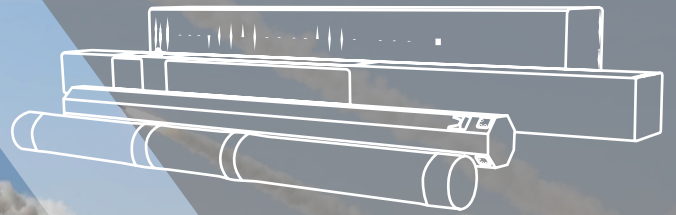


# COMPOSITE LAUNCH TUBES



MISSILE SUBSYSTEMS

LAUNCH SYSTEMS

## 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 shock isolation used for strategic, tactical, and interceptor missile systems.

**GENERAL DYNAMICS**  
Ordnance and Tactical 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

# 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.