

Exoskeleton

Objective: The Exoskeleton system envisages augmenting the strength of soldier. It is made of light weight composite devices that attached to the legs and shoulders.

Description: A powered Exoskeleton, also known as power armour, exo-frame or exosuit is a mobile machine consisting primarily of an outer framework (akin to an insect's Exoskeleton) worn by a person, and powered by a system of motors, hydraulics or pneumatics that delivers at least part of the energy for limb movement. The main function of a powered Exoskeleton is to assist the wearer by boosting their strength and endurance. They are commonly designed for military use, to help soldiers carry heavy loads both in and out of combat. In addition, similar Exoskeletons can be used to help pre-fighters and other rescue workers survive dangerous environment.

Functional requirement:

- (a) Should be able to conform to the varied shape of the soldier body.
- (b) Should require minimum maintenance and effective in adverse weather conditions
- (c) Should be modular and flexible in use.
- (d) Should effectively cover area from shoulder to ankle
- (e) Should have very less weight for effective movement
- (f) Should be functional with minimum mtrl sp in adverse weather/ operation conditions
- (g) Consumption of power should be efficient and economical
- (h) The parts of Exoskeleton should be durable and easily replicable/ interchangeable
- (i) The Exoskeleton should be able to be used in various trn such as desserts, HAA & Mountains and Jungles. It should not impede the movement of soldier.
- (j) Should be easily wearable

Specification:

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| i. | Uplift Load | 100 Kgs |
| ii. | Endurance | 8-10 Hrs |

iii.	Weight of Complete System	Not more than 5-6 Kgs
iv.	Length of System	Should fit to body of all types of Solider
v.	Battery Back-up	Minimum 5 Hrs
vi.	Operating Temperature	-20°C to +45°C
vii.	Storage Temperature	-51°C to +71°C
viii.	Humidity	90% at 30°C
ix.	Service life	10 Years
x.	Re-charging	AC/DC Source