

COVID-19 Protective Equipments Under Development at TBRL Chandigarh

Terminal Ballistics Research Laboratory (TBRL) Chandigarh has been coordinating with Post Graduate Institute of Medical Education & Research (PGIMER) Chandigarh to provide COVID-19 protective equipments for healthcare professionals. A brief summary of the work done till date (04 April 2020) is summarized below:

1. Protective Face Shield

- Face protection of healthcare professionals handling COVID-19 patients.
- Light weight and can be worn full day with comfort.
- Commonly available A4 size Over-Head Projection (OHP) film used for fabrication.
- The holding frame is manufactured using Fused Deposition Modeling (FDM) technique, which is also commonly known as 3D printing.
- PLA (Polylactic Acid) filament was used for 3D printing. PLA is a biodegradable thermoplastic derived from renewable resources such as corn starch or sugarcane.
- Around 100 face shields are being produced daily in TBRL and provided to PGIMER.
- A demand of 10,000 Nos. has been received from PGIMER based on successful user trials.
- Mass production is planned using Injection Moulding Technique to expedite the process.



2. Intubation Protective Enclosure

- Requested by Department of Anesthesia and Intensive Care of PGIMER Chandigarh.
- Act as first level of protection for doctors and medical staff during the intubation of COVID-19 patients.
- During intubation, a tube is inserted into patient's mouth to keep the airway open so that the patient can be placed on a ventilator.
- Medical professionals are at elevated levels of risk of infection as virus particles can become aerosolized during intubation.
- TBRL has developed the intubation protective enclosures using Poly Methyl Meth Acrylate (PMMA) Sheets available in-house.
- 03 prototypes have been fabricated in TBRL Main Workshop and handed over to PGIMER.
- A demand of 15 Enclosures has been received from PGIMER based on successful user trials.
- Industrial partners are also being developed to meet the possible demands from neighbouring states.

