

PHOSPHORUS POOL

SUSTAINABLE GROWTH STARTS WITH ORGANIC SOLUTIONS



RESEARCH-BACKED FERTILIZERS FOR OPTIMAL GROWTH

PHOSPHORUS POOL

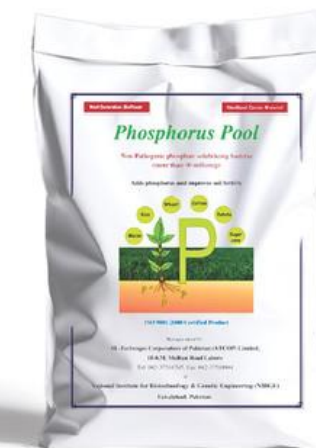


TECHNICALITY / COMPOSITION

- Contains non-pathogenic phosphate-solubilizing bacteria, with a concentration exceeding 10 million CFU per gram.
- Certified under ISO 9001:2008 standards, ensuring high quality and consistency.

BENEFITS

- Increase in crop yield
- Saving of 20% DAP fertilizer
- Increase soil fertility
- Reduced cost of crop production
- Safe environment



BACKGROUND

Many Pakistani soils are significantly deficient in available phosphorus (P), with studies indicating that up to 60% of soils in certain regions lack adequate levels. Chemical phosphorus fertilizers often become fixed and unavailable due to natural soil processes, such as adsorption and precipitation. This deficiency can lead to stunted plant growth and reduced crop yields, as inadequate phosphorus adversely affects root development and photosynthesis. Addressing this issue through sustainable phosphorus management practices is essential for improving agricultural productivity and food security in the region.

INTRODUCTION

Phosphorous Pool is a commercial product that features phosphorus-solubilizing, plant-beneficial bacteria immobilized on a carrier material. This innovative formulation contains a consortium of root-associated bacteria that effectively convert unavailable or bound forms of phosphorus into plant-available forms. Through their activity, these bacteria enhance phosphorus availability in the soil, stimulating root growth and boosting overall plant vigor. As a result, plants become healthier and produce higher yields.

HOW TO USE

The product is available in 1 kg packaging, with application rates tailored to specific crop types:

Wheat and Other Crops: Use 2 bags per acre, preferably through seed pelleting (coating).

Rice: Apply 1 bag per acre by dipping the roots in a Phosphorus Pool suspension during transplanting. For optimal benefits, dip for 30 to 60 minutes.

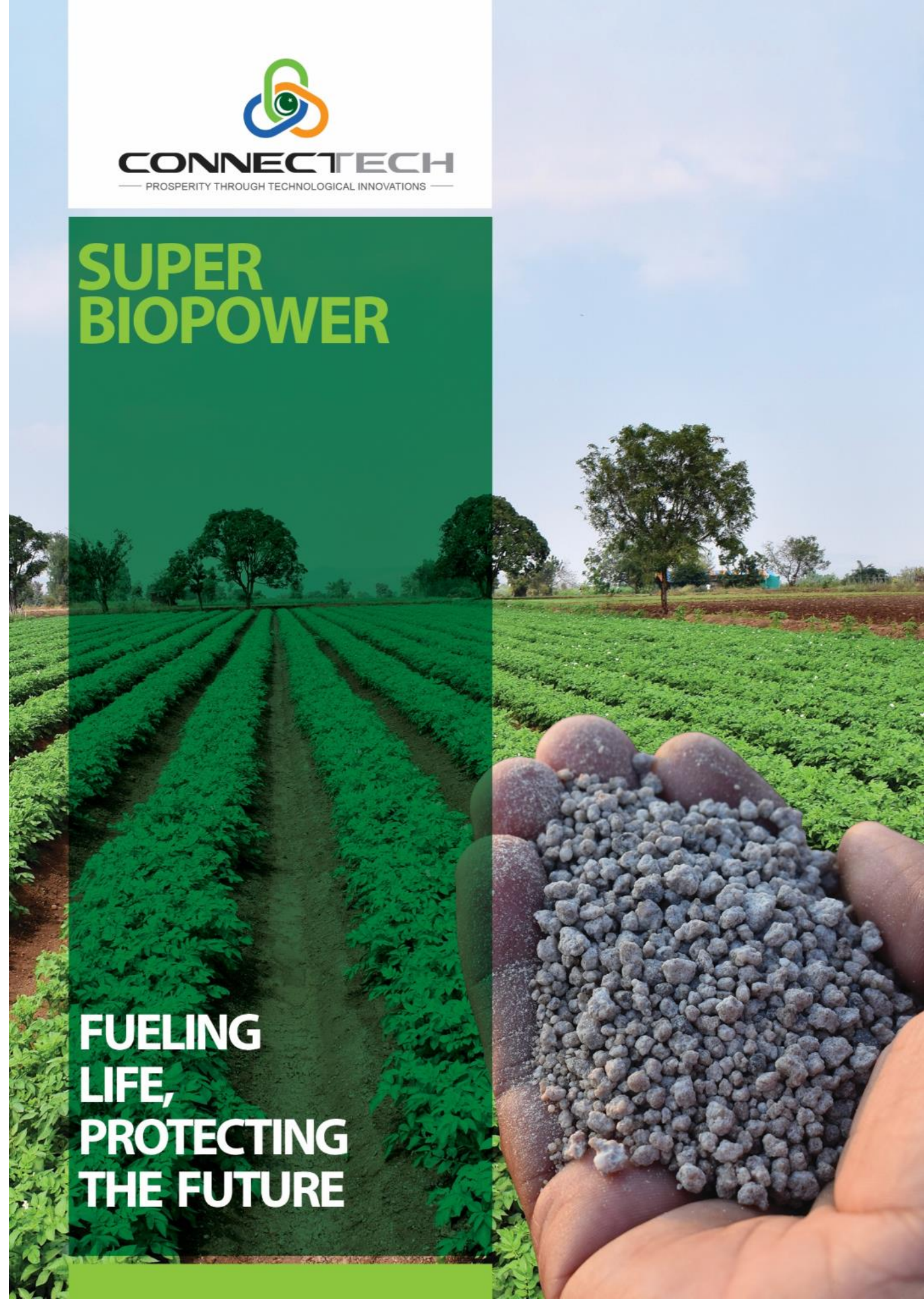
Additionally, only 80% of the recommended phosphorus fertilizer should be added to maximize effectiveness.

[Pictures are for reference only and may differ from actual products]



SUPER BIOPOWER

**FUELING
LIFE,
PROTECTING
THE FUTURE**



UNLEASH THE POWER OF NATURE FOR UNSTOPPABLE PRODUCTIVITY

SUPER BIOPOWER



USES & BENEFITS

- Increases Crop Yield:**
Enhances crop production by up to 15%, supporting higher yield potential.
- Reduces Fertilizer Requirement:**
Saves at least 20% on Urea and DAP fertilizers due to nitrogen-fixing and phosphorus-solubilizing bacteria, lowering input costs.
- Enhances Soil Health:**
Enriches soil fertility through beneficial microbial activity, creating a sustainable, healthier environment for crops.
- Promotes Root Growth:**
Boosts root development by around 10%, strengthening plant resilience.
- Cost Efficiency:**
Reduces overall crop production costs, making it a more economical choice for farmers.
- Eco-Friendly:**
Encourages an environmentally sustainable approach to farming.

INTRODUCTION

Super Bio Power was introduced in Pakistan to address the critical need for sustainable agricultural productivity amidst declining soil health and rising input costs. With traditional practices heavily reliant on synthetic fertilizers, Pakistani farmers face escalating expenses, reduced soil fertility, and long-term environmental impacts. Designed to enhance crop yields naturally, Super Bio Power provides a scientifically optimized blend that reduces the need for chemical fertilizers, supporting national goals for sustainable agriculture. This biofertilizer is a crop-specific bacterial blend, enhancing major crops like rice, wheat, and maize. It not only contributes to more resilient crop growth but also aligns with efforts to improve soil quality, reduce production costs, and promote eco-friendly farming practices in Pakistan's agricultural landscape.

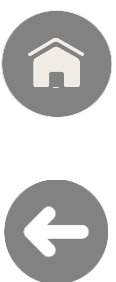
COMPOSITION

Registered in 2016, it boosts crop yield by 15%, cuts urea and DAP fertilizer use by 20%, and improves soil fertility while lowering costs. With CFU 10^7 /g in a neutral pH and up to 30% moisture content, it promotes root growth by at least 10%, supporting sustainable agriculture.

- Crop-specific bacterial consortium containing:
- Nitrogen-fixing bacteria
 - Phosphorus-solubilizing bacteria
 - Plant growth hormone-producing bacteria



[Pictures are for reference only and may differ from actual products]

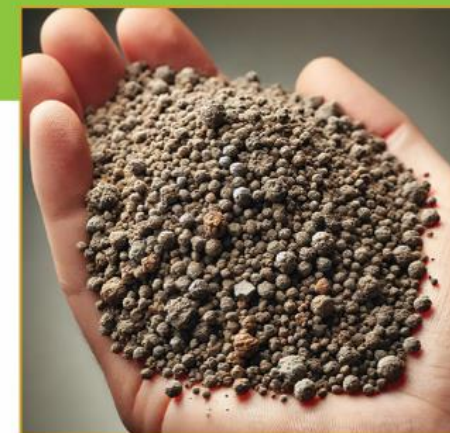


NEM PHOSPHATE

BOOST SOIL FERTILITY, MAXIMIZE CROP OUTPUT

BEST QUALITY TO UNLOCK THE FULL POTENTIAL OF YOUR CROPS AND SOIL

NEM PHOSPHATE



COMPOSITION

NEM phosphate fertilizer is an acidic fertilizer composed of composted manure, selenium, silicon, magnesium and gypsum as under.

- P₂O₅ = 16%
- Se = 10 mg kg⁻¹
- Si = 20 mg kg⁻¹
- Composted manure = 2%
- Gypsum = 42%
- Mg = 1%
- pH = ~ 2

Owing to acidic nature, it is not only more available in alkaline soils but also curtails ammonia losses from associated nitrogen fertilizer.



BACKGROUND

Soils of Pakistan are mostly alkaline and calcareous, having low phosphorus use efficiency (PUE ≈ 20-25%) owing to their high reactivity with soil constituents. As the reaction of soluble phosphate with soil constituent proceeds chemically, fertilizers are rapidly precipitated to insoluble forms with cations, particularly reacting with calcium and magnesium. Phosphate fertilizers are prepared from rock phosphate (RP); its reserves are rapidly depleting worldwide and hence RP may become a rare entity on earth by 2050. This necessitates improving efficiency of phosphate fertilizers through new innovations. Blending of manure with soluble P provides a physical barrier on soil application thus it may decrease reactivity with soil constituents. The release of bio-chemicals/enzymes from composted manure further helps mobilize native soil nutrients and improve biochemical properties of soil.

INTRODUCTION

NEM-phosphate, a nutrient-enriched manure phosphate fertilizer, can be used as an efficient alternative to conventionally available P fertilizers. Being an acidic fertilizer, it is well suited for alkaline calcareous soils. As it is being manufactured using local raw materials, therefore, it has less cost than conventionally used DAP. It can be applied to major cereal crops for achieving better returns in terms of yields of field crops when compared with conventional fertilizers.

BENEFITS

As the fertilizer contains beneficial nutrients (Se, Si), it promotes vegetative growth and produces better yield of field crops in diverse soil environments, especially in alkaline/saline soils, as compared to conventional phosphate fertilizers.

[Pictures are for reference only and may differ from actual products]



DIRECT FEED MICROBES

EMPOWERING HEALTH WITH BIOLOGY NOT ANTIBIOTICS



UNLOCK YOUR FARM'S POTENTIAL

DIRECT FEED MICROBES



DOSAGE ADMINISTRATION

- General Health: 2.0 ml per liter of drinking water from 2-38 days (12 hours daily).
- Infection: 4.0 ml per liter for 3-5 days (12 hours daily).

BENEFITS

- **Increased Appetite & Metabolism:**
Promotes better feed utilization and energy conversion.
- **Enhanced Immunity:**
Supports the production of IFN- γ and IL-2 in response to diseases.
- **Improved FCR & Meat Quality:**
Delivers healthier, better-tasting meat.
- **Pathogen Reduction:**
Reduces intestinal pathogens, leading to lower mortality rates and better flock health.



BACKGROUND

The poultry industry is under constant pressure to meet rising demand while combating challenges like pathogen attacks, which increase mortality and morbidity rates.

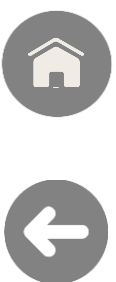
INTRODUCTION

A biological alternative to antibiotics in poultry. DFM Bio-Secure-1, with its unique formulation of carefully selected live microbial consortia, offers a natural, effective solution to maintain a healthy gut, boost immunity, and improve overall performance.

PROVEN RESULTS FROM FIELD TRIALS

- Trial 1:** On 2600 birds, DFM Bio-Secure-1 significantly increased FCR and drastically decreased the presence of intestinal pathogens from day 1 to 35.
- Trial 2:** On a flock of 35,000 birds, the product reduced mortality rates when used from day 14 to 40.
- Trial 3:** Even in a flock infected with severe Newcastle disease and Infectious Bursal Disease (IBD), DFM Bio-Secure-1 improved overall health, weight gain, and reduced pathogen load.

[Pictures are for reference only and may differ from actual products]



HS VACCINE

**PROTECT
WHAT
MATTERS
MOST**



HEALTHY ANIMALS, PROSPEROUS FARMS

HS VACCINE



COMPOSITION / HOW TO USE

- The HS vaccine is available as a white liquid.
- It does not require refrigeration and can be stored at room temperature (25°C).
- The vaccine remains effective for up to 24 months from the manufacturing date.
- Before injection, ensure the syringe and needle are boiled for sterilization.
- Shake the vaccine well before use and administer it before the rainy season each year for optimal protection.
- For animals receiving the vaccine for the first time, a booster dose should be given six weeks later.
- Animals will be protected against the disease 10 days after vaccination.
- Administer 3 ml of the vaccine for adult animals weighing approximately 300 kg and 2 ml for smaller animals.



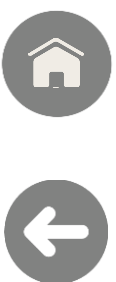
BACKGROUND

Haemorrhagic septicaemia is a highly infectious and often fatal disease that can lead to mortality rates of up to 90% in affected animals. In Pakistan, it primarily affects buffaloes and cows between the ages of 6 months and 2 years, particularly in hot and humid conditions. The disease is characterized by painful swelling around the neck and difficulty breathing, often leading to a sensation of suffocation, which is why it is locally referred to as "Gul Ghotto." If the disease persists, it can further impact the lungs and digestive system. In severe cases, affected animals may experience high fevers of 104-105°F and can succumb to the illness within 24 hours. The causative agent, *Pasteurella multocida*, is typically found in the upper respiratory tract of healthy animals without causing harm, but under certain conditions, it can lead to this devastating disease.

INTRODUCTION

By leveraging advanced technologies, a high quality vaccine for Haemorrhagic Septicaemia, a disease that poses a significant threat to livestock has been developed. Experimental trials have demonstrated that the HS vaccine yields excellent results, providing protection for animals against this severe illness for up to one year. This effective immunity highlights the importance of annual vaccination; therefore, it is recommended that farmers administer the HS vaccine once a year to ensure their livestock remains safeguarded against Haemorrhagic Septicaemia. By prioritizing this vaccination, farmers can significantly reduce the risk of disease outbreaks and protect the health and productivity of their animals.

