COMPOSITE LAUNCH TUBES

MISSILES AND ROCKETS

MISSILE AND ROCKET COMPONENTS

HIGH-PERFORMANCE LIGHTWEIGHT COMPOSITE LAUNCH TUBES

General Dynamics Ordnance and Tactical Systems has a notable history of manufacturing composite Launch Tubes. Incorporating high-strength, low-weight, fiber and resin has allowed Lincoln Operations to become an industry leader in Launch Tube manufacturing. From shoulder launched anti-armor rockets, to VLS (Vertical Launch Systems), Lincoln Operations has proven capabilities highlighted by demonstrated past successes.

General Dynamics Ordnance and Tactical Systems has produced over 1.3 million Launch Tubes since 1963.

We work closely with our customers in the design, development, and production of Launch Tubes, including the following components: integration of unique system features, internal rails, external mounting, end flanges, holdback restraints, wiring harnesses, vapor barriers, EMI shielding, and schock isolation used for strategic, tactical, and interceptor missile systems.

APPLICATIONS

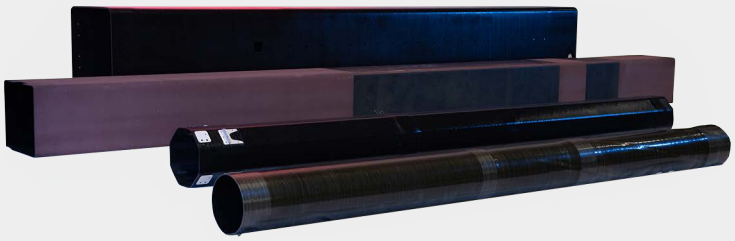
Strategic, Tactical, and Interceptor Missiles.

Design, Analysis, and Production Processes:

- Filament Winding
- Complete Tool Design
- Precision Machining
- Product Design
- Full Qualification Testing
- Manufacture to Performance Specifications

GENERAL DYNAMICS
Ordnance and Tactical Systems

COMPOSITE ROCKET AND MISSILE LAUNCH TUBES



LAUNCH TUBE HERITAGE	DIMENSIONS (IN) DIAMETER X LENGTH	DESCRIPTION/END USE
ADATS	9.185 x 84.7	Fiberglass Launch Tube incorporating vapor/EMI protection and hollow internal rails. Vehicle-mounted, air defense, anti-tank missile system.
CATFAE	12.770 x 68.938	Fiberglass Launch Tube with dome end. Used for catapult-launched fuel air explosives.
Dragon	5 x 34	Fiberglass Launch Tube. Surface-to-surface, one-man portable, medium range anti-tank missile system.
FOG-M	11 x 9.7 (rectangular) x 86	Kevlar®/epoxy launch/storage canister incorporating vapor/EMI barrier. Medium-range fiber optic guided missile.
GMLRS ER	12.7 x 157	Octagonal graphite Launch Tube for extended range. Vehicle mounted, guided multiple launch rocket system.
GMLRS	12.2 x 157	Fiberglass Launch Tube with integrally wound rails. Vehicle mounted integration on the HIMARS launch system.
Javelin	5.67/6.2 x 42.9	Carbon/epoxy Launch Tube with machined build-ups. Surface-to-surface, man-portable, "fire and forget" anti-armor missile.
LOSAT	7.7 x 114.5	Carbon/Epoxy Launch Tube with internal spin rails and external features for EMI, lightning, and CARC protection. HMMWV mounted anti-tank weapon.
Mk-29	25 x 252	Graphite transport and launch canister. First composite canister incorporated into Vertical Launch System (VLS).
MLRS	12.2 x 157	Fiberglass Launch Tube with integrally wound rails. Vehicle mounted, multiple launch rocket system.
MSE Tactical	15 x 209	Square Graphite Launch Tube. Vehicle mounted for PAC-3 variants.
MSE Trainer	15 x 209	Square Fiberglass tube meant to simulate tactical Launch Tube for end-user transport and load training purposes.
PrSM	19.3 x 21.3 (rectangular) x 157	Rectangular carbon fiber Launch Tube for the Precision Strike Missile. Incorporates abrasion resistant inner surface, fiberglass land regions, and local structural reinforcements.
RAM	7 x 115	Fiberglass Launch Tube with 7.9" helix molding compound rails. Surface-launch rolling airframe missile.
Redeye	2.78 x 54	Fiberglass Launch Tube. One-man portable, shoulder-fired anti-aircraft missile.
SADARM	12.2 x 157	Fiberglass Launch Tube with integrally wound rails. Derivative of FLRS Launch Tube.
SMAW-CS	3.26 x 38.8	Carbon and fiberglass projectile afterbody that uses a gelled countermass. Shoulder-mounted assault weapon for firing within confined spaces.
Stinger	2.78 x 58.3	Kevlar® Launch Tube. One-man portable, shoulder-fired anti-aircraft missile.
STLS	2.78 x 58.3	Kevlar® Launch Tube for Stinger trainer.
Tomahawk CCLS	24.8 x 285	Graphite Launch Tube with fiberglass protective skin with wound-in metal rings. Sea-launched Tomahawk Cruise Missile.
TOW	6 x 48	Fiberglass launcher/container with electrical harness and connector. Tube launched, optically tracked, wire-guided missile system.
TOW F&F	7 x 49.4	Sandwich structure of aluminum, foam, and carbon/epoxy composite with molded external attachment and housing features. Missile launch container for tactical weapon system.
Viper	2.756 Inner 3.145 Outer 27 Collapsed 44.5 Extended	Two-piece fiberglass Launch Tube with integrally molded external features. Shoulder-fired, short range, anti-tank weapon.
VT-1	9.555 x 114.5	Graphite tube with conductive features and internal helical rails.

www.gd-ots.com
402 464 8211
composites@gd-ots.com

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