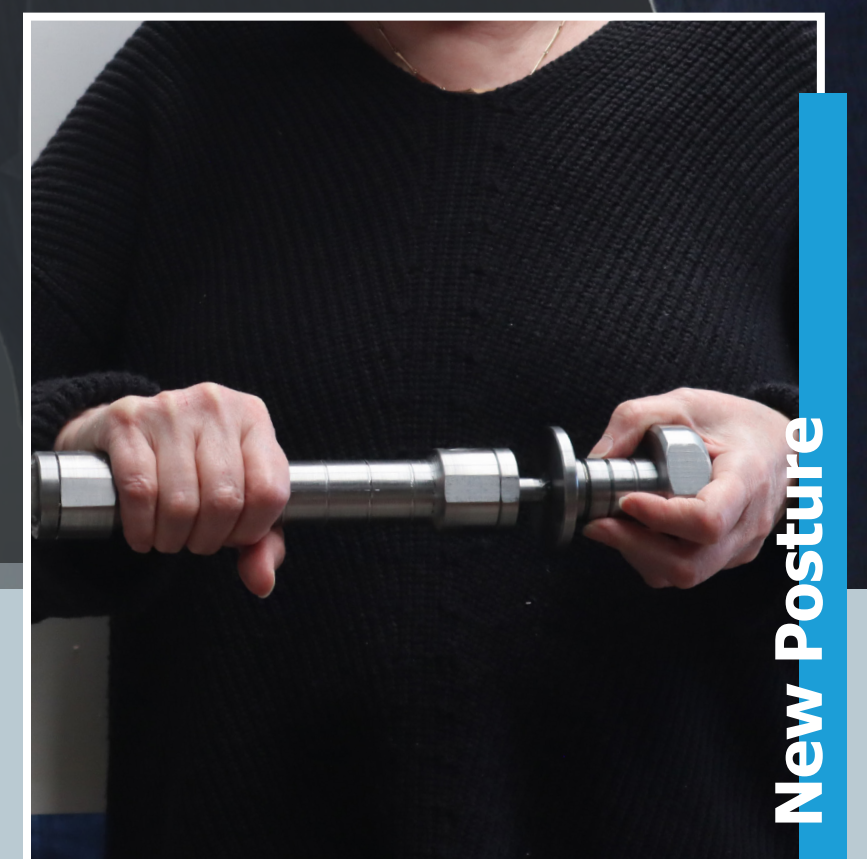
EXTRACTION

Ergonomic GRIP

FORCE EXERTING HAND

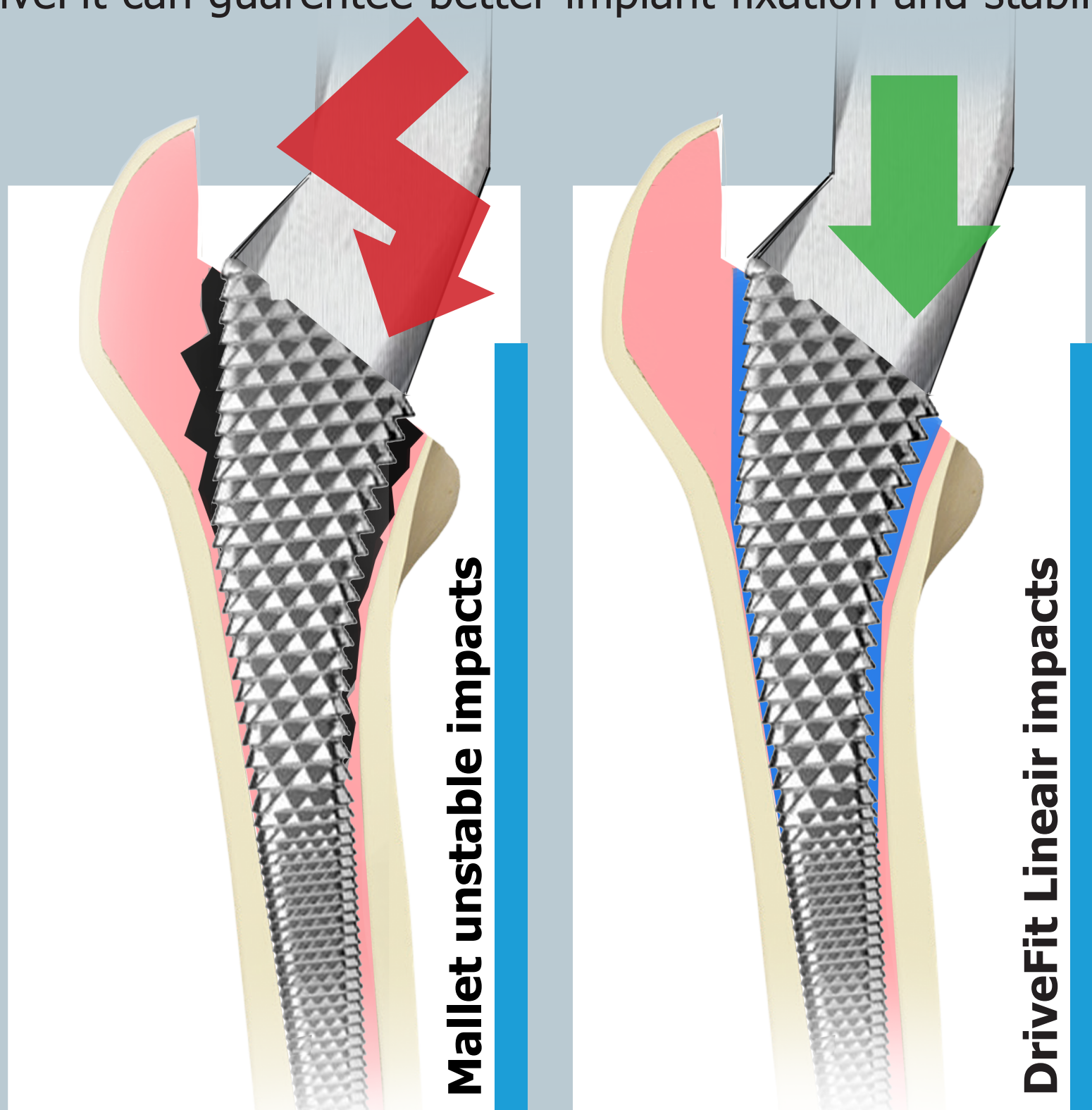
Sound level decrease

The currently used tools for impaction are orthopedic mallets, these generate sound level peaks around 125 dB. DriveFit decreases these levels by 16 dB, due to enclosure of the sound source and avoidance of metal-on-metal collision. Resulting in a working environment where sound levels are below the human pain threshold of hearing.



Linear Force

The current way of implanting in hip arthroplasty gets done by wedging implants or rasps into the bone by mallet strikes. Stability in this process is of great importance, as instability could damage bone tissue and eventually affect implant fit. Due to linear force exertion, there is more stability and thus less damage to bone tissue. DriveFit can guarantee better implant fixation and stability.



Improved Ergonomics

Using a surgical mallet to extract or impact puts surgeons in unnatural working postures. These postures increase the risk for musculoskeletal disorders. With DriveFit the surgeon can execute impaction and extraction without adapting his posture, coupling in a neutral wrist position and is able to work in an upright posture, which decreases risk of injury.



DriveFit is a **Modular Product** that can be changed to fit procedural steps and the surgeons preference. Attaching Modular attachment to the product gives surgeons the ability to perform all surgical steps, which reduces the amount of general surgery instruments in total hip replacement. Next to this DriveFit comes with three handles, differentiating in weight and circumference to fit the orthopedic surgeons procedural preference.

C.L.H. (Kees) Broekmeulen
"Reduction of harmful noise in hip replacement surgery"
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MSc Integrated Product Design
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Committee Elif Ozcan Vieira
Sonja Paus-Buzink
Hilbrand Bodewes
Company Zimmer Biomet

 **TU Delft**