



CITF PA19-027

EXO-01 Overhead
Exoskeleton



PRODUCT PRESENTATION

Applicant Name: HILTI (HONG KONG) LIMITED

Product Name: EXO-01 Overhead Exoskeleton

Specification:

- Weight: 1.99 kg
- Dimensions (length x width x height): 850 mm x 400 mm x 200 mm



Core Functions:

- Passive exoskeleton to relieve strain on shoulders and arms during overhead installation work

Technology Used:

- Two rubber expanders of the exoskeleton applies a force to the wearer's arms to support serial overhead work.

Construction Process involved:

- Overhead Pipe installation, sprinkler installation, airduct/ventilation installation, fastening cables and conduits, end equipment installation, board hanging/screwing, sealing of walls

Key Improvement in Construction Process:

- Productivity
- Safety

BENEFIT -PRODUCTIVITY

- **Improve productivity by:**
- Smoother progress on-site – this passive exoskeleton supports the wearer, helping to cut down on overexertion injuries, rest breaks and sick leave during construction work
- All-day comfort – weighing under 2 kg (4.4 lbs.), this ultralight exoskeleton can help delay arm/shoulder muscle fatigue during long periods of overhead work
- Freedom of movement – provides dynamic support without restricting the range of motion of arm and torso
- Versatile – engineered to provide support for virtually any overhead installation work on construction jobsites



BENEFITS - SAFETY

- **Improve Safety by:**

- With current practice, among interviewed workers, 29% to 37% reported back pain, 14% to 30% reported neck pain, and 7% to 30% reported shoulder pain.
- EXO-01 Overhead Exoskeleton help relieving the pain by its mechanical expander technology, which reduces the load on shoulder joint and the risk of injury.
- The shoulder joint reaction forces as well as the gleno-humeral joint moments were decreased by approximately 30 percent in all directions of force from exoskeleton, less pain and fatigue due to reduced load on muscles and joints help to stay healthy, by which also reduce the potential risks of accidents from fatigues and longer time chronic disease.

In Mechanical, Electrical and IF trades, majority of the applications are related with overhead applications