[Pictures are for reference only and may differ from actual products]



HEAT SPONGE

**NURTURE
THEIR GROWTH,
NURTURE
YOUR FARM**

RESEARCH-DRIVEN SOLUTIONS FOR OPTIMAL FERTILITY

HEAT SPONGE



BENEFITS

- Induces heat/estrus in cow/buffalo
- Synchronizes estrus phase in a group of cows and saves labour to detect estrus
- Used for controlled/planned breeding in livestock.
- Enhances productivity of dairy animals in non-breeding season as well

INTRODUCTION

Heat sponge is a research based product intended to enhance the fertility of domestic livestock. It is a hormonal device used to induce/synchronize the heat period (estrus) of female animals for the purpose of their breeding at desired time. They enable farmers to accurately monitor and predict heat cycles, facilitating efficient breeding planning and enhancing reproductive success. By addressing challenges like inconsistent breeding cycles and limited veterinary access, heat sponges empower farmers to make informed decisions that increase livestock productivity. This modernization of livestock management supports improved herd quality and plays a crucial role in advancing Pakistan's agricultural sector for a more productive future.

USES

Following insertion of Heat sponge in the vagina with an applicator, the sponge releases a hormone which is absorbed and subjects the animal to the luteal phase of the sexual cycle. On removal of the sponge (on day-8) this artificially imposed phase is ended with a simultaneous start of the follicular phase in the treated animal. Follicles then develop and estrus and ovulation follow, by making the animal ready for breeding.

TECHNICAL DETAILS

- A polyurethane sponge impregnated with a progestin hormone;
- Exhibited heat/estrus in 82% and Conception in 62% buffalo heifers;
- Exhibited heat/estrus in 97% and Conception in 66% lactating buffaloes;
- Exhibited heat/estrus in 85% and pregnancy rate in 79.6% mixed breed cows.

[Pictures are for reference only and may differ from actual products]



FOOT MOUTH DISEASE VACCINE

KEEP YOUR FARM THRIVING



SHIELD YOUR FARM WITH THE BEST

FOOT MOUTH DISEASE VACCINE



COMPOSITION

Antigen:
Inactivated Foot and Mouth Disease Virus containing 3 serotypes & 4 lineages.

- O/ME-SA/PanAsia-2 (10^9 TCID₅₀/mL)
- O/ME-SA/Ind-2001e (10^9 TCID₅₀/mL)
- Asia-1/Asia/Sindh-08 (10^9 TCID₅₀/mL)
- A/Asia/Iran-05 (10^9 TCID₅₀/mL)
- Adjuvants: ISA 50 V2

BACKGROUND

Foot-and-mouth disease (FMD) is a highly contagious viral disease that affects cloven-hoofed animals, including cattle, pigs, sheep, goats, and deer. The disease is caused by the foot-and-mouth disease virus (FMDV), which belongs to the Picornaviridae family. FMD spreads rapidly through direct contact with infected animals, contaminated feed, equipment, and sometimes through the air over short distances.

INTRODUCTION

The FMD vaccine is developed using a meticulous process that begins with the propagation of local isolates in BHK-21 cells. This step ensures that the vaccine is tailored to effectively combat the specific strains prevalent in the region. Following propagation, the vaccine undergoes inactivation with binary ethyleneimine, a method that safely neutralizes the viral components while preserving their ability to stimulate an immune response. To further enhance its efficacy, the inactivated virus is combined with Montanide (ISA 50), creating a double oil emulsion vaccine. This formulation not only improves the stability and delivery of the vaccine but also boosts the immune response, providing livestock with robust protection against Foot-and-Mouth Disease (FMD).

HOW TO USE / ADMINISTRATION & DOSAGE

ADMINISTRATION

Shake well before use and Preferably apply through intramuscular route

DOSE

Cattle/ Buffalo: 3 mL

Sheep and Goat: 1.5 mL

PRIMARY COURSE OF VACCINATION

Two injections, 3 to 4 weeks apart, starting at two weeks of age for young animals from unvaccinated dams or 2.5 months of age for young animals from vaccinated dams. In case of an epidemic the first injection should be given to all animals as early as 2 weeks of age.

BOOSTERS

Normally, boosters should be given every 4- 6 months depending on the risk.



[Pictures are for reference only and may differ from actual products]



A RELIABLE SOLUTIONS FOR PEST CONTROL AND GROWTH

ECO SPRAY

ECO SPRAY



BENEFITS

- Environment-friendly, non-toxic, non-residual formulation
- Acts as insecticide, miticide and fungicide altogether
- Insects do not develop resistance against it

INTRODUCTION

- A spray formulation to control soft-bodied insect pests, mites and certain diseases of crops, vegetables, fruits and ornamental plants
- Effective against a wide-range of sucking insect pests viz., whiteflies, aphids, jassids, mealybugs, thrips, psyllids, mites and diseases (Fungal/ viral)

USES/HOW TO USE

- Dilute in water to make a final solution of 2-4%
- Spray evenly with a fine nozzle to form a fine mist
- Acts as a contact insecticide so through coverage is required

TECHNICAL DETAILS

- Dissolves external waxy coating of eggs and nymphs (young ones) and cuts off oxygen so all developmental stages of insects are controlled
- Clogs the spiracles (breathing pores) of soft-bodied insect and suffocates them
- Both smothering a repellent effect



PROTECT YOUR CROPS, PROTECT THE PLANET

[Pictures are for reference only and may differ from actual products]



GREEN OBSERVER

**SUSTAINABLE
GROWTH,
GREATER
RETURNS**



BOOST YIELDS WITH PRECISION AND EFFICIENCY

GREEN OBSERVER



BENEFITS

- Efficient tool of precision agriculture.
- Optimized quantity of the fertilizers.
- Reduction in cost of fertilizers.
- Reduce soil toxicity caused by overuse of fertilizers.
- Low cost device.
- Complete backup after-sale-service.

INTRODUCTION

Nitrogen is an essential plant nutrient and, next to water, is the most yield limiting factor in crops. Agri. & Biophotonics Division has developed a hand-held device, named Green Observer, to assess optimized requirements of nitrogen fertilizer to achieve enhanced and quality production. Better nitrogen management will not only help farmers to get enhanced yield, but will also reduce the risk of environmental pollution, a consequence of the excessive use of the fertilizers.

TECHNICAL DETAILS

- Digital display
- Vegetation index range: 0.00 - 1.00
- Daylight readability
- Handheld operation

WHAT IT DOES

- Chlorophyll variations in plant canopy
- Assessment of fertilizer requirement
- Analysis of nutrient response
- Estimation of yield potential
- Early disease diagnosis



[Pictures are for reference only and may differ from actual products]



QPCR KIT FOR COVID-19

FEEL THE PEACE OF MIND IN EVERY RESULT



RELIABLE SOLUTIONS FOR ACCURATE RESULTS

QPCR KIT FOR COVID-19



BENEFITS

- The qPCR kit provides rapid results, detecting SARS-CoV-2 in under 1 hour and 40 minutes, allowing for quick diagnosis and timely decision-making.
- It offers a cost-effective testing option that is especially important in resource-limited settings.
- Its high sensitivity and specificity, achieved by targeting multiple genes, help minimize the risk of false negatives and positives.
- The inclusion of a human-specific gene ensures reliable sampling and extraction quality, boosting confidence in the results.
- The kit has been validated by the National Institute of Health (NIH) and approved by the Drug Regulatory Authority of Pakistan (DRAP), ensuring adherence to rigorous quality standards.

BACKGROUND

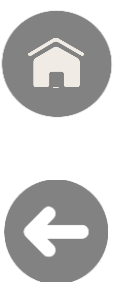
The emergence of COVID-19 created an urgent need for effective diagnostic tools to manage the pandemic, particularly in countries like Pakistan, where the demand for testing outstripped local supply. Initially, a significant number of COVID-19 detection kits had to be imported, straining resources and complicating timely responses.

INTRODUCTION + TECHNICAL DETAILS

The qPCR kit offers a reliable solution for detecting SARS-CoV-2. This advanced kit targets three specific genes: two related to SARS-CoV-2, the Envelope gene and RNA polymerase gene, along with a human-specific gene to ensure the quality control of sampling and extraction. Remarkably, it can determine the presence or absence of the virus in a test sample in under 1 hour and 40 minutes, making it an efficient tool for timely diagnostics. With 22,000 tests already performed, the kit has gained approval from the Drug Regulatory Authority of Pakistan (DRAP) in 2023 and has been validated by the National Institute of Health (NIH). Each kit is capable of conducting 100 reaction tests, further supporting the ongoing efforts to monitor and control the spread of COVID-19.



[Pictures are for reference only and may differ from actual products]



VPCR KIT FOR POULTRY VIRUSES (NDV)

**PROTECT
WHAT
MATTERS
MOST**



PRECISION TESTING FOR POULTRY HEALTH

VPCR KIT FOR POULTRY VIRUSES (NDV)



USES/BENEFITS

- **Rapid Diagnosis:** Enables swift identification of Newcastle Disease Virus (NDV) for effective outbreak control.
- **Enhanced Accuracy:** Minimizes false positives and negatives for reliable disease management.
- **Support for Biosecurity:** Facilitates targeted biosecurity and vaccination measures to reduce virus transmission.
- **Operational Efficiency:** Streamlines the diagnostic process, saving time and resources in laboratories.

BACKGROUND

Newcastle Disease Virus (NDV) is a persistent threat to poultry health worldwide, particularly in regions with dense poultry populations and limited access to rapid diagnostic tools. NDV outbreaks can lead to significant economic losses, impacting both small-scale and commercial poultry producers.

INTRODUCTION

The VPCR Kit for Poultry Viruses (NDV) is a high-precision diagnostic tool engineered for the detection of Newcastle Disease Virus (NDV), a highly contagious virus that primarily affects poultry and poses serious challenges to global poultry health management. Accurate and early NDV diagnosis is essential for effective disease control and prevention of widespread outbreaks. While traditional methods like histopathology and PCR testing have been the standard, the VPCR Kit offers an advanced, streamlined solution designed for efficiency and reliability. It is an invaluable resource for veterinarians, laboratories, and poultry health professionals committed to protecting poultry populations from NDV.



[Pictures are for reference only and may differ from actual products]



PORTABLE CONTAMINATION MONITOR

**PEACE OF
MIND
STARTS WITH
PRECISION**



SAFE ENVIRONMENTS START WITH ACCURATE MEASUREMENTS

PORTABLE CONTAMINATION MONITOR



SPECIFICATIONS

- Radiation detection: Alpha, Beta/Gamma
- Detector Type: Plastic Scintillator with ZnS
- Detector Size: 330 mm x 85.5 mm x 151 mm
- Sensitive area: 100 cm²
- Background Count rate: $\alpha \leq 0.05\text{CPS}$, $\beta \leq 5\text{CPS}$
- Measurement range: 0.01 CPS – 9999 CPS

APPLICATIONS

- Nuclear medicine
- Disposal of nuclear waste
- Nuclear power plants
- Environmental Monitoring



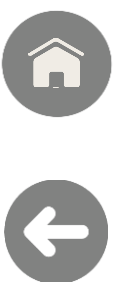
INTRODUCTION

The Portable Contamination Monitor (iPCM-100) is an advanced health physics tool designed to detect and monitor surface contamination across various environments, including tables, walls, hands, skin, and clothing. Primarily used for radiation protection, the iPCM-100 detects alpha, beta, and gamma contaminations, ensuring safe and controlled conditions in settings where radioactive substances may pose a risk. With a background radiation calibration feature, the device accurately displays contamination levels in CPS (counts per second) and Bq/cm², offering immediate, reliable readings. If contamination levels exceed safe thresholds, the monitor activates an audio-visual alarm, alerting personnel to potential hazards. This portable solution is ideal for use in laboratories, healthcare settings, and industrial environments where radiation safety is critical.

FEATURES

- Lightweight and portable.
- User friendly touchscreen TFT display
- Real-time monitoring
- Automatic background measurement and subtraction
- Library for up to 12 nuclides
- Auto-calibration for selected nuclide
- **User selectable units:** CPS & Bq/cm².
- Audio/visual alarm indication.
- Parameter and threshold easy modifiable
- **Power supply:** 3.7V Li-ion rechargeable battery.
- Approx. 15h operating time.

[Pictures are for reference only and may differ from actual products]



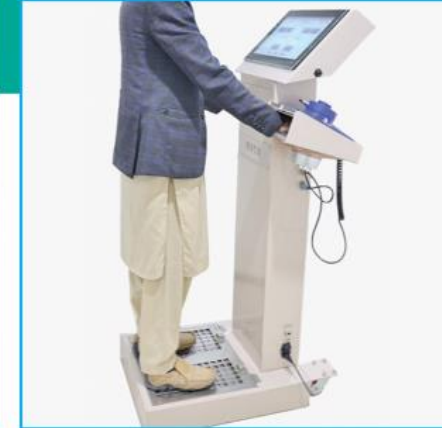
HAND FOOT CONTAMINATION MONITOR

A SAFE ENVIRONMENT FOR A HEALTHY FUTURE



ACCURATE DETECTION, RELIABLE SAFETY

HAND FOOT CONTAMINATION MONITOR



OPERATION PROCEDURE

- Background scanning
- Placement of hands & feet on the detectors
- Scan to check for contamination status

FEATURES

- **Efficiency Settings:** Password protected efficiency settings for detectors.
- **Calibration:** Password protected auto calibration facility.
- **Threshold Settings:** Password protected threshold settings
- **Clothing Probe:** Detachable Clothing Probe for clothing contamination detection
- **Detector Replacement:** Easily replaceable detectors in case of damage
- **Position sensors:** Position sensors for occupation detection

INTRODUCTION

The Hand Foot Contamination Monitor is a high-precision instrument designed for the comprehensive monitoring of radioactive contamination, ensuring the safety of personnel in radiation-prone environments. This advanced monitor enables simultaneous scanning of hands, feet, and clothing, utilizing state-of-the-art plastic scintillation detectors with ZnS coating for accurate detection of alpha, beta, and gamma contaminants. Featuring intuitive software and simplified diagnostics, it is engineered to provide radiation workers with a reliable and user-friendly solution for contamination assessment, setting an ideal standard for occupational safety in radioactive settings.

USES

- **Routine Contamination Screening:** Monitors hands, feet, and clothing of radiation workers for alpha, beta, and gamma contamination, ensuring safety compliance.
- **Prevention of Contamination Spread:** Helps prevent radioactive contaminants from moving outside controlled areas, maintaining a safer work environment.
- **Efficient and Accurate Detection:** Equipped with advanced scintillation detectors and user-friendly software, it provides precise, reliable monitoring with ease of use.

TECHNICAL DETAILS/ DETECTORS SPECIFICATIONS

Hand Detector: 150mm×230mm			Foot Detector: 150mm×370mm		
Nuclide	% Efficiency (SER)	Detector MDA (Bq/cm ²)	Nuclide	% Efficiency (SER)	Detector MDA (Bq/cm ²)
²⁴¹ Am (a)	28	0.34	²⁴¹ Am (a)	26	0.37
¹³⁷ Cs	38	1.30	¹³⁷ Cs	41	1.20
³⁶ Cl	60	0.82	³⁶ Cl	62	0.79
⁹⁰ Sr/ ⁹⁰ Y	60	0.82	⁹⁰ Sr/ ⁹⁰ Y	63	0.78

[Pictures are for reference only and may differ from actual products]





PAPER BASED DIAGNOSTIC KIT-DENGUE

**FAST,
SIMPLE,
AND
RELIABLE**



ONE-STEP TEST WITH HIGH SENSITIVITY FOR EARLY AND ACCURATE DENGUE DIAGNOSIS

PAPER BASED DIAGNOSTIC KIT-DENGUE



POTENTIAL END USER

Diagnostic Labs, Research Labs, Hospitals & Clinical setups for point of use detection

INTRODUCTION

Dengue Virus, transmitted by Ae. Aegypti and Ae. Albopictus, are widely distributed throughout the tropical and subtropical areas of the world. Dengue is an important arthropod-borne viral disease due to its high morbidity and mortality in humans. NS1 is a highly conserved glycoprotein that is present at high concentrations in the sera of the dengue infected patients, during the early clinical phase of disease. NS1 antigen is found in the specimens from primary to secondary dengue infected patients between 1 to 9 days after the onset of fever. This Dengue NS1 Ag test is a highly sensitive and specific one step assay for the qualitative detection of dengue NS1 antigen in human serum.

TECHNICAL SPECIFICATIONS

- Screening test for NS1 antigen of Dengue virus
- Gold Nanoparticle based detection kit for sharp readout
- Naked eye detection – equipment free result interpretation
- Quick detection time – ~ 20 mins
- High Specificity and Sensitivity
- 50 Tests per box
- Storage at Room Temperature



[Pictures are for reference only and may differ from actual products]



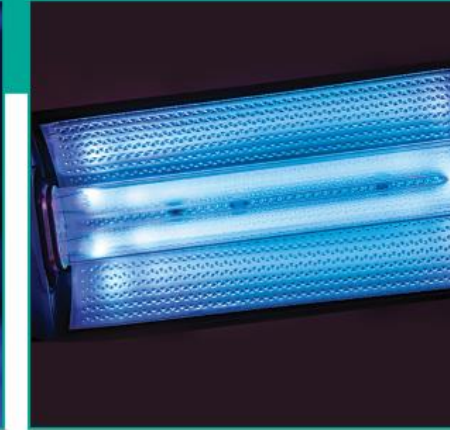
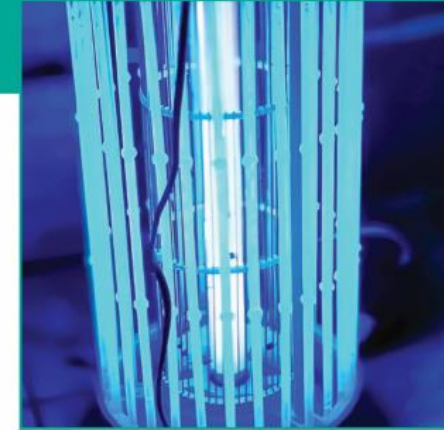
UV PASS

**HEALTHY
ENVIRONMENT,
HAPPY
LIVES**



WHERE SAFETY MEETS INNOVATION

UV PASS



BENEFITS

- Portable, light-weight, compact design and easily manageable.
- Stainless steel body.
- Remotely operated.
- Adjustable exposure time.
- Emergency stop.
- Safe operation.
- Produce no ozone.
- Automatically turned OFF on the completion of Operation.
- Operation can be remotely turned ON/OFF at any time.

INTRODUCTION

UV Pass is a portable device to disinfect the areas which are exposed to the pathogens. These areas are usually disinfected chemically. UV Pass is a UVC light based device. Pathogens absorb this light and get destroyed. Its efficiency is high. It is easy to use and its action is quick as well.

TECHNICAL USE

Place the moveable unit at the required position. Adjust the recommended exposure time on the timer relay. Press the power button ON. Then switch ON UVC lamps remotely. By pressing the remote button ON at distal end, a buzzer will be rung for 10 seconds to warn personnel working inside the area. Red indicator will be turned on to indicate the status of the UVC lamps. Once the timer completes the operation, UVC lamps and indicators will be turned off. For the next operation, reinitiate the timer by pressing the ON button from the remote and timer will complete the whole operation.

TECHNICAL DETAILS

- Sterilizes air and surface germicides through irradiation at UVC wavelength of 254 nm.
- 12 UVC lamps produce intense beacons of ultraviolet light.
- 99.99 % disinfection from various bacteria, mold, viruses and fungi including COVID-19.



[Pictures are for reference only and may differ from actual products]



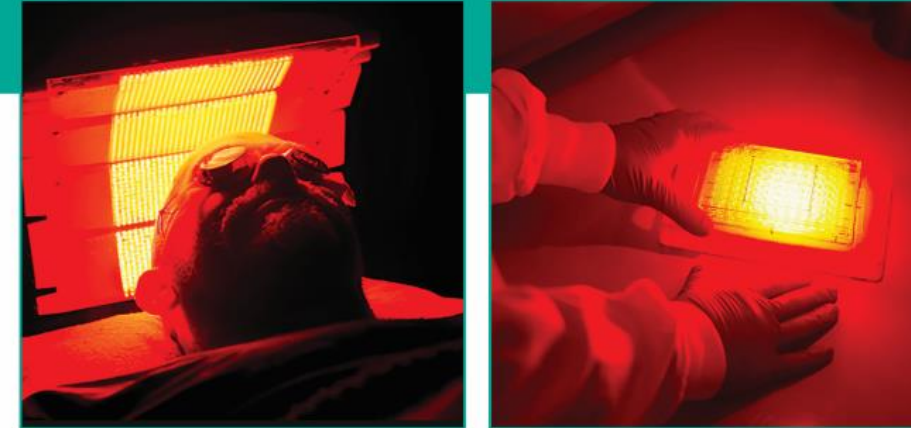
PHOTODYNAMIC THERAPY SYSTEM

(@635NM)

GIVE LIFE A BRIGHTER FUTURE

EFFICIENT, NON-INVASIVE, AND PRECISE

PHOTODYNAMIC THERAPY SYSTEM (@635NM)



INTRODUCTION

PDT is an established noninvasive and highly efficient FDA approved treatment methodology for selective cells and tissue death.

TECHNICAL USE

In PDT, a drug called photosensitizer is applied directly on the lesion or injected through intravenous cells that accumulate in the cancerous or infected cells. A laser with an appropriate wavelength is then shined on the photosensitized lesion that converts cells oxygen into its excited form termed as singlet oxygen which in turn causes the targeted cells to die. PDT635 emits laser wavelength at 635 nm which coincides with the absorption bands of photosensitizers including Aminolevulinic Acid (ALA) and Methyl aminolevulinate (MAL).

TECHNICAL DETAILS

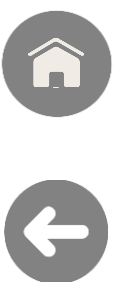
- PDT635 is a fiber coupled laser
- Laser wavelength 635nm
- Laser maximum power 1.5W
- **Fiber core diameter:** 105 um with NA-0.22
- **Stable output power with step size:** 10 mW
- Online monitoring of the output power
- **Spectral width (FWHM):** 3 nm
- **Variable exposure time:** (1 - 60 minutes)
- Touch screen display
- External display through keyboard & mouse
- Laser on/pause/off controls
- **Data storage capacity:** 128GB
- Class 4 laser product

[Pictures are for reference only and may differ from actual products]

BENEFITS

- No long-term side effects when used with appropriate procedure
- Non/less invasive than routinely surgical procedures
- Highly localized and precisely targeted
- Short treatment time
- Unlike nuclear radiation, PDT is nonionizing radiation thus can be repeated if needed
- Generates little or no scar after healing
- Cost effective and economical compared to conventional cancer treatments
- Quick recovery





COVRAID

**HEALTH
CARE
WITHIN
REACH**

EVERY PERSON DESERVES QUICK, RELIABLE CARE

COVRAID



BENEFITS

- **High Accuracy:**
Achieves an accuracy level of over 90%
- **Instant Results:**
Provides diagnostic results within minutes
- **Cost-Effective:**
Affordable solution accessible to all
- **Zero Capital Investment:**
Operates using existing X-ray facilities
- **Fast & Easy Implementation:**
User-friendly with minimal training needed
- **Prognosis Support:**
Enables daily monitoring and comparison of patient X-rays

INTRODUCTION

COVRAID is an advanced artificial intelligence-powered tool designed to aid in the early detection of COVID-19 through the analysis of chest X-rays. Certified by the Pakistan Engineering Council (PEC), this innovative solution leverages AI to provide a reliable and efficient diagnostic aid, supporting healthcare professionals in making timely and accurate assessments.

Implications of COVRAID

Reduced Infrastructure Load: Alleviates pressure on hospitals and isolation centers by facilitating rapid early detection.

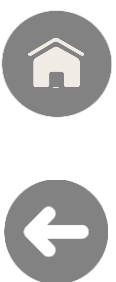
Cost Efficiency: Eases the financial burden of testing, providing an affordable diagnostic solution.

Enhanced Global Image: Showcases Pakistan's achievements in health technology and innovation.

Lowered Stress and Frustration: Quick diagnosis reduces stress, while affordable testing makes it accessible for underprivileged families.



[Pictures are for reference only and may differ from actual products]



VENTILATOR (PAKVENT-1)



EVERY
MOMENT
COUNTS

EFFICIENT AND RELIABLE VENTILATION FOR EVERY CRITICAL SITUATION

VENTILATOR (PAKVENT-1)



MISCELLANEOUS FEATURES

- Interactive GUI with rotary knob controls
- Automated self-test and diagnostics
- Event and message logger for alarms
- 90 mins battery backup
- Abrupt power-off management

SAFETY FEATURES/ALARMS

- High/Low Safety Pressure
- High/Low Tidal Volume
- High/Low Minute Volume
- Main Power Failure / Low Battery
- O₂ supply disconnect
- Patient disconnect
- APNEA
- High/Low FiO₂



INTRODUCTION

PAKVENT-1 has been indigenously designed and developed in a limited time frame to combat COVID-19 and the specifications laid down by PEC/DRAP has been achieved. Technological base in this domain has been established and a license for production has been issued.

TECHNICAL SPECIFICATIONS

SPECIAL ATMOSPHERE FURNACES	
MODES	P-CMV V-CMV P-SIMV V-SIMV PSV P-ACV V-ACV CPAP BPAP
TIDAL VOLUME	50 – 1000 ml
RESPIRATORY RATE	08 – 35 Breath/min
I:E RATIO	1:1, 1:2, 1:3 & 1:4
PEEP	5 – 20 cmH2O
PRESSURE SUPPORT	0 – 35 cmH2O
INSPIRATORY PRESSURE LIMIT	13 – 70 cmH2O
PEAK FLOW RATE	96 lpm
FI02	21 – 100 %
TRIGGERING	Pressure / Flow
POWER SOURCE	AC 220V 50Hz
BATTERY BACKUP	UPTO 90 MINUTES

[Pictures are for reference only and may differ from actual products]



ELISA KIT (HIV)

**BECAUSE
KNOWING IS THE
FIRST STEP TO
HEALTH**



RELIABLE RESULTS THAT EMPOWER YOUR HEALTH JOURNEY

ELISA KIT (HIV)



BENEFITS

- Reliable HIV Detection
- High Accuracy
- Efficient Performance
- Long Shelf-Life
- Easy Storage
- Quantifiable Results

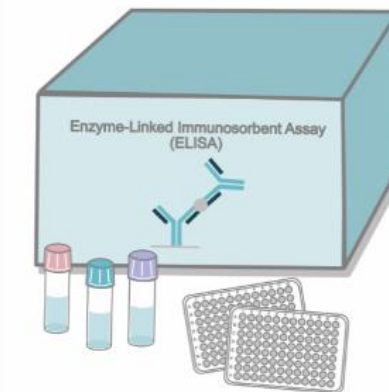
INTRODUCTION

This kit is for the detection of HIV-1 in serum and can be used for diagnostic as well as research purposes.

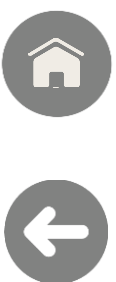
The ELISA kit is an indirect immuno assay technique for the in-vitro qualitative determination of the presence or absence of Anti-HIV-1 P24 antibody in serum.

SPECIFICATIONS

Cut-off	0.99
Area Under Curve (p-value)	0.894 (<0.001)
Sensitivity	85.0%
Specificity	84.5%
Limit of Detection	250 pg/μL
Storage	2-8°C
No. of Test	96 Tests
Performance Time	3-4 Hours
Shelf-Life	1 Year



[Pictures are for reference only and may differ from actual products]



AI BASED COMPUTATIONAL HISTOPATHOLOGY

TIMELY DIAGNOSIS, TRANSFORMING LIVES

70%



REVOLUTIONIZING TISSUE ANALYSIS WITH PRECISION AND SPEED

AI BASED COMPUTATIONAL HISTOPATHOLOGY



BENEFITS

- **Enhanced Precision:** Digital scanners replace traditional methods, providing accurate and efficient tissue analysis.
- **Streamlined Data Access:** Scalable and secure data storage enables rapid retrieval of digital images, improving workflow.
- **Accelerated Cancer Detection:** AI-driven models offer faster, more precise diagnostics, enhancing patient care.
- **Personalized Treatment Options:** Machine learning identifies key biomarkers, enabling customized therapies for better outcomes.

INTRODUCTION

AI-Based Computational Histopathology is a cutting-edge approach that leverages artificial intelligence to transform traditional tissue analysis into a precise, data-driven digital process. This method incorporates high-resolution digital imaging to capture intricate tissue details, supported by scalable, secure storage infrastructure for quick and reliable access. Advanced AI models are developed to enhance diagnostic speed and accuracy, particularly in cancer detection, enabling pathologists to make confident, data-backed decisions. Additionally, machine learning enables the identification of critical biomarkers for personalized treatment, while specialized training ensures seamless adoption of these tools, empowering healthcare professionals to leverage AI in diagnostics and improving patient outcomes.

KEY COMPONENTS

- **Digital Imaging:** Implement high-resolution digital scanners for precise image capture.
- **Secure Data Management:** Utilize advanced storage solutions for efficient handling of digital slides.
- **AI Enhanced Diagnostics:** Develop AI tools to support pathologists in detecting cancer and other diseases.
- **Biomarker Research:** Identify and validate biomarkers for improved diagnosis and treatment.
- **Professional Training Program:** Offer specialized training for seamless adoption and optimal use of new technologies.



