



# COMPOSITE MOTOR CASES

MISSILES AND ROCKETS

MISSILE AND ROCