



HEAVY INDUSTRIES TAXILA

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MARGALLA HEAVY INDUSTRIES LIMITED

(A Subsidiary of Heavy Industries Taxila)

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Strength Through Self Reliance



HEAVY INDUSTRIES TAXILA

Solutions for
Armoured Vehicles -
from **Print to Build**



TANKS



APCs



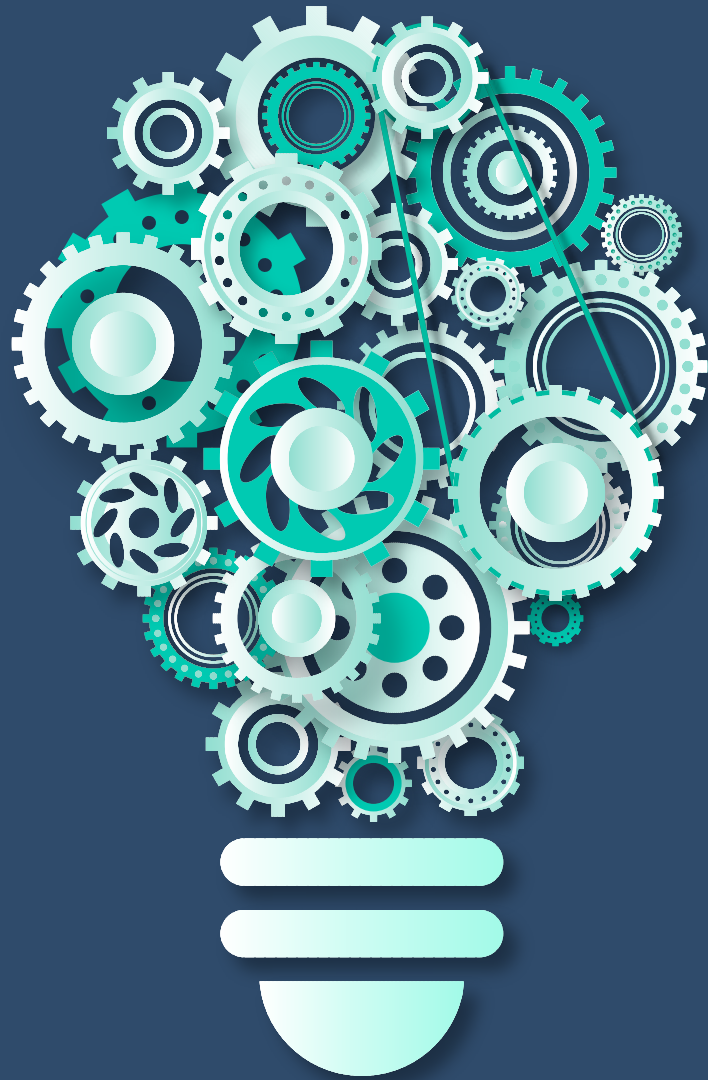
ASVs



SPARE PARTS



Innovation,
Creativity
& Mechanical Expertise



50
Tanks/Year
150
APCs &
SP Guns/Year



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History

Heavy Industries Taxila was founded in 1971 as "Heavy Rebuild Factory (HRF)" with collaboration of NORINCO China for rebuild of tanks. In 1979, first Chinese Origin Tank T-59 was successfully rebuilt. HRF was later known as "Heavy Rebuild Factory T-Series (HRF-T)". By 1992, it transformed into a large military industrial complex in multi-factory environment spanning over 1400 acres and renamed as Heavy Industries Taxila (HIT) with six production units having more than 200 engineers and 5000 skilled technicians. The ambit was expanded in 2007 with addition of an Advance Research Development and Information Centre (ARDIC) and an Advance System Rebuild Factory (ASRF). HIT is proud to have manufactured over 1800 Armoured Fighting Vehicles (AFVs) and more than 400 Armoured Security Vehicles (ASVs) besides rebuild, upgradation and modernization of over 5000 AFVs for Armed Forces and LEAs both inland and abroad. Today, HIT stands as a symbol of pride, quality and innovation with state of the art designing, simulation, development, manufacturing, training and testing facilities as per international standards



Our Mission

Manufacture, rebuild, upgrade and conduct R&D of Armoured Vehicles with emphasis on self-reliance through indigenization and utilize HIT's commercial potential to meet requirements of civil sector and friendly countries.

HIT Organization

HIT is governed through a Board, headed by Chairman HITB. The Board comprising of five members, Member Production Control, Member Project Planning, Member Finance, Member Ministerial Coordination and Member Private. HIT Board runs HIT on sound administrative and management techniques to efficiently meet the requirements of defence-production.

What We Do

- Design, Simulation and Prototyping
- Manufacturing
- Rebuild, Upgradation and Modernization
- Testing, Verification and Qualification
- Sustenance Parts, Test Benches and Agriculture Solutions
- MRO Support and Services (M-Series and T-Series Armoured Vehicles)



Production Facilities



Manufacturing Factories



Rebuild Factories



Support Facilities



Tank Manufacturing
Factory **(TMF)**
ISO 9001:2015



Armoured Personnel
Carrier Factory
(APCF)
ISO 9001:2015



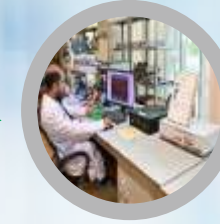
Gun Manufacturing
Factory **(GF)**
ISO 9001:2015



Advance System
Rebuild Factory
(ASRF)
ISO 9001:2008



Development,
Engineering Support &
Component Manufacturing
(DESCOM)
ISO 9001:2015



Advance Research,
Development And
Information Centre
(ARDIC)
ISO 9001:2015



Heavy Rebuild
Factory T-series
(HRF-T)
ISO 9001:2015



Heavy Rebuild
Factory M-series
(HRF-M)
ISO 9001:2015

Services Offered



**Design, Analyze
& Validate**

Design Centres

HIT has variety of specialized testing facilities in line with international requirements. These facilities are extensively used by HIT and other public/private organizations to conduct R&D, material analysis, prototype qualification and testing / authentication of final products.

Mechanical Design Centre

- Design, analyze and validate engineering systems
- Simulation of new concepts and ideas or existing design (Static and Dynamic)
- Analysis of components, assemblies or overall product using CAD tools such as AutoCAD, CREO, ANSYS etc.
- Inspection parts using 3D Scanners, Faro Arm and Coordinate Measuring Machines

Electrical Design Centre

Design and generate Gerber data for circuits using Altium Software and printing of PCB cards

Rapid Prototyping

Fused Deposition Machine (FDM) to create solid models directly from 3d CAD files (STL) using materials like ABS, Plastic & Polycarbonate





Manufacturing

HIT has the capability to manufacture state-of-the-art tanks, armoured vehicles and protection solutions, including:

Main Battle Tanks

- Tank HaiderTank
- Al-Khalid 1
- Tank Al-Khalid
- T-85IAP
- T-69IIMP

Armoured Personnel Carriers (APCs)

- M-113P
- APC Talha
- Command Vehicle 'SAKB'
- Logistics Vehicle 'AL-QASWA'
- Armoured Recovery Vehicle (ARV) 'Al-Hadeed'

Armoured Security Vehicles (ASVs)

- ASV Protector (B7-Level)
- ASV Mohafiz-V (B6-Level)

Personal Protection Equipment (PPEs)

- Bullet Proof Jackets (BPJs)
- Bullet Proof Helmets (BPHs)
- Bullet Proof Vests (BPVs)

Armoured Guard Post 'Aahan'





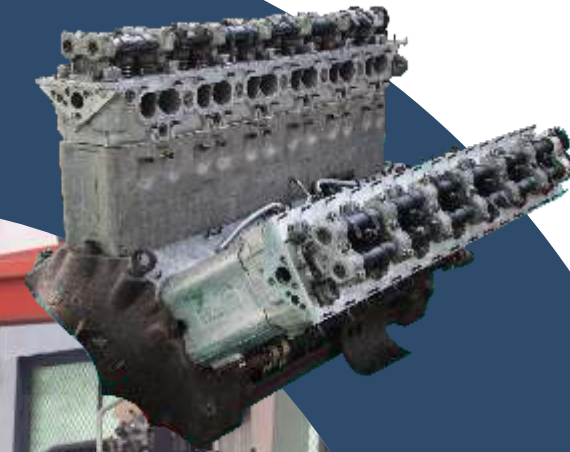
Rebuild, Upgrade & Overhaul

Rebuilding / Upgradation of Tanks, APCs, ARVs and SP Guns

HIT is fully configured and capable of rebuild, upgrade and modernize tanks / ARVs of Chinese (T-59, T-69, T-85, ARV W-653) & Eastern European (T-80UD) origin. Rebuild process includes complete disassembly, testing / inspection of all assemblies, manufacturing / repair of unserviceable parts, final assembly and testing of tanks.

Overhauling of Engines

HIT has state of the art engine test benches and is fully equipped / capable of rebuilding and testing V-type Chinese Engines (520 HP, 580 HP & 730 HP) and Horizontally opposed Ukrainian Engines (6TD-I, 1000 HP & 6TD-II, 1200 HP).





Manufacturing & Rebuilding of Tank & Artillery Guns



Manufacturing and Rebuilding of Tank & Artillery Guns

- Gun Factory stands at the forefront of advanced manufacturing, specializing in the production of premium-quality gun barrels.
- Our proficiency extends to the fabrication of tank and artillery gun barrels, exemplified by following: -
 - Meticulously crafted 105 mm mechanically autofrettage rifled tank gun barrels designed for T-59 & T-69 II MP tanks.
 - Precision-engineered 125 mm hydraulic autofrettage chrome-plated smooth bore tank gun barrels utilized in elite tanks including Al-Khalid, Al-Zarrar, T85IIAP, Haider, T80UD and T72S.
 - Our diverse capabilities encompass artillery gun barrels, offering options of 23 caliber, 39 caliber, and 52 caliber for 155 mm artillery guns.
- We excel in the production and rebuild of 125 mm smoothbore hydraulic autofrettage chrome-plated tank guns for Al-Zarrar, Al Kahlid, T85IIAP and Haider tanks.
- We are actively involved in the manufacturing of specialized tools and gauges tailored exclusively for the production of 155 mm artillery gun barrels.
- At Gun Factory, our unwavering commitment is to deliver impeccably engineered products that consistently meet and exceed the highest industry standards.





Testing Facilities

Ballistic Effect Testing Lab (BETL)

To authenticate full range of armoured products in controlled lab environment

Material Testing and Characterization

Materials Testing through spectrometer and wet analysis for ferrous and non-ferrous materials. Impact, Tensile and Hardness Testing of metals.

Polymer and Rubber Testing

Testing of the mechanical properties of textile, rubber, board and composite material to measure tensile strength, elongation, flexural Strength, compressive Strength

Calibration Facility

ISO certified calibration facility for mechanical gauges, pressure gauges, measurement tools and temperature sensors.



Manufacturing of Test Benches for Tanks

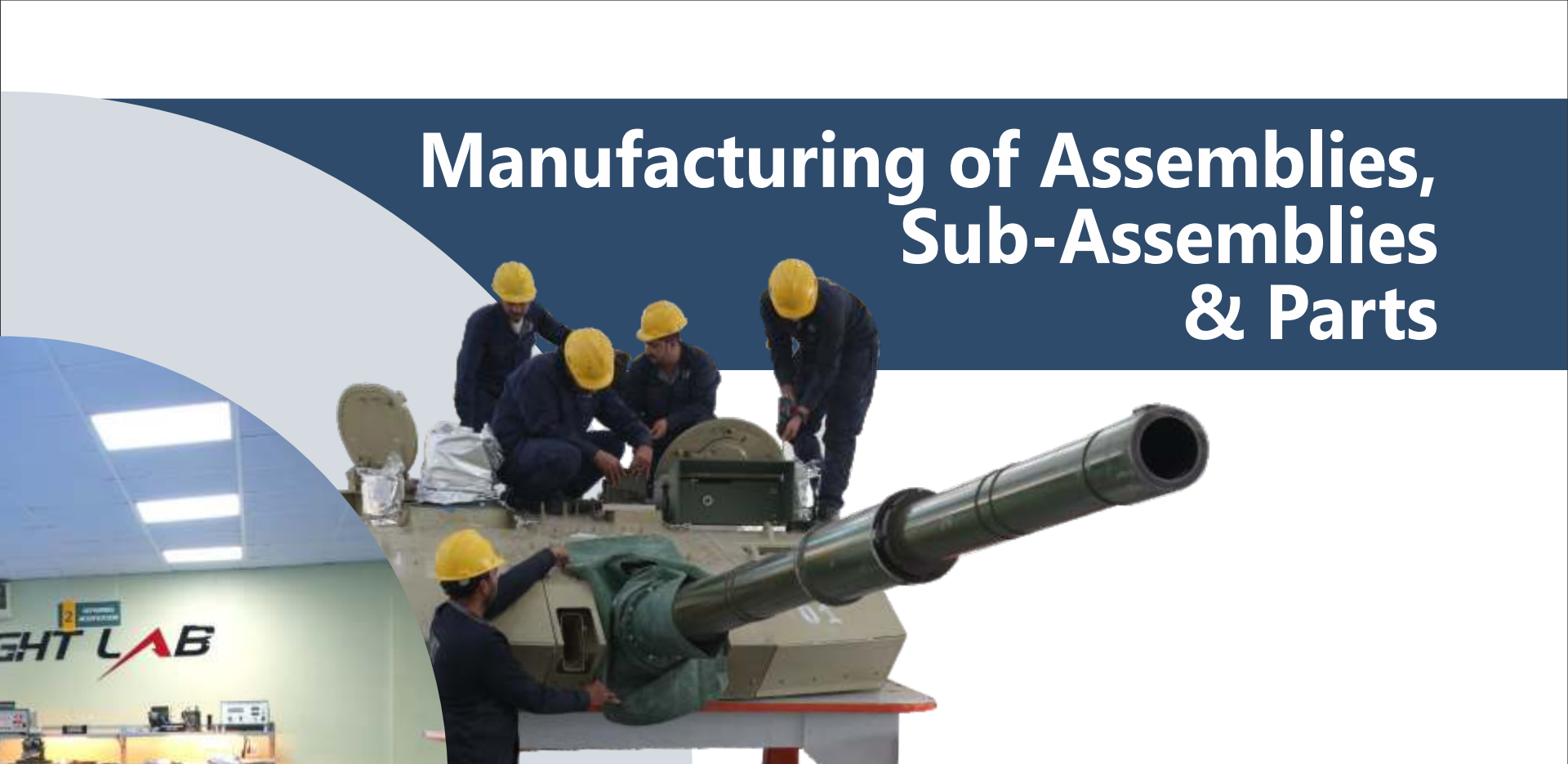
HIT has the capability of designing / manufacturing of test benches for different assemblies of tank systems. Test benches are designed / manufactured using latest available components / parts for easy sustenance / maintenance. These test benches test assemblies as per the ATPs.

Machining Capabilities

- CNC Machining & Turning
- Laser & EDM Cutting
- Tool Manufacturing
- Foundry & Casting
- Forging & Hammering
- Heat Treatment
- Surface Treatment
- Machine Maintenance
- Drawing & Design Centre
- Quality Control
- Tech Partners Engagement
- Engineering Management



Manufacturing of Assemblies, Sub-Assemblies & Parts



Electrical Systems

- Silicon Rectifier
- Temperature Control Box
- Smoke Screen Control Box
- Thermal Smoke Screen Box
- KS2 Steering Lamp Control Box
- Gun Laying Control Box
- Starting Device (PUS-403)
- Relay Starter / Generator (RSG-716)
- Gear Locking Unit (BA-711)
- Regulator (RN-504)
- Alarming Unit (BAS-701)
- Road Signal Unit (KDS-710)
- Time Relay (RV-704)
- Electro Magnet for Gear Locking (EM-30)
- Optical Sensor (OD-1)
- Master Switch (VR-11)
- Harness assembly

Fire Control System

- Fire Control Computer
- Charge Temperature Sensor
- Angular Velocity Sensor
- UPS Power Supply
- UPS Battery
- Auto Tracker
- Wind Sensor
- Met Sensor



Fan



Silicon Rectifier



Temperature Control Box



Fire Control Computer



Met Sensor



Smoke Screen Control Box



Ks2 Steering Lamp Control Box



Thermal Smoke Screen Box



Angular Velocity Sensor



Charge Temperature Sensor

Gun Control System

- Starting Distributor
- Transistor Driver
- PD Box
- Memory Unit
- Ammo Display Unit
- Anti-aircraft Machine Gun Horizontal Motor (ED-76)
- Anti-aircraft Machine Gun Vertical Motor (EDM-14)
- Gun Control Unit (BUK-1)
- Protection Unit (BZ-1)
- PT-800 with Regulator
- Turret Motor (EDM-16)
- Horizontal Drive Unit (BG-29)
- Vertical Drive Unit (BV-29)
- Gunner Panel (PN-43)
- Ammo Selector (IV-216)
- Joy Stick (BPV-29)
- Relay for Amplidyne (KP-1)
- Hatch Lock Sensor (DPL)
- Limit Sensor (D-30)
- Angle Limiter (OG)
- Switching Box (K2 Box)
- Conveyer Sensor (DPK-78)
- Turret Traversing Mechanism
- Smoke Screen (SPUZ-902)
- PP Actuating Device
- Linear Accelerometer
- Boiler Heating Motor (MBP-3N)
- Crew Fan Motor (DV-3)
- Fan Motor (MV-42)
- Blige Pump Motor (MVP-2A)
- Oil Pump Motor (MN-1)
- Electro Magnet for Commander Copula Locking (EK-718)



Vertical Drive Unit (BV-29)



Protection Unit (BZ-1)



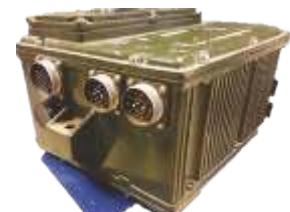
PT-800 with Regulator



Memory Unit



Ammo Display Unit



Gun Control Unit (BUK-1)



Joy Stick (BPV-29)



Starting Distributor



Transistor Driver



Angle Limiter (OG)



Ammo Selector (IV-216)



Gunner Panel (PN-43)

Optronics & Optical Sights

Crew Vision Sights (Periscopes)

- Driver Periscope
- Commander Vision Block
- Gunner Periscope



Commander Vision Block



Driver Periscope



Gunner Periscope

Gunner and Commander Sight PCBs

- Image Stabilizing Circuit Board
- Bottom Circuit Board
- Gyroscope Power Board
- Laser Power Board
- Safety Circuit Board
- Azimuth Servo Board
- Elevation Circuit Board
- Logic Circuit Board
- Logic Servo Board
- Amplifying Circuit Board
- Gyroscope Circuit Board
- Counter Board
- Control Board
- Common Power Board
- Angular Velocity Board
- Code Receptor Board
- Electric Unit (Y7K)
- Time Interval Meter
- Indication Control Unit
- Electric Unit (TKN-4S)



Gyroscope Power Board



Image Stabilizing Circuit Board



Laser Power Board



Common Power Board



Amplifying Circuit Board



Logic Circuit Board

Mechanical Systems

Power Pack

- Gear All Types
- Oil Cooler
- Transfer Gear box
- Cam Shaft
- Cylinder Liner
- Water Pump
- Pistons
- Oil Pump
- Intake / Exhaust Valves
- Piston Rings
- Fuel Pipes
- Plunger / Sleeve (Fuel Pump)
- Intake / Exhaust Manifold
- Main Bearing
- Upper/Lower Shell
- Water Pump Drive
- Gear Bearing
- Fuel Booster Pump
- Tachometer Gen
- Drive
- Fuel Injection Pump
- Air Distributer Casing
- Injector Assembly
- Relief Valve
- Idle Gears
- Gaskets



Pistons



Cylinder Liner



Oil Pump



Idle Gear



Super Charger



Bearing



Intake



Cam Shaft

Mechanical Systems

Running Gear

- Top Rollers assembly for track support
- Rubber Pads
- Track Metallic Portion – Rubberized
- Track Pin
- Road Wheel Rim Assy
- Sprocket
- Road wheels
- Track

Suspension system

- Torsion Bar
- Shock Absorber Body

Heating & Cooling

- Radiators
- Impeller Fan



Roller Assembly



Torsion Bar



Road Wheel



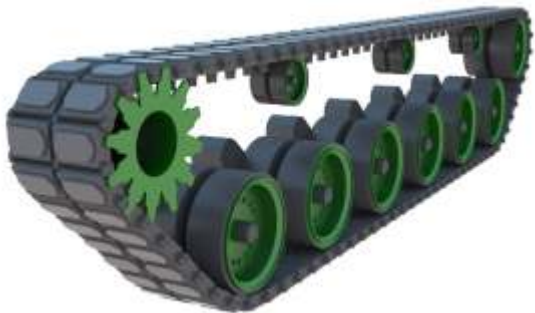
Sprocket



Rubber Pad



Impeller Fan



Track



Radiator

Mechanical Systems

Chassis

- Front L Mud Guard Assembly
- Fender Assembly
- Smoke Grenade Launcher
- Fuel Tanks
- Turret Head
- Commander Cupola Base
- Commander Hatch Base
- Balance Arm Brackets

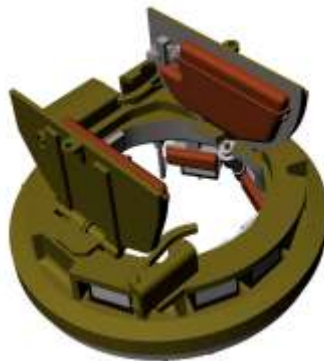
- Shock Absorber Brackets
- Turret Grill
- Top Roller Seat
- Buffer Plates and Brackets
- Base plates
- Skirt Plates
- Carousal Cassettes
- Tool box



Commander Hatch Base



Buffer Bracket



Cupola Base



Buffer Plate



Front L Mud Guard Assembly



Smoke Grenade Launcher



Tool Box

Mechanical Systems

Air Conditioning System

- Consists of
 - Inner Unit
 - Outer Unit
 - Control Boxes & Accessories
- Customizable Solution for all Vehicles
- Water Fording Capability
- Optimized for Military Vehicles for
 - Rugged Terrain
 - Extreme Temperatures



Control Boxes



Inner Unit



Control Boxes



Outer Unit

Auxiliary Power Unit

- Custom Made – 4 Stroke Diesel Engine
- Compatible with all Vehicles
- Generator Output: 6 – 10 Kw
- Fuel Tank Capacity: 8L

Vehicle Water Drainage System

- Made as per Military Specifications
- Customizable Solution
- Compatible with all Vehicles



Mechanical Systems

Customizable Vehicle Crew Seats



Guner Seats



Driver Seats

Fuel Dispensing Unit

- Fuel Refiling Pump
- On Vehicle Equipment Tool
- Easy to Use
- Fast Flow – 70 Lits / Min
- Submergible Sealed Pump
- Customizable for any Vehicle



Fuel Refiling Pump

Nuclear Biological & Chemical Warfare System Filter With Activated Agents

- Filtration of Contaminated Air
- Absorbent Carbon Filtering Layer
- Affective against
 - Toxicants / Chemical Agents
 - Radioactive Dust
 - Biological Agent



Filter

Torque Multiplier Track Adjuster

- Torque Multiplication Up to 1000 Nm
- Customizable Solution for all Vehicles
- Conforms Military Specifications



Mechanical Systems

Small Arms Gun Mounting Assemblies

- Solid Structure
- Made as per Military Specifications
- Customizable Solution for all Vehicles
- Compatible for Wide Range of Small Arms



Ammunition Storage Racks

- Made as per Military Specifications
- Customizable Solution for all Type of Ammunition
- High Quality Steel
- Made to Fit



Bending and Seat Manufacturing of High Pressure Pipes

Gun System

Tank Gun Barrel

- 105 mm mechanically autofrettage rifled tank gun barrel
- 125 mm chrome plated hydraulic autofrettage smooth bore tank gun barrel

Artillery Gun Barrel

- 23 caliber, 155 mm artillery gun barrel
- 39 caliber, 155 mm artillery gun barrel
- 52 caliber, 155 mm artillery gun barrel



125 mm Tank Gun Barrel



105 mm Tank Gun Barrel



155 mm Artillery Gun Barrel

Gun System

125 mm Tank Gun

Comprises of following distinct sub-assemblies meticulously manufactured, assembled and rigorously tested at the HIT, adhering to the highest standards of quality

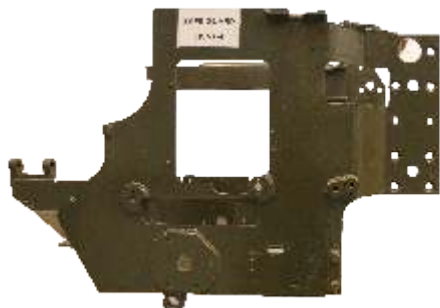
- Recuperator
- Recoil
- Barrel
- Bore evacuator
- Cradle
- Safeguard
- Cartridge case ejector
- Elevating mechanism
- Recoil & wedge contact
- Thermal sleeve
- Breech ring
- Breech block
- Gun-Pull Rod
- Worm wheel casing and Box



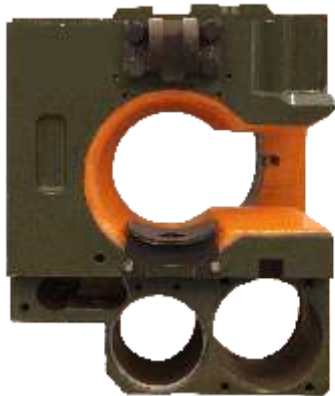
Cradle



Breech Block



Safeguard



Breech Ring



Elevating Mechanism



Thermal Sleeve



Recuprator

At HIT, we also specialize in the manufacturing of following

- Steepled interrupted screw type breech blocks inclusive of the firing mechanism and breech ring for 155 mm artillery guns.
- Breech block and thermal sleeve for 125 mm T80UD and T72

Machining Tools

Tools & Jigs

HIT excels in the market by offering not only the best quality product but also the widest range in tooling. HIT's cutting geometries are optimized to achieve high metal removal rates and long life in universal applications. Versatile tools designed for high performance and secure machining in a variety of materials applications component size and shapes allow high efficiency and production rate. Intensive research and development activities which precisely match your requirements and work processes are able to provide the solutions for tomorrow. HIT offers following tools:-

- Index able Turning Tool holders
- Braze able Turning Tool
- End Mill Cutters Ø 6~63mm
- Drill Ø8~50mm
- Reamer Ø8~50mm
- Tap M5~M52mm
- Counter Sink Ø8~40mm
- Counter Bore Ø8~40mm
- Side & Face Cutter
- Spline Hub Cutter
- Forging Dies
- Investment Casting Die
- Thread Rolling Die
- Gauges
- Machine Fixtures
- Drill Jigs