[Pictures are for reference only and may differ from actual products]



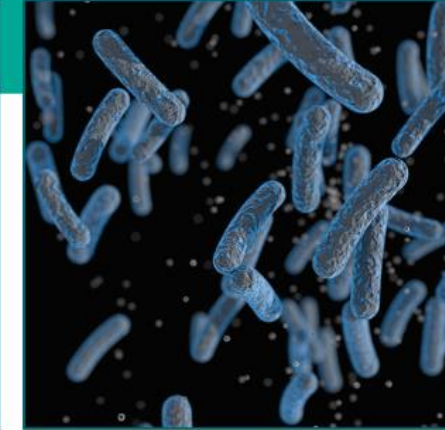
DIAGNOSTIC KIT SALMONELLA PULLORUM ANTISERA

**PROTECTING
HEALTH
WITH EVERY
TEST**



ENHANCED DIAGNOSTIC ACCURACY FOR PEACE OF MIND

DIAGNOSTIC KIT SALMONELLA PULLORUM ANTISERA



POTENTIAL END USER

- Poultry setups
- Veterinary clinics
- Research labs

INTRODUCTION

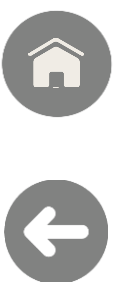
This antiserum is designed for the serological identification of Salmonella somatic "O" antigen by the slide agglutination method. The test is based on agglutination, by Salmonella pullorum antiserum, of bacteria possessing the antigen corresponding to serogroup.

TECHNICAL SPECIFICATIONS

Salmonella pullorum is a leading cause of food poisoning and typhoid fever throughout the world. The organism is a Gram-negative, rod-shaped bacterium. The genus consists of more than 2500 different serotypes described in the Kauffmann-White scheme. Determination of O (somatic) and H (flagellar) antigens by using specific antisera enables identification of the antigen combinations and thus differentiation of the many serotypes.



[Pictures are for reference only and may differ from actual products]



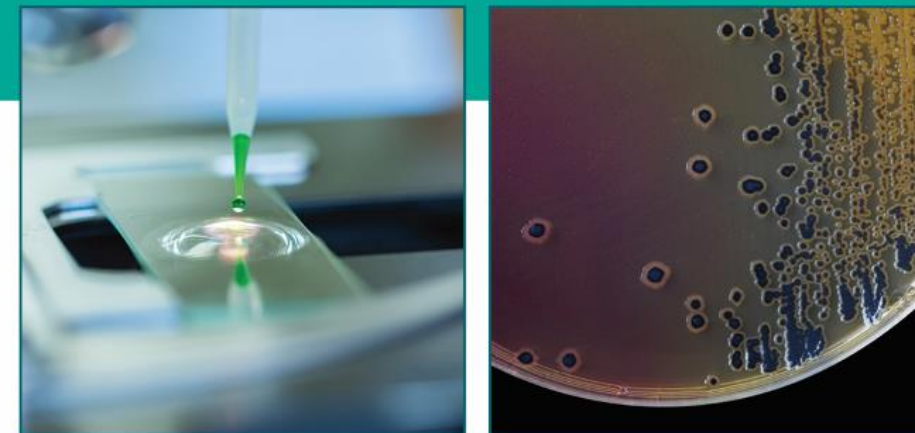
DIAGNOSTIC KIT SALMONELLA ANTISERA

**EARLY
IDENTIFICATION
CAN MAKE
ALL THE
DIFFERENCE**



ACCURATE SALMONELLA DETECTION WHEN IT MATTERS MOST

DIAGNOSTIC KIT SALMONELLA ANTISERA



POTENTIAL END USER

- Pathological labs
- Diagnostic Lab
- Research Lab
- Hospitals
- Clinical setups for point of use detection

INTRODUCTION

The anti-sera are used for stereotyping of Salmonella spp. The genus Salmonella is responsible for a wide spectrum of human disease ranging from mild forms of gastroenteritis to severe life threatening enteric fever and in addition, symptomatic carriage can occur. Early reliable identification is important to the provision of the appropriate therapy and to control outbreak. Minimal identification of the organism involves both biochemical and serological procedures. In definitive serological testing.

TECHNICAL SPECIFICATIONS

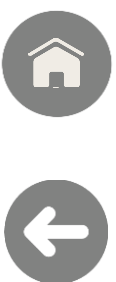
The Bact Med Salmonella antisera are comprises mixture of individual antisera raised in rabbit against somatic and flagellar antigens of four Salmonella serotypes S. typhi, S. paratyphi A, S. paratyphi B & S. paratyphi C. This antisera preparation is able to be used in serological diagnosis of typhoid & paratyphoid fever for rapid and specific detection of salmonella species

Advantages Diagnostic antisera:

- Intended for slide agglutination
- Only 20 µL antiserum is used per test
- The result is read within 01 minute
- These antisera are delivered in 3 mL bottles sufficient for 50 tests
- Our antisera are carefully controlled and free of any known cross-reactions



[Pictures are for reference only and may differ from actual products]



DIAGNOSTIC KIT VIBRIO ANTISERA

**PRECISION
YOU
CAN
COUNT ON**



DIAGNOSTIC KIT VIBRIO ANTISERA

SAVING LIVES THROUGH EARLY DETECTION



POTENTIAL END USER

- Pathological labs
- Diagnostic Lab
- Research Lab
- Hospitals
- Clinical setups for point of use detection

INTRODUCTION

This antiserum is designed for the serological identification of vibrio cholerae O1 by the slide agglutination method.

TECHNICAL SPECIFICATIONS

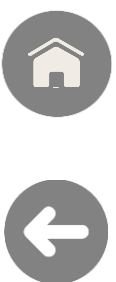
The Bact Med Vibrio cholerae antiserum is raised in rabbit against heat stable O-antigen (lipopolysaccharide). The O-serogroup is based on antibodies that recognize structural differences in the heat stable O-antigen (lipopolysaccharide) of the bacteria. Historically, V.Cholerae serogroup O1 is associated with most epidemic outbreaks of cholera. V.Cholerae O1 and V.Cholerae non-O1 isolates can be distinguished on the basis of simple agglutination tests.

Advantages of BACT- MED Diagnostic antiserum:

- Intended for slide agglutination
- Only 20 µL antiserum is used per test
- The result is read within 01 minute
- These antisera are delivered in 3 mL bottles sufficient for 50 tests
- Our antisera are Quality tested and free of any known cross-reactions
- Sensitivity and Specificity 100%



[Pictures are for reference only and may differ from actual products]



DIAGNOSTIC KIT SHIGELLA ANTISERA

**PROTECTING
HEALTH WITH
RELIABLE
DETECTION**



EMPOWERING HEALTH PROFESSIONALS WITH ACCURATE DETECTION

DIAGNOSTIC KIT SHIGELLA ANTISERA



POTENTIAL END USER

- Pathological labs
- Diagnostic Lab
- Research Lab
- Hospitals
- Clinical setups for point of use detection



INTRODUCTION

The anti-sera are used for stereotyping of Shigella dysenteriae. The genus Shigella is a non motile Gram-negative bacillus, belonging to the Enterobacteriaceae family. The organisms orally taken invade the epithelial cell of the large intestine to cause shigellosis with (mucous and bloody).

There exists four species: S. dysenteriae (15 serotypes), S. flexneri (8 serotypes, with serotype 1 to 5 being subdivided into 10 sub-serotypes), S. boydii (19 serotypes) and S. sonnei (1 serotype, two phases). The serologic identification of Shigella species is important for both clinical and epidemiologic purposes. In the developing world S. flexneri and S. dysenteriae are most frequent and both have similar characteristics.

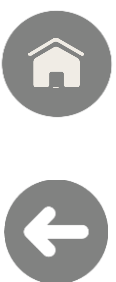
TECHNICAL SPECIFICATIONS

There exists four species: S. dysenteriae, S. flexneri, S. boydii and S. sonnei. The serologic identification of Shigella species is important for both clinical and epidemiologic purposes. In the developing world S. flexneri and S. dysenteriae (especially serotype 1) are most frequent and both have similar characteristics.

The Shigella antiserum is a polyvalent antisera used for serotyping of S. dysenteriae, by slide agglutination, each of which contains a specific agglutinin. This antiserum is raised in healthy rabbits and consists of O antisera.

The Shigella strain is grown overnight on a non-selective medium. A small amount of bacterial mass is transferred to a slide and mixed with a drop of antiserum. If the bacteria are mixed with a homologous antiserum, the cells are bound together through antigen antibody bonds to form aggregates (agglutination). The agglutination can be read after the slide has been tilted 5-10 seconds. It is easier to read the result with the naked eye if the slide is hold In front of a light source against a black background. Only strong agglutination occurring within one minute should be taken as positive, whereas agglutination occurring later then one minute or weak agglutination should be taken as negative.

[Pictures are for reference only and may differ from actual products]



ICU VENTILATOR

EMPOWERING HEALTHCARE WITH ADVANCED VENTILATOR TECHNOLOGY



CLINICAL EXCELLENCE THROUGH INNOVATIVE VENTILATION

ICU VENTILATOR



TECHNICAL ASPECTS

Ventilation Modes: PC-MV, VC-MV, PC-AC, VC-AC P-SIMV, V-SIMV, Spn-CPAP/PS

Breath rate: 05-35 bpm

Inhale: Exhale: 1:1, 1:2, 1:3 1:7, 2:1, 3:1, 4:1

Pressure range: 05-60 cm H2O

Inspiratory Rise Time: 0-500 ms

Tidal volume: 100 - 1500 ml

FiO2: 21% -100%

PEEP: 0-20 cm H2O

Cycling: Time, Pressure

Patient Breath Trigger: Pressure

Apnea Time: 05-60 s

Pressure Support: 0-40 cm H2O

Trigger Sensitivity: 0 l/min to PEEP

Parameters monitoring: Yes

Alarms: Audio, Visual

Safety valve: 80 cmH2O

Patient type: Adult

Setting: Touch key

Display: Touch TFTcolor screen

Power Input: 220V AC, 50Hz

Battery backup: Yes

Microbes Filter: Yes

Self Diagnostic: Yes



BACKGROUND

In Pakistan, the healthcare system has faced significant challenges in providing adequate respiratory support, particularly during times of crisis such as the COVID-19 pandemic. As highlighted in recent studies, the country has a critical shortage of ventilators, with most being imported, which limits availability in hospitals, especially in rural areas.

This reliance on foreign products not only complicates supply chains but also places a financial burden on healthcare facilities, many of which struggle to afford these essential devices.

With a total population of over 221 million, Pakistan has an average of only 0.71 functioning ICU beds per 100,000 people across all provinces and territories. This staggering statistic underscores the urgent need for enhanced healthcare resources, particularly in underserved regions.

INTRODUCTION

Our state-of-the-art compressed air and gas ventilator is designed specifically for ICU use, powered by hospital-supplied compressed air and oxygen. Certified by DRAP and PEC, this advanced ventilator ensures the highest safety and performance standards. Built with precision-engineered components—including medical-grade pipes, O2 sensors, pressure sensors, and a user-friendly control screen—it provides reliable respiratory support for critically ill patients. Its non-portable design makes it an ideal choice for hospitals seeking to enhance their intensive care capabilities.

[Pictures are for reference only and may differ from actual products]



ADVANCED BODY ARMOR

SHEAR THICKENING FLUIDS (STF)
- HYBRID COMPOSITE

**PROTECTING
THOSE
WHO
PROTECT
OTHERS**



CUTTING-EDGE TECHNOLOGY FOR ENHANCED SAFETY

ADVANCED BODY ARMOR
SHEAR THICKENING FLUIDS (STF)
- HYBRID COMPOSITE



FEATURES & BENEFITS

- Less bulky
- Reduced trauma
- Comfort in movements
- Protection against full shots
- Enhanced ballistic & stab resistance

SUITABLE FOR

- Armed forces
- Private security
- Law enforcement personnels
- Homeland security agencies
- Customs & border protection
- Immigration control

STF - APPLICATIONS

- Bomb blankets
- Pads for sport equipment
- Gloves to reduce vibration
- Sports shoes
- Seat cushioning in automobiles



BACKGROUND

Body armor has gained importance in Pakistan due to rising security threats, leading to a demand for effective protective gear. The development of locally manufactured solutions, particularly utilizing advanced materials like nanoparticles and shear thickening fluids (STF), addresses gaps in the market. This approach enhances self-sufficiency and supports local industries while meeting the unique needs of the country's security landscape.

INTRODUCTION

The product is a bulletproof jacket utilizing locally processed nanoparticles and shear thickening fluid (STF) technology, now rebranded as Dynamo, addressing the gap in locally developed versions available in Pakistan while relying on locally sourced raw materials.

TECHNICAL DETAILS

MATERIAL TYPE

Bulletproof Jacket:
Made using Shear Thickening Fluid (STF)

KEY COMPONENT

Shear Thickening Fluid (STF):
Composed of a dense colloidal suspension of nanoparticles in a carrier fluid.

Armor Type	Ballistic Standard	Weight
Jacket with Soft Armor Inserts etc.	PK Std. Level IIIA TT Pistol, 6 bullets @5m Allowed Trauma ≤ 44mm	4.0 Kg
Hard Armor Plates	PK Std. Level III Rifles: INSAS, AK-47 & G-3 9 bullets@15m Allowed Trauma ≤ 44mm	3.4 Kg
Bullet Proof Jacket (Small Size)		7.4 Kg

[Pictures are for reference only and may differ from actual products]



VACUUM GAUGES

**ACCURACY
THAT
COUNTS**

RELIABLE VACUUM MONITORING FOR CRITICAL TASKS

VACUUM GAUGES



USES

- Used in the development and testing of advanced weaponry and aerospace systems in defense sectors.
- Employed in research for experiments requiring controlled vacuum environments in university labs.
- Utilized in industries like food preservation and pharmaceuticals to enhance production quality in third world

INTRODUCTION

Vacuum gauges are essential tools used to measure pressure in vacuum systems, enabling precise control and monitoring of vacuum conditions. Two prominent types of vacuum gauges are the Pirani gauge and the cold cathode gauge, also known as the pinning gauge. The Pirani gauge operates effectively within a pressure range of 10^3 to 10^{-3} millibar, utilizing thermal conductivity principles to provide accurate readings. In contrast, the cold cathode gauge is suitable for lower pressures, measuring from 10^{-4} to 10^{-7} millibar, and relies on ionization to gauge vacuum levels. Both types typically feature a display unit that clearly presents the readings, allowing users to maintain optimal vacuum conditions for their applications.

TECHNICAL COMPONENTS

1. Pirani Gauge

Operating Principle: The Pirani gauge measures vacuum pressure by detecting changes in thermal conductivity of a gas. It consists of a heated wire and a temperature sensor. As the pressure decreases, the amount of gas surrounding the wire decreases, affecting its heat dissipation and, consequently, its temperature.

Pressure Range: 10^3 to 10^{-3} millibar.

Applications: Commonly used in laboratory settings and industrial applications where moderate vacuum levels are required.

2. Cold Cathode Gauge (Pinning Gauge)

Operating Principle: The pinning gauge operates on the principle of ionization. It utilizes a high voltage to create a plasma within a sealed chamber. Gas molecules are ionized, and the resulting ions are collected on electrodes, producing a measurable current that correlates with the pressure.

Pressure Range: 10^{-4} to 10^{-7} millibar.

Applications: Ideal for ultra-high vacuum applications, such as semiconductor fabrication and surface science.



[Pictures are for reference only and may differ from actual products]



INDUSTRIAL UPS SYSTEM

**UNINTERRUPTIBLE
POWER FOR
UNSTOPPABLE
PRODUCTIVITY**



RELIABLE ENERGY SOLUTIONS FOR INDUSTRIAL EXCELLENCE

INDUSTRIAL UPS SYSTEM



USERS

- **Process Plants:**
Providing reliable power supply for operations.
- **Strategic Organizations:**
Ensuring continuous power for critical functions.
- **Tri-Forces:**
Supporting uninterrupted power for defense operations.
- **Various Industries:**
Serving a wide range of industrial applications requiring dependable power sources.

INTRODUCTION

The product line is an online UPS for continuous industrial power. Key features encompass self-reliance, enhanced cybersecurity, design flexibility, intrusion-proof codes, and full after-sales support. Designed for utility in process plants, strategic organizations, tri-forces, and various industries, the systems are available in Model 1 (100kVA to 160kVA) and Model 2 (50kVA to 80kVA). The product features a Zigzag transformer capability.

TECHNICAL DETAILS

POWER RANGE:

Model 1: 100kVA to 160kVA
Model 2: 50kVA to 80kVA

KEY COMPONENT

Silicone steel for the core Copper and aluminium for transformers and inductor windings

PRODUCTION CAPACITY: CURRENTLY 2 UPS UNITS PER YEAR
PART CERTIFICATION: ALL PARTS USED ARE RS SOURCED

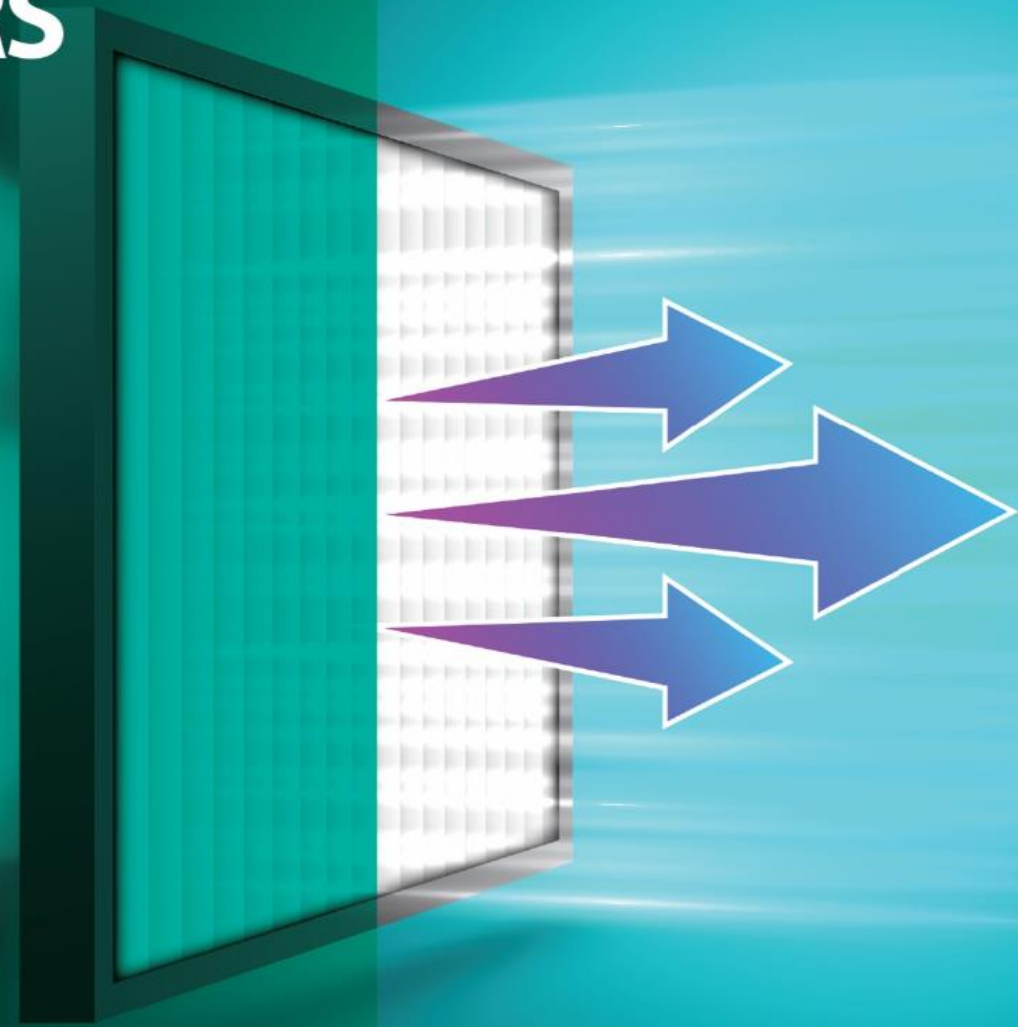
SPECIFICATIONS	
Input	3Ø, 400VAC, 50Hz
Output	3Ø, 400VAC
Power Rating	Up to 200kVA
Output Frequency	50Hz ± 2Hz



[Pictures are for reference only and may differ from actual products]



HEPA FILTERS



**CLEANER
AIR,
HEALTHIER
LIVES**

PURITY AND SAFETY THROUGH ADVANCED FILTRATION SOLUTIONS

HEPA FILTERS

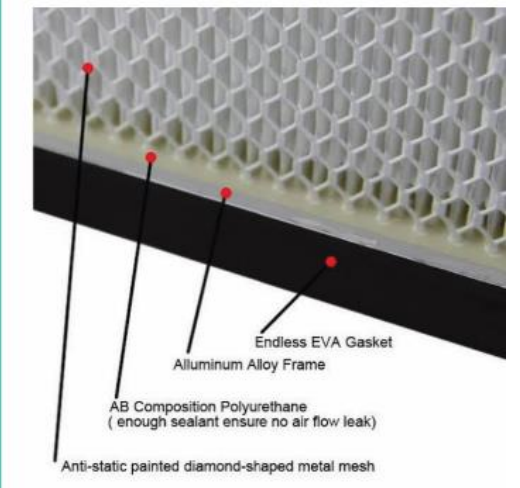


TECHNICAL ASPECTS

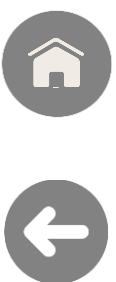
- Bio pharmaceutical
- Livestock
- Food & Beverages
- Semiconductor
- Power plants
- Clean Rooms
- Hospital
- HVAC Systems

INTRODUCTION

HEPA filters, designed for high-efficiency particulate filtration, have become essential in maintaining air purity across industries where fine particulate control is critical, including electronics, aerospace, pharmaceutical, and cleanroom manufacturing. Recently, their applications have expanded due to advances in materials such as polytetrafluoroethylene (PTFE) membranes, which offer high dust filtration while minimizing airflow resistance, making them suitable for high-performance environments. These filters effectively trap pollutants and airborne particles at levels over 99.97% efficiency, supporting health and safety by reducing exposure to airborne pathogens, dust, and hazardous materials. Their adoption is driven by the increased demand for better indoor air quality, especially with mounting health concerns associated with PM2.5 pollutants. Continued innovations in HEPA filter media, such as integrating melt-blown layers for enhanced dust holding capacity, further enhance their performance and adaptability across sectors, promising ongoing development to meet future air quality needs.

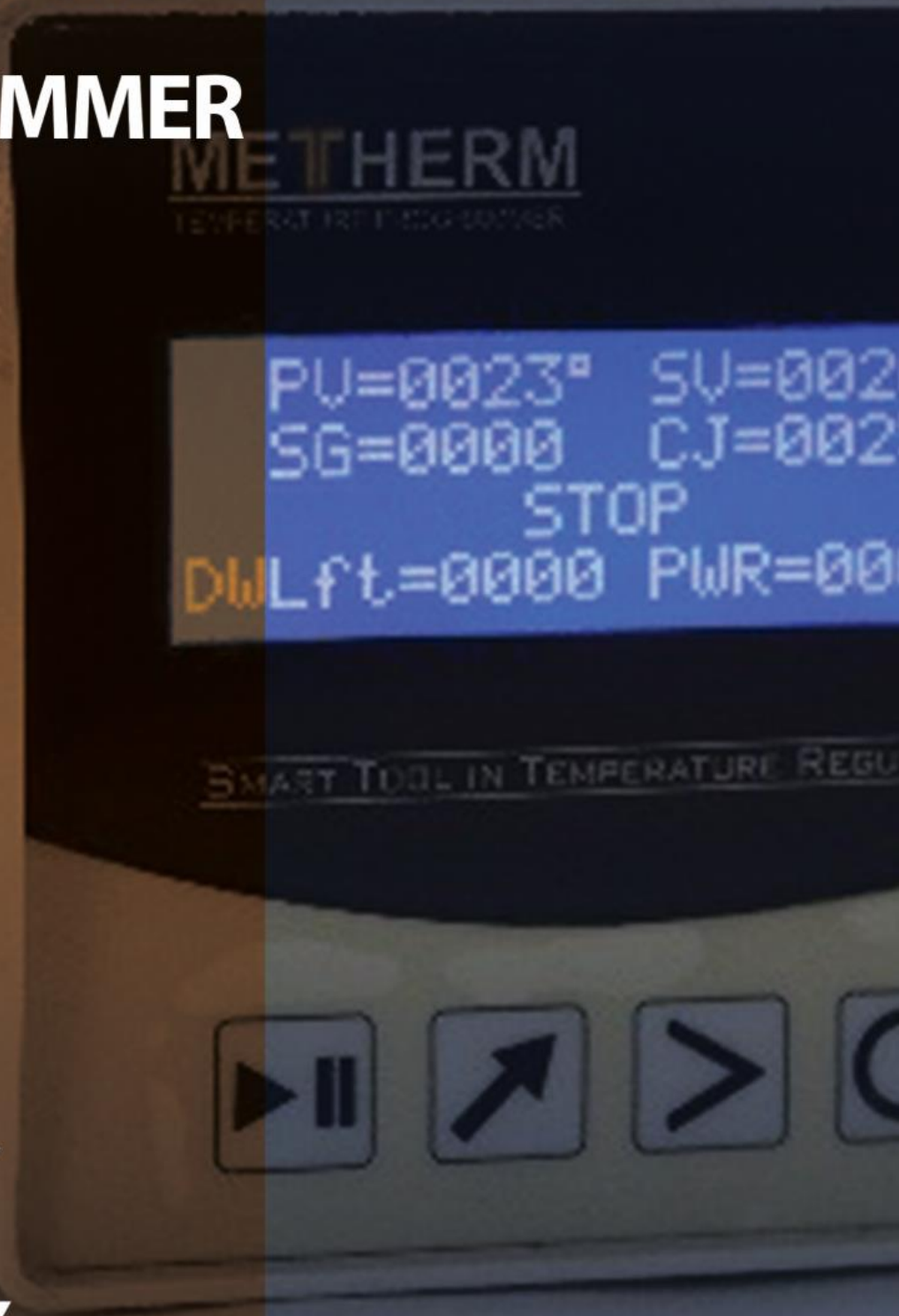


[Pictures are for reference only and may differ from actual products]



MET THERM TEMP PROGRAMMER

**WHERE
ACCURACY
MEETS
EFFICIENCY**



LEADING TEMPERATURE SOLUTIONS

MET THERM TEMP PROGRAMMER



TECHNICAL DETAILS

- Operators can define the permissible maximum power (0-100%) for each of the eight segments, offering enhanced flexibility and control.
- The MET-Therm CI series is CE certified and compliant with various ISO certifications and ROHS directives, underscoring its commitment to safety and environmental standards.



INTRODUCTION

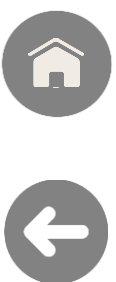
The MET-Therm CI series is a state-of-the-art microcontroller-based 8-segment Temperature Programmer, specifically engineered for precise temperature regulation in heat treatment and sintering process control. This innovative device simplifies operations by providing a comprehensive single-channel loop, eliminating the need for multiple profile modules.

TECHNICAL USE

The MET-Therm CI series Temperature Programmer is versatile and applicable across various industries, including:

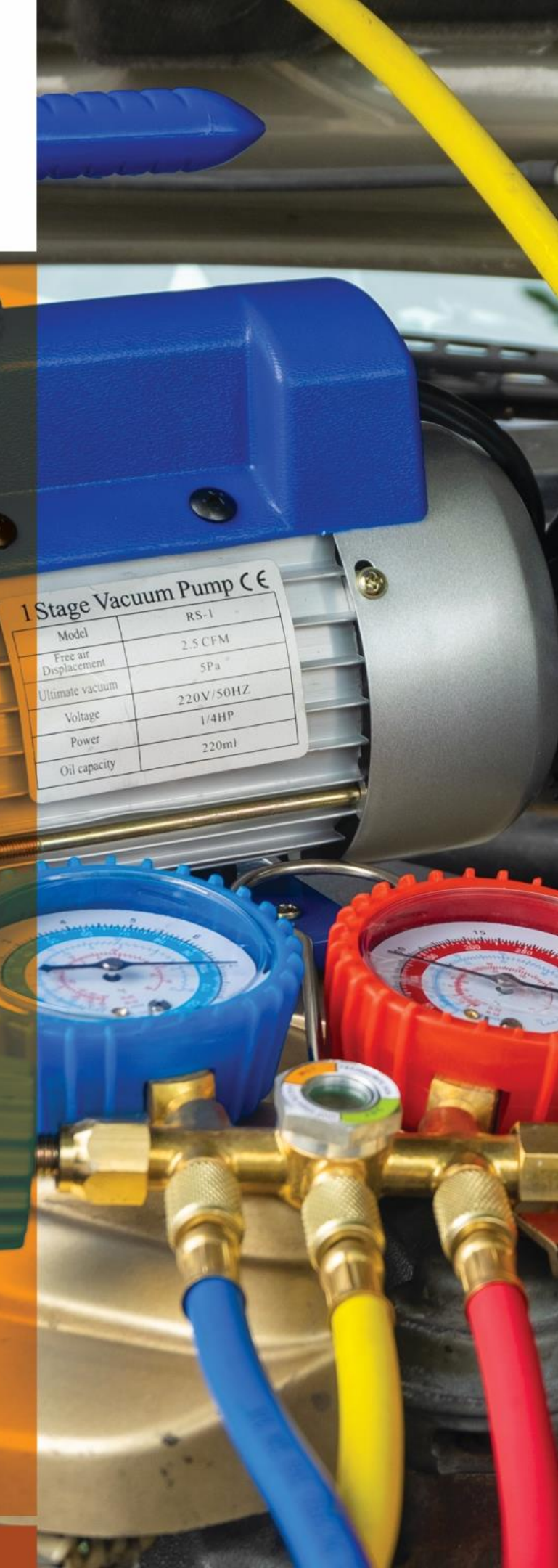
- Ceramics:** Used for precise temperature control during the firing process, ensuring optimal product quality.
- Metal Heat Treatment Plants:** Facilitates accurate heat cycles for hardening, tempering, and annealing metals, enhancing durability and performance.
- Beverages:** Employed in processes requiring specific temperature profiles, such as pasteurization and fermentation.
- Cement Plants:** Assists in controlling temperatures during the curing and drying phases, promoting efficient production and quality.
- Chemical Industry:** Utilized for temperature regulation in various chemical processes, ensuring safety and consistency.
- Textile:** Supports dyeing and finishing processes that require precise temperature control for optimal fabric quality.
- Glass Manufacturing:** Provides critical temperature management during melting and forming, contributing to the production of high-quality glass products.
- Automation Industry:** Integrates seamlessly into automated systems for enhanced process control and efficiency across various applications.

[Pictures are for reference only and may differ from actual products]



VACUUM PUMPS (PKD 65)

EFFICIENCY AND PRECISION IN EVERY VACUUM PROCESS



1 Stage Vacuum Pump C €	
Model	RS-1
Free air Displacement	2.5 CFM
Ultimate vacuum	5Pa
Voltage	220V/50HZ
Power	1/4HP
Oil capacity	220ml

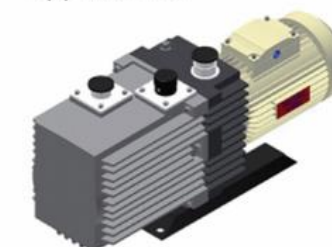
VACUUM POWER, ENGINEERED FOR INDUSTRY'S BEST

VACUUM PUMPS (PKD 65)



TECHNICAL USE

- **Pharmaceuticals:** Ensures controlled vacuum environments, enhancing product quality and process efficiency.
- **Coating Industry:** Enables precise deposition of thin films on surfaces through vacuum coating applications.
- **Metalizing:** Creates vacuum conditions essential for reflective coatings.
- **Metallurgical Applications:** Supports heat treatment and material refinement processes in low-pressure environments.
- **Electron Beam Welding (EBW):** Provides necessary vacuum for precise, high-quality welding of sensitive materials.
- **Overall Benefit:** Offers reliable and efficient vacuum control across various industrial applications.



INTRODUCTION

The PKD 65 Vacuum Pump is an essential industrial tool designed to create and maintain a high-quality vacuum environment. Engineered for performance and durability, it serves as a critical component across various sectors, including the metalizing industry for coating applications and the pharmaceutical industry for precise process requirements. With its capability to achieve consistent and controlled vacuum levels, the PKD 65 enhances operational efficiency, ensuring optimal conditions for sensitive applications. This makes it an indispensable asset for industries that demand reliability, precision, and efficiency in vacuum processes.

TECHNICAL SPECS

PKD 65 Vacuum Pump:

Creates a controlled vacuum essential for metalizing, coating, and pharmaceutical processes.

Type:

Rotary vacuum pump.

Operating Range:

10^3 to 10^{-3} Torr.

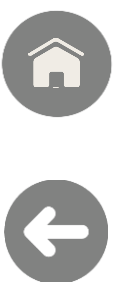
Roots Pump Option:

Same range (10^3 to 10^{-3} Torr) but includes a booster for higher vacuum strength.

Diffusion Pump:

For specialized applications, operates in the 10^{-3} to 10^{-6} Torr range.

[Pictures are for reference only and may differ from actual products]



FURNACES

ELEVATING
QUALITY
THROUGH
ADVANCED
TECHNOLOGY

BUILT TO WITHSTAND THE TOUGHEST INDUSTRIAL CONDITIONS

FURNACES



INTRODUCTION

Furnaces are essential industrial devices designed for heating materials to high temperatures, facilitating processes such as melting, forging, and heat treatment.

The range includes;

- Vacuum heat treatment furnaces, known for their complexity and precision, provide an oxygen-free environment ideal for high-quality material processing.
- Vacuum quenching furnaces are used to heat and rapidly cool metals in a vacuum to enhance hardness and strength while minimizing oxidation.
- Special atmosphere furnaces offer controlled environments tailored to specific materials, enhancing their properties.
- Vacuum Induction melting furnaces utilize electromagnetic fields for efficient heating.
- Air heat treatment furnaces are designed for effective heat treatment, perfect for hardening and tempering metals.

TECHNICAL DETAILS

VACUUM HEAT TREATMENT FURNACES

Loading Mechanism	1. Bottom 2. Top 3. Front
Heating Method	Vacuum Resistance Heating
Furnace Atmosphere	1. High Vacuum 2. Low Vacuum
Max. Temperature	Upto 1600°C
Working Size	Upto Ø1.5m x H 2.5m or any specific requirement
Insulation Type	1. Graphite Composite Hotzone 2. All metal Hotzone
Heaters	1. Solid Graphite 2. All Metal 3. Or Custom Demand
Control System	1. PLC based 2. Temp Controllers

VACUUM INDUCTION MELTING FURNACES

Loading Mechanism	Top
Heating Method	Induction Heating
Furnace Atmosphere	High Vacuum
Max. Temperature	Upto 1800 °C
Working Size	Upto 50kg
Crucible	Ceramic Crucible
Heaters	Copper Coil
Control System	PLC Based

AIR HEAT TREATMENT FURNACES

Loading Mechanism	1. Top 2. Front
Heating Method	Resistance Heating
Furnace Atmosphere	Air
Max. Temperature	Upto 1700 °C
Working Size	1. Upto 2m x 2m x 2m 2. As per user demand
Crucible	Ceramic Wool
Heaters	1. Kanthal APM Wire 2. Super Kanthal
Control System	1. Temp Controllers 2. SSR

SPECIAL ATMOSPHERE FURNACES

Furnace Type	1. Hydrogen 2. Nitriding 3. Oxidation
Heating Method	Resistance Heating
Furnace Atmosphere	1. Reducing Atmosphere 2. Inert Atmosphere 3. Dissociated Atmosphere 4. Steam Atmosphere
Max. Temperature	Upto 1450 °C (depending upon furnace atmosphere)
Working Size	Upto Ø1.5m x H 2.5m or any specific requirement
Insulation Type	1. All Metal Hotzone (for Hydrogen Furnace) 2. Ceramic Wool / Board (for other types)
Heaters	1. All Metal Heaters (for Hydrogen Furnace) 2. Kanthal Heaters
Control System	1. PLC Based 2. Temp Controllers

VACUUM HEAT QUENCHING FURNACES

Loading Mechanism	1. Bottom 2. Top 3. Front
Heating Method	Vacuum Resistance Heating
Furnace Atmosphere	1. High Vacuum 2. Low Vacuum
Max. Temperature	Upto 1200°C
Working Size	Upto Ø1.5m x H 2.5m or any specific requirement
Insulation Type	1. Graphite Composite Hotzone 2. All metal Hotzone
Heaters	1. Solid Graphite 2. All Metal 3. Or Custom Demand
Control System	1. PLC based 2. Temp Controllers
Quenching Media	1. Inert Gas 2. Oil

[Pictures are for reference only and may differ from actual products]



FLOW CONTROL VALVES

**CONTROL
THE FLOW
OPTIMIZE
EFFICIENCY**

SEAMLESS INTEGRATION EXCEPTIONAL PERFORMANCE

FLOW CONTROL VALVES



TECHNICAL SPECIFICATIONS

Categories:

- **Manual:**
Models include D16, D25, D40, D65, D100
- **Electro Pneumatic:**
Sizes available include 25, 40, 65

Compatibility:

Designed for use with vacuum pumps

INTRODUCTION

The product line features two distinct categories: Manual and Electro Pneumatic. The Manual options include various models, such as D16, D25, D40, D65, and D100, each designed for exceptional performance and durability.

Meanwhile, the Electro Pneumatic products are available in sizes 25, 40, and 65, addressing diverse operational requirements. Both categories are optimized for seamless integration with vacuum pumps, ensuring enhanced efficiency and versatility in industrial applications.

TECHNICAL USE

The product line is primarily used in various industries, including pharmaceutical applications, coating processes, metalizing, and metallurgical operations.

It is also utilized in specialized equipment such as electron welding machines, scanning electron microscopes (SEM), and transmission electron microscopes (TEM), ensuring reliable performance across a range of critical applications.



[Pictures are for reference only and may differ from actual products]



PRESSURE/ VACUUM/ STORAGE VESSEL

**FROM
STORAGE
TO
SAFETY**

DESIGNED FOR DURABILITY CRAFTED FOR RELIABILITY

PRESSURE / VACUUM / STORAGE VESSEL



USES

- 1. Chemical Processing**
 - Reactors
 - Mixers
 - Heat Exchangers
- 2. Oil and Gas**
 - Separators
 - Storage Tanks
 - Pipeline Vessels
- 3. Power Generation**
 - Boilers
 - Condensers
 - Steam Generators
- 4. Aerospace**
 - Fuel Tanks
 - Oxygen Tanks
 - Propellant Tanks
- 5. Pharmaceutical**
 - Reactors
 - Dryers
 - Mixers
- 6. Food and Beverages**
 - Sterilization Vessels
 - Pasteurization Vessels
 - Mixing Tanks
 - Fermentation Vessels



INTRODUCTION

As a leading manufacturer of High Pressure/Vacuum Vessels, we are committed to deliver innovative solutions to diverse industries. With a legacy of excellence and a commitment to safety, we specialize in designing, fabricating, and testing customized vessels that meet stringent requirements of our clients.

With a team of experienced engineers, skilled fabricators, qualified welders and dedicated quality control specialists, we ensure that every vessel meets or exceeds international standards and regulations, such as ASME, API & ISO.

TYPES OF VESSELS

- High Pressure Vessels
- Vacuum Vessels
- Storage Tanks
- Transportation Vehicle Tanks

TECHNICAL SPECS

Volume Ranges:

- 100 liters to 80,000 liters and larger

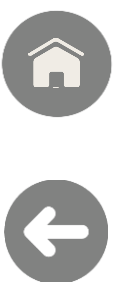
Pressure Ranges:

- **High Pressure Vessels:** 100 psi to 2,000 psi (7 bar to 150 bar)
- **Low Pressure Vessels:** Vacuum to 100 psi (Vacuum to 7 bar)
- **Ultra High Vacuum (UHV) Vessels:** down to 10⁻¹⁰ mbar

VESSEL CONFIGURATION

- Vertical
- Horizontal

[Pictures are for reference only and may differ from actual products]



X-RAY BAGGAGE SCANNER

YOUR SAFETY, OUR COMMITMENT



UNMATCHED ACCURACY IN SECURITY SCREENING

X-RAY BAGGAGE SCANNER

BACKGROUND

In Pakistan, the adoption of advanced X-ray baggage scanner technology is crucial for enhancing security measures at critical infrastructure points such as airports, railway stations, and public venues, as these scanners provide high-resolution imaging and sophisticated threat detection capabilities, ensuring the effective identification of potential risks and illegal items to safeguard public safety.

INTRODUCTION

A state-of-the-art high-performance X-ray baggage scanner solution meets the most demanding potential threat inspections at border crossings, railway stations, shopping malls, hotels, government installations, and high-risk facilities, providing higher resolution images and threat detection alerts through advanced software and superior processing technology, thereby enabling the accurate and efficient identification of dangerous goods and contraband items.

TECHNICAL FEATURES

- **Dual energy imaging:** Enhances material identification by using two energy levels.
- **Three colors classification:** Improves threat detection by categorizing materials into three color-coded classifications.
- **Real-time image manipulation:** Allows operators to adjust and analyze images as they are being scanned.
- **Standard image processing functions:** Provides basic image enhancement and analysis capabilities.
- **Continuous scanning:** Enables ongoing inspection without interruption.
- **User management:** Facilitates the management of user access and permissions.
- **Image management:** Supports storage, retrieval, and organization of scanned images.
- **Image printing:** Allows for physical copies of scanned images to be produced.
- **User authorization:** Ensures that only authorized personnel can access certain features or data.
- **Auto hardware diagnostic:** Monitors system performance and alerts users to potential issues.
- **Energy saving mode:** Reduces power consumption during operation.
- **Threat image projection:** Projects potential threats for training or review purposes.
- **Density alert:** Notifies users when materials with unusual density are detected.
- **Baggage counter:** Keeps track of the number of items scanned.
- **Date and time display:** Provides a timestamp for each scan.
- **User-friendly interface:** Ensures ease of use for operators.
- **Compliance:** Meets the USFDA Center for Devices and Radiological Health standard for cabinet X-ray systems (21 CFR 1020.40).

USES/BENEFITS

- **Threat Inspection:** Used for inspecting baggage at high-security locations such as border crossings and government installations.
- **Dangerous Goods Identification:** Accurately identifies dangerous goods and contraband items.
- **Enhanced Detection:** Improves overall security by effectively detecting potential threats.
- **High-Resolution Imaging:** Provides clearer images for accurate identification.
- **Continuous Scanning Capability:** Increases efficiency in busy environments.

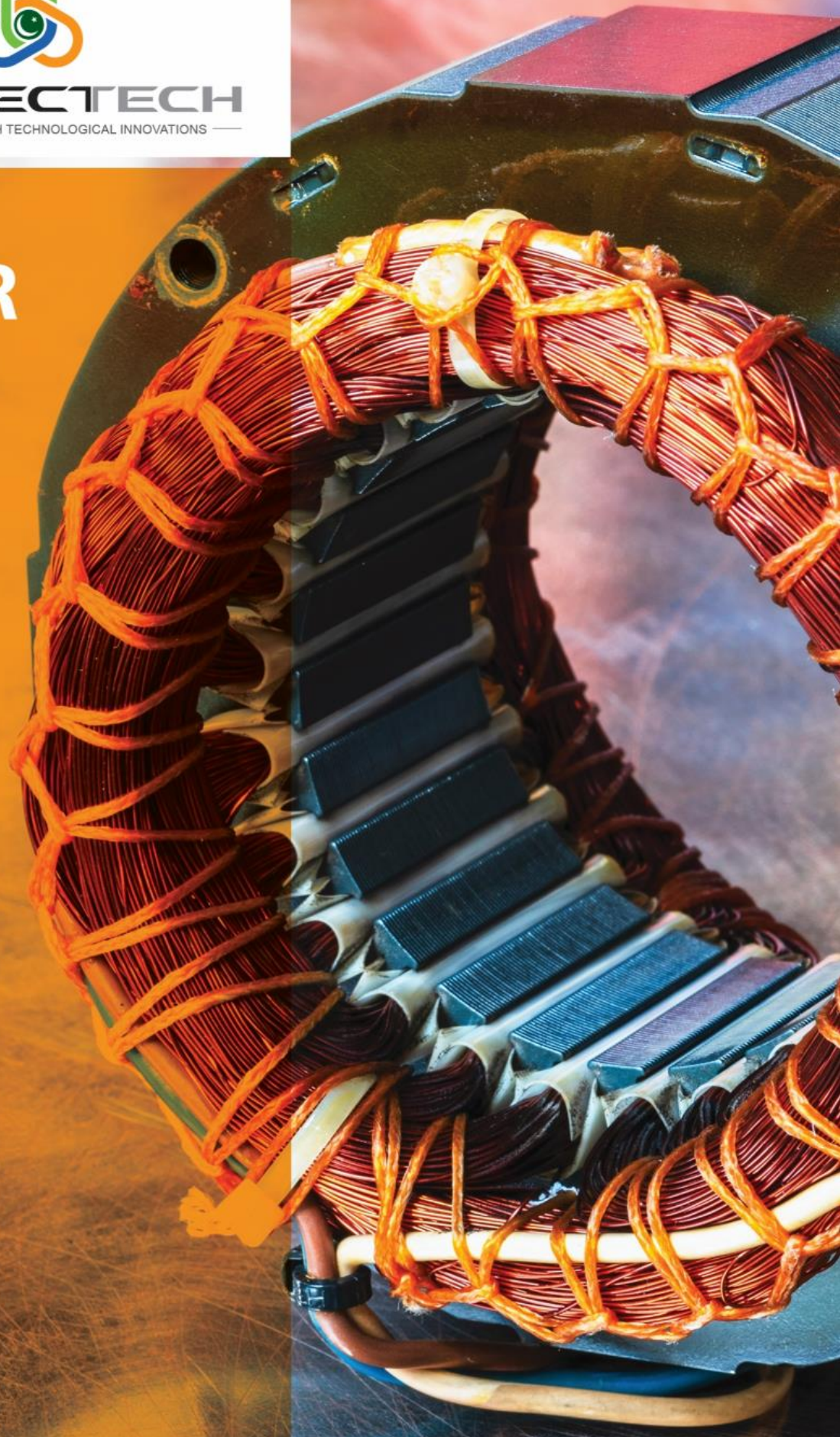


[Pictures are for reference only and may differ from actual products]



BLDC MOTOR

**THE
FUTURE
OF
MOTION**



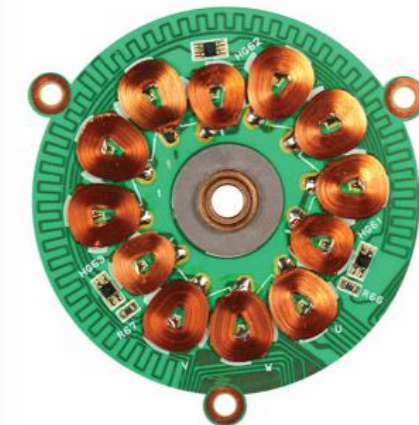
POWERING TOMORROW WITH ADVANCED TECHNOLOGY

BLDC MOTOR



TECHNICAL COMPONENTS

With a permanent magnet that enhances efficiency based on its quality, the 3 kW BLDC motor operates at impressive speeds of 2000 to 2400 RPM. Its versatility allows for seamless integration with other motor types, further expanding its utility in modern engineering solutions.



INTRODUCTION

The Brushless DC (BLDC) motor is an innovative technology that efficiently converts electrical energy into rotational motion, making it an ideal choice for various applications, including electric vehicles (EVs).

Comprising three fundamental components—the rotor, stator, and a sophisticated feedback system utilizing hall sensors—this motor has eliminated traditional brushes, leading to a more compact design.

USES

Electric Vehicles (EVs):

BLDC motors are ideal for powering electric cars, scooters, and bikes, providing high torque and efficiency.

Bikes and Scooters:

They are commonly used in electric bikes and scooters, enhancing performance and range.

Household Appliances:

Many devices, such as washing machines, fans, and vacuum cleaners, utilize BLDC motors for their energy efficiency.

Industrial Applications:

They are employed in automation systems, robotics, and conveyor belts, offering precise control and reliability.

Computer and Electronics:

Used in cooling fans, hard drives, and other devices where quiet operation and efficiency are critical.

[Pictures are for reference only and may differ from actual products]



STATIC CRYOGENIC TANK FOR LN2

CRYOGENIC STORAGE REDEFINED



ENGINEERED FOR EXTREMES LN2 STORAGE THAT DELIVERS

STATIC CRYOGENIC TANK FOR LN2



INTRODUCTION

Our expertise lies in the manufacturing of vast range of pressure vessels including cryogenics, vacuum and internally pressurized vessels. Such vessels play an important role in many sectors such as fertilizers, oil and gas, food and research areas etc. They are mainly used for process and storage purposes.

All of our products are manufactured as per the International Standards including ASME Sec VIII and these products are vetted through rigorous quality checks to ensure the high quality. Our team constitutes expert engineers, and qualified welders and fabricators. We also provide the insulation and cladding services on the vessels (if required).

We mainly deal in Stainless Steel, Carbon Steel and HSLA Steel construction and have many advanced manufacturing technologies including TIG, MIG, MAG, orbital welding and SMAW to ensure the fast and high quality manufacturing of the products.

USES

- Cryogenic storage and Transportation
- Medical Research and Treatment
- Cryogenic cooling systems
- Food freezing and Preservation
- Material Science Research
- Chemical industry processes such as cooling reactions, cryogenic grinding, and creating inert atmospheres are essential.
- In the fertilizer sector, cryopreservation of seeds, enhancing nutrient uptake, and soil pest treatment are commonly used methods.
- Beverage industry techniques like flash freezing, carbonation enhancement, and rapid chilling are frequently employed.
- In the oil sector, well stimulation, pipeline maintenance, and support for hydraulic fracturing are critical processes.

TYPES OF VESSELS

Cryogenics Vessels (Both Vertical and Horizontal)
1.Liquid Oxygen Vessels 2.Liquid Nitrogen Vessels 3.Liquid Argon Vessels

TECHNICAL DETAILS

COMPATIBLE SUBSTANCES

- LOX (Liquid Oxygen)
- LIN (Liquid Nitrogen)
- LAR (Liquid Argon)

VESSEL CONFIGURATIONS

- Horizontal
- Vertical

VESSEL CAPACITIES

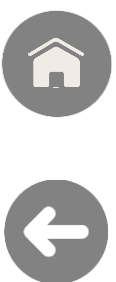
- 2000ltr. to 20000 ltr.

PROPERTIES

- Stainless Steel, HSLA Steel and Carbon Steel Construction
- Design, Fabrication and Inspection as per ASME Sec VIII
- RT Qualified Welders



[Pictures are for reference only and may differ from actual products]



UV AIR PURIFIER

**STAY
SAFE,
BREATHE
PURE**



UV AIR PURIFIER

DESIGNED TO PROTECT, BUILT TO PURIFY



INTRODUCTION

UVAP is an indigenously designed and developed solution based on UV germicidal irradiation (UVGI) technology, specifically engineered to eliminate harmful airborne pathogens, including bacteria and viruses such as COVID-19. UV-C light has been confirmed to be effective against microorganisms by damaging the DNA and RNA essential for their survival. The effectiveness of this technology is influenced by factors such as UV light intensity, duration of exposure, and proximity to the target pathogens.

TECHNICAL SPECS

Features

- Audio signal, LED visual alarm and vibration
- Reverse battery and charging cutoff protections
- Rechargeable battery with charger
- Low battery Alarm
- Six LEDs panel to Indicate quantity of metal

TECHNICAL SPECIFICATIONS	
Operating Frequency	70± 5KHz
Tuning	Auto
Indicators	Piezo Buzzer, Red LED, Vibration, 6 LEDs Panel
Control	Push button
Battery	9V, NI-MH/LI-Ion(Rechargeable)
Continuous Operation	> 06 hours under normal operation
Sensitivity Control	Push button
Indicators	No adjustment required as it is pre-adjust. Control available to increase sensitivity
Detection Time	< 2 Sec
Detection Percentage	> 90%
Scan Rate	3 to 4 inches per second
Maximum Detection Depth	9-11cm(horizontal) for blade, 12-15 cm for knife (about 6" length), 15-18 cm for Pistol
Operating Temperature	-5 °C to + 45 °C
Humidity	95% at 40°C

TECHNICAL USES

- **Elimination of Airborne Pathogens:**
It effectively kills harmful airborne bacteria and viruses, including COVID-19.
- **Air Quality Improvement:**
By targeting and neutralizing microorganisms, it helps enhance the overall air quality in various environments.
- **Public Health Protection:**
The technology serves as a preventive measure against the spread of infectious diseases, contributing to public health safety.
- **Application in Various Settings:**
UVAP can be utilized in healthcare facilities, public spaces, and any environments where the reduction of airborne pathogens is critical.



[Pictures are for reference only and may differ from actual products]



SMART WALK THROUGH

STEP INTO A SAFER SPACE



PROTECTING EVERY ENTRANCE, ENSURING EVERY EXIT

SMART WALK THROUGH

USES/BENEFITS

- Airports for screening travelers and luggage.
- Hotels for enhancing guest security at entrances.
- Industries and offices for monitoring access points.
- Factories for maintaining workplace safety and detecting metal tools.
- Schools for promoting a safe learning environment.
- Public places for ensuring safety in crowded areas.

INTRODUCTION

The Smart Walkthrough system is a cutting-edge detection solution designed to identify metal contents at security-sensitive locations, including airports, hotels, industries, offices, factories, schools, and public places.

Additionally, the Smart Walkthrough is ISO certified, affirming its compliance with international standards.

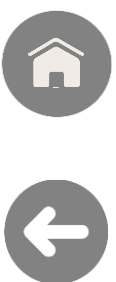
For enhanced security, options for integrating biometric features and cameras are available, making it a versatile choice for modern security needs.

TECHNICAL FEATURES

- **Metal Detection:** Capable of detecting both ferrous and nonferrous metals, ensuring comprehensive security coverage.
- **Independent Sensitivity Zones:** Features adjustable sensitivity levels (0-299) for independent zones, allowing customization based on specific security requirements.
- **Alarm Indicators:** Equipped with two LED alarm light bars located at the front and back of both panels, providing clear visual alerts.
- **Detection Counters:** Functions as both a passer and detection counter, facilitating monitoring of foot traffic.
- **Alarm System:** Integrated sound and light alarm for immediate notifications of detected metal.
- **Security Features:** Includes password protection to prevent unauthorized access to settings.
- **Health Safety:** Designed to be harmless for pacemakers and safe for pregnant women, ensuring user safety.
- **Data Connectivity:** RS232 interface available for connection to computer LAN/WAN (specific to models D 6.3 & DS 6.3 only).
- **Zone Options:** Offered in configurations of thirty-three zones and six zones, catering to diverse security needs.

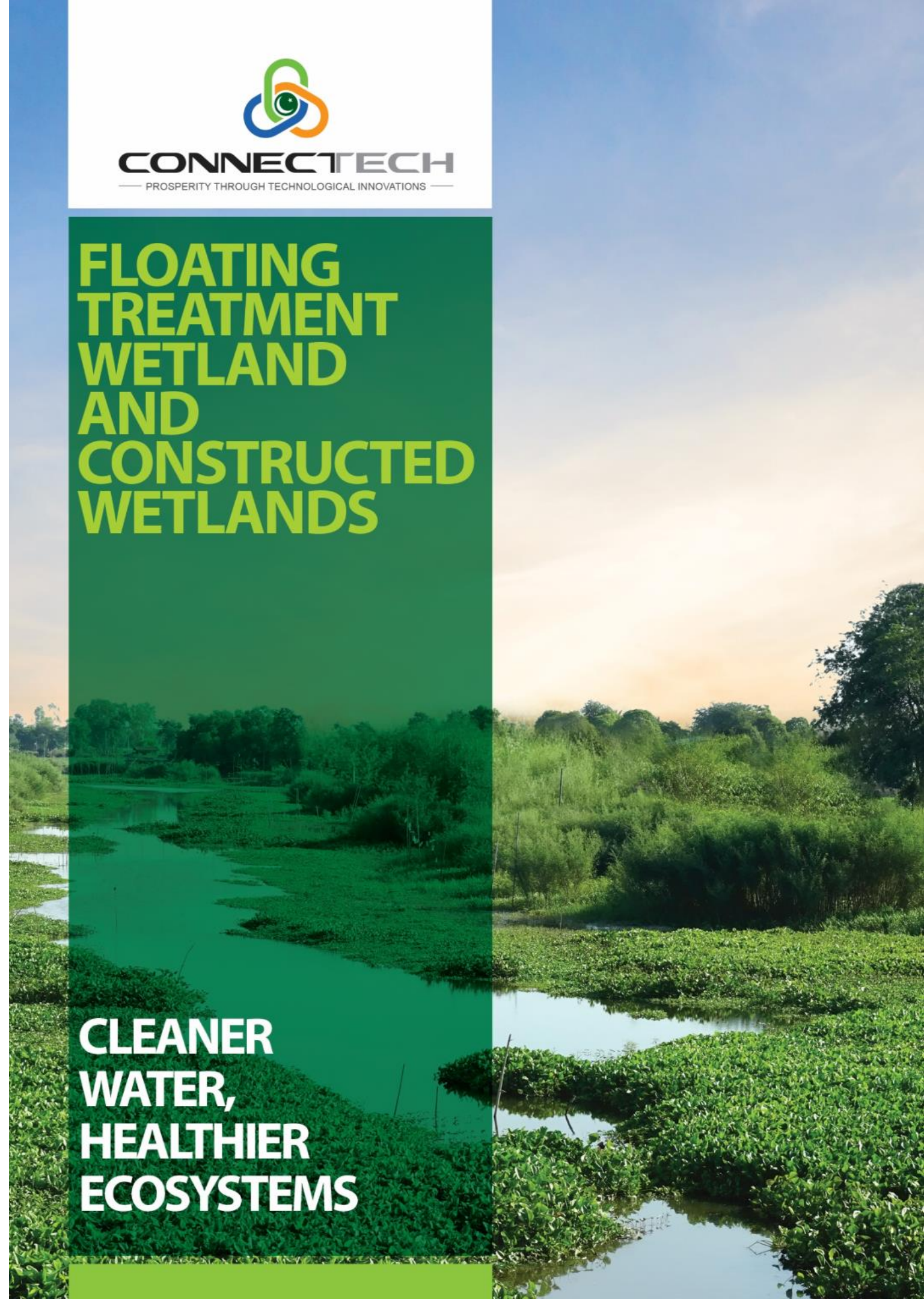


[Pictures are for reference only and may differ from actual products]



FLOATING TREATMENT WETLAND AND CONSTRUCTED WETLANDS

CLEANER WATER, HEALTHIER ECOSYSTEMS



WHERE INNOVATION MEETS NATURE

FLOATING TREATMENT WETLAND AND CONSTRUCTED WETLANDS



COMPOSITION

Consists of locally developed mats that form the base for plant roots, which filter wastewater through natural processes. This root-based filtering system operates without the need for additional energy or chemicals.

BENEFITS

- Proven & cost-effective alternative to traditional wastewater treatment systems.
- Innovative, low-cost & self-sustainable approach.
- Indigenous, sustainable, and feasible.
- Low operational and maintenance costs.
- No chemical use.
- No electricity use.
- Successfully installed ~ 300,000 sq. ft. FTWs at 35 sites.
- Utilized ~ 12,500 locally developed mats.
- Applied wetland treated ~ 200 billion m³ of wastewater.



BACKGROUND

In Pakistan, the challenges of wastewater management are increasingly urgent due to rapid urbanization, industrial expansion, and inadequate infrastructure. Conventional wastewater treatment systems often fall short in efficiency and sustainability, leading to environmental degradation and public health risks. In response to these issues, innovative solutions like Floating Treatment Wetlands (FTWs) and Constructed Wetlands (CWs) are gaining attention. These eco-friendly systems harness natural processes to treat wastewater by utilizing local plant species and beneficial bacteria, creating a more sustainable approach to water purification. Their adaptability to Pakistan's diverse climatic conditions makes them an ideal choice for enhancing the country's water quality and promoting environmental conservation while offering a cost-effective alternative to traditional methods.

INTRODUCTION

This advanced wastewater treatment solution offers a cost-effective and sustainable alternative to conventional systems. Utilizing extensive R&D, it incorporates selected plant species, a specialized bacterial consortium, and custom-designed floating mats to deliver an efficient and eco-friendly approach to water purification tailored for Pakistan.

USES

This Floating Treatment Wetland (FTW) system is ideal for:
 Sewage wastewater stabilization in municipal systems, such as those managed by WASA Faisalabad.
 Treating crude-oil contaminated wastewater in industrial settings, such as OGDCL sites.
 Textile wastewater treatment, as practiced by Interloop Limited Faisalabad.
 Reusing car wash wastewater, as seen in Toyota Lyallpur Motors and Toyota Chenab Motors.
 Treating wastewater in the beverage industry, such as at Haidri Beverages Pvt. Limited.
 Sewage treatment in academic institutions, like Akhuwat University Kasur.
 Reusing container wash wastewater in logistics, as practiced by Momentum Logistics Pvt. Limited, Khanewal.

[Pictures are for reference only and may differ from actual products]



INNOVATIVE ENZYME SOLUTIONS TO ENHANCE EVERY PROCESS

PAKZYME α-ENZYME

PAKZYME α-ENZYME

**OPTIMIZED
YIELD AND
PRODUCT
QUALITY**

INTRODUCTION/TECHNICAL DETAILS

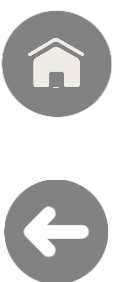
PAK ZYME is a specialized α-Amylase enzyme known for its ability to effectively catalyze the hydrolysis of internal α-1,4-glycosidic bonds in starch molecules. Through this process, it breaks down complex starch structures into simpler, lower molecular weight compounds, primarily producing glucose, maltose, and maltotriose units. This hydrolytic activity makes PAK ZYME particularly valuable in industries requiring efficient starch conversion, such as food processing, brewing, and biofuel production, where precise enzymatic action is essential for optimized yield and product quality.

APPLICATIONS

Wide applications of α-amylases in the food industry include baking, brewing, starch liquefaction as well as a digestive aid. They are widely used in the baking industry as flavor enhancement and antistaling agents to improve bread quality. Amylase is also used in the textile, denim, and paper industry.



[Pictures are for reference only and may differ from actual products]



ROBOT FIRE FIGHTING EXTINGUISHER

**BECAUSE
YOUR
SAFETY
DESERVES
MORE**



ENGINEERED FOR PRECISION

ROBOT FIRE FIGHTING EXTINGUISHER



BACKGROUND

Working in long and irregular hours and unfriendly working environment such as high temperature, dusty and low humidity, firefighters are facing with potentially life threatening situation such as explosion, collapse building and radioactivity.

INTRODUCTION

Fire fighting mobile robots are one of the solutions that helps to reduce the fire hazards risk on fire fighters. The robots help the firefighters using extinguishing agents such as water, foam or others without fire fighters having to set up or operate directly in danger area. Fire Fighting Robots (FFRs) are very helpful for deployment as first responders in case of fire at strategic sites. They can facilitate the firefighters to operate in hazardous environments such as radioactive, high temperature, dusty and low humidity with ease and full automation.



TECHNICAL COMPONENTS

Mechanism

- Weight : ~ 200 Kg
- Dimensions (LxWxH): 1020x550x890 (mm)
- Material : Aluminum Alloy
- Steel Reinforced Hard Rubber Tracks

Power Source

- Battery : 48V DC, 16Ah
- Runtime : 3 hrs

Communication

- Wi-Fi (IEEE Standard 802.11 b/g/n)

Vision System

- Live Video Streaming

Application

- Rapid Class-A fire extinguishingF

Major Components

- Mobile Platform
- Water Monitor
- Wireless Communication
- Vision Sensor
- Operator Panel

Operator Panel

- Motion Control
- Water Monitor Control

Water Monitor

- Water Inlet: 5.08 cm (2.5")

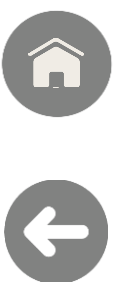
Working Time

- 2 hours

Travel Speed

- 3.6 Km/hr

[Pictures are for reference only and may differ from actual products]



AUTO FIREBALL (BARDA)

WHEN EVERY SECOND MATTERS

INSTANT FIRE SUPPRESSION

AUTO FIREBALL (BARDA)



USERS

- Data Centers
- Software Houses
- Raw Material Storage
- Houses of Industry

INTRODUCTION

BARDA is a ball shaped fire extinguisher. When it comes in contact with a fire, it will activate within 3-10 seconds and will effectively disperse the fire extinguishing chemicals. Install the ball above/near to the point having higher risk of fire origination.

OPERATION

Automatic: When fire breaks out while no one is present; BARDA is activated upon coming into contact with a naked flame (or high degree of heat) and extinguishes the fire at the source – while sounding a loud audible alert (as an explosion) – drawing attention to the danger.

Manual: With the outbreak of the fire, BARDA needs to be thrown / rolled into the source of the fire from a distance of 5–7 feet (as per direction of red arrow). A special mechanism activates the ball within 3-10 seconds after coming into contact with fire. The active ingredients inside the ball extinguish the fire immediately.

TECHNICAL SPECIFICATIONS

- **Weight of extinguishing powder mixture:** 1.2 kg ± 2%
- **Total weight of agent:** 1.3 kg ± 2%
- **NEC:** 30 g, **Diameter:** 147 mm
- **Product Type:** Pyrotechnic products, pyrotechnic extinguishing agents
- **Extinguishing powder:** Dry chemical powder i.e. Ammonium hydrogen phosphate
- **Warning audio signal:** ≈ 120 dB (Impulse Noise)
- **Storing temperature:** – 40 + 85 °C
- Effect of its fall from the height up to 2.5 m without violation of functionality
- The efficiency of one ball can cover a fire volume of 9 cubic meters.
- Extinguish class A, B, C & K type fires.

[Pictures are for reference only and may differ from actual products]



E BEAM STERILIZATION

**EVERY LIFE
DESERVES
SAFETY AND
CLEANLINESS**

THE ULTIMATE STANDARD IN STERILIZATION TECHNOLOGY

E BEAM STERILIZATION



BENEFITS

- Reduces and eliminates diseases-causing microorganisms.
- Increases shelf life of food products.
- Controls Insects, Larvae and Eggs.
- The nutritional value is essentially unchanged.
- Energy source is electricity (i.e. non-radioactive).
- Is extremely efficient and has short treatment times.

INTRODUCTION

Electron beam (E-Beam) sterilization is a highly efficient process that leverages high-energy electrons to ensure precise and rapid sterilization across diverse applications. This technology is integral to the sterilization of medical devices, where it meets rigorous contamination control standards, making it a critical solution in healthcare and biotechnology industries. Additionally, E-Beam irradiation is utilized in material modification, enabling enhanced properties tailored to specific industrial and medical requirements. The controlled and high-energy nature of electron beams allows for dependable and uniform sterilization, establishing E-Beam processing as a sophisticated and effective method for contamination control.

FEATURES

- Technology in Vogue - All over the World
- Source of energy is electrons
- Majority of medical supplies are 10 MeV electron beam compatible
- High product throughput (In Minutes)
- Flexible process - can be customized against each product
- Maximum penetration as maximum energy E-Beam available
- Proven safe and effective technology



[Pictures are for reference only and may differ from actual products]



PERSONAL PROTECTION EQUIPMENT

BULLET PROOF JACKET

**PROTECTION
DESIGNED
TO
EMPOWER**



PREMIUM PROTECTION AND SAFETY

PERSONAL PROTECTION EQUIPMENT BULLET PROOF JACKET



BENEFITS

- **Enhanced Comfort:** Lightweight materials and padded, adjustable shoulder straps offer a secure and comfortable fit.
- **Increased Load-Bearing Capacity:** 360-degree MOLLE coverage supports easy attachment of additional gear, improving operational versatility.
- **Upgradable Protection:** Compatibility with Hard Armor Plates allows for enhanced defense against rifle-level threats.

INTRODUCTION

The Ballistic Tactical Assault Vest is a comprehensive protection solution, crafted with advanced lightweight materials for optimal durability and comfort.

TECHNICAL SPECS

BPJ- NIJ III PE (SA)

Fully adjustable, padded shoulder straps for a secure and customized fit.

360-degree MOLLE coverage for enhanced load-bearing support and versatility in carrying essential gear.

Upgradeable with Hard Armor Plates to provide protection against rifle threats.

Max Weight (grams)	Small 4,000 (Excl. HAPs) + 3,400 (2x HAPs) Medium 4,500 (Excl. HAPs) + 4,600 (2x HAPs) Large 5,250 (Excl. HAPs) + 6,000 (2x HAPs)
Material	Soft Insert – UHMWPE HAPs – UHMWPE
Protection Level	NIJ Lvl III (HAP Stand Alone) 6 x rnds of 7.62 x 25 mm Tokarev (TT Pistol) from 5mtr 6 x rnds of 7.62 x 51 SMG G3 Rifle from 15 mtrs
Back Face Trauma	Trauma Less than 44 mm
Sizes	Small, Medium & Large
Pattern / Shade	As per User Requirement
Design	As per Pak Army General Staff Requirements (GSR)



[Pictures are for reference only and may differ from actual products]



PERSONAL PROTECTION EQUIPMENT

LIGHTWEIGHT COMBAT HELMETS

WHERE COURAGE MEETS PROTECTION



PRECISION-DESIGNED FOR TACTICAL SUPERIORITY

PERSONAL PROTECTION EQUIPMENT
LIGHTWEIGHT COMBAT HELMETS



BENEFITS

High-Level Protection:
Achieves NIJ Level IIA certification, providing effective resistance against 9x19 mm full metal jacket rounds.

Enhanced Comfort and Mobility:
The helmet's efficient design maximizes comfort and ease of movement, allowing operators to stay protected without compromising agility.

Extensive Coverage:
The PASGT shape offers large protective coverage, safeguarding critical areas

INTRODUCTION

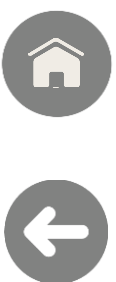
The PASGT (Personnel Armor System for Ground Troops) lightweight combat helmet provides extensive protective coverage, designed in one of the most recognized and trusted shapes in tactical headgear. Tested to meet Level IIA ballistic standards set by the USA National Institute of Justice (NIJ 101.06), this helmet can effectively withstand 9x19 mm full metal jacket rounds, ensuring reliable defense in the field.

TECHNICAL SPECS

Product Code	LWC H-A R-NI J-1	LWCH-A R-NIJ-2	LWCH-H Y-NIJ1	LWCH-H Y-NIJ1
Coverage	Low Cut			
Composition	Aramid		Aramid / UHMWPE	
Shape	PASGT			
Protection lvl	NIJ Lvl II 0101-06	NIJ Lvl IIIA 0101-06	NIJ Lvl II 0101-06	NIJ Lvl IIIA 0101-06
9 X 9mm (FMJ)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
V50 Fragmentation (17 gr FSP)	≥ 500 m/s	≥ 500 m/s	≥ 500 m/s	≥ 670 m/s
Test Distance	5 mtrs	5 mtrs	5 mtrs	5 mtrs
Max Weight	1.55 kg	1.45 kg	1.35 kg	1.45 kg



[Pictures are for reference only and may differ from actual products]

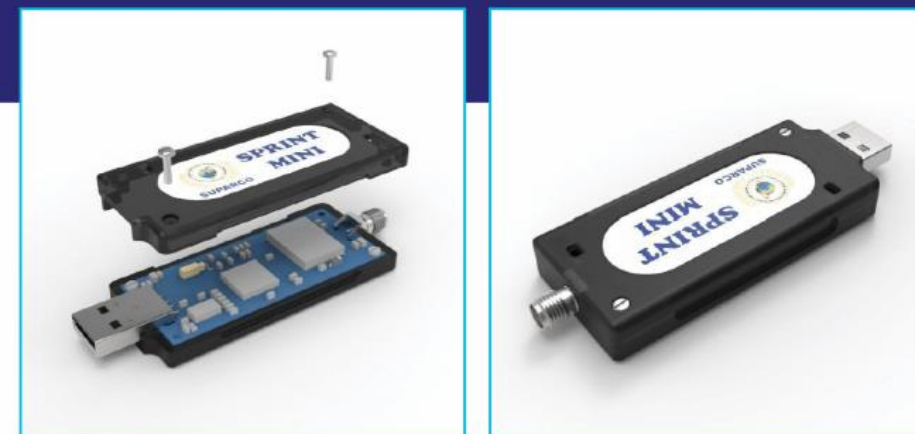


USB DONGLE GNSS DEVICE (SPRINT - MINI)

**BUILT TO LAST,
DESIGNED TO
PERFORM**

REVOLUTIONIZING CONNECTIVITY

USB DONGLE GNSS DEVICE (SPRINT - MINI)



KEY FEATURES

- Multi constellations
- USB Dongle design
- Portable
- Light weight
- Customize design
- Data security using encryption

STANDARD

Ease of selection between single & multi-constellation based positioning

KEY FEATURES

- Meter level standard position accuracy
- USB interface
- Water and dust proof
- Customize design
- Cyber secured
- Small size and light weight
- Suitable for GIS and mapping, vehicle tracking, intelligent transportation, unmanned land and air vehicles

INTRODUCTION

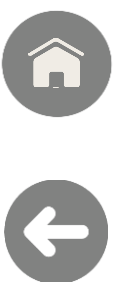
The SPRINT-Mini is a compact, advanced multi-GNSS receiver tailored for users requiring precise positioning within a small form factor. Equipped with a high-performance navigation engine, it seamlessly operates with laptops and portable USB devices in the field, making it ideal for mobile applications. The SPRINT-Mini provides robust data security through encryption and supports multiple satellite constellations, including BeiDou, GPS, GLONASS, and Galileo, offering simultaneous tracking across all available GNSS constellations for superior positioning accuracy.

TECHNICAL SPECIFICATIONS

- Supported Constellations:
 - GPS: L1
 - BeiDou: B1
 - Galileo: E1
 - GLONASS: G1
- Position Accuracy: 2.5 m
- Acquisition Time: 30 s
- Tracking Channels: 36
- Sensitivity: -150 dBm (Tracking)
- Hot Start: 30 sec
- Cold Start: 60 sec
- Encryption: AES-128



[Pictures are for reference only and may differ from actual products]



HANDHELD METAL DETECTORS

**SECURITY
IN
YOUR
HANDS**



TAKE CONTROL OF SECURITY WITH EVERY SCAN

HANDHELD METAL DETECTORS



USES

- **Security Screening:** Ideal for screening individuals at airports, events, and secure facilities.
- **Law Enforcement:** Assists police and security personnel in detecting concealed weapons and contraband.
- **Event Security:** Enhances safety at public gatherings, concerts, and sporting events.
- **Access Control:** Used in secure locations to monitor access and prevent unauthorized entry.
- **Safety Inspections:** Aids in inspections of bags and packages for metal objects in various settings.



INTRODUCTION

The BS – H – D7 is a handheld metal detector designed for security and law enforcement personnel. This device efficiently detects both ferrous and non-ferrous metals, providing immediate alerts through audio, LED visual, and vibration alarms. With a six-LED panel indicating the quantity of detected metal, it enhances situational awareness. The BS – H – D7 also features reverse battery protection, a low battery alarm, and comes with a rechargeable battery and charger, making it a reliable and convenient tool for ensuring safety and security.

TECHNICAL SPECIFICATIONS

Model: BS – H – D7

Metal Detection:

Detects ferrous and non-ferrous metals

Alarm System:

- Audio alert
- LED visual alert
- Vibration alert

LED Indicator:

- Six-LED panel indicating the quantity of detected metal

Safety Features:

- Reverse battery protection
- Low battery alarm

Power Supply:

- Rechargeable battery
- Charger included

[Pictures are for reference only and may differ from actual products]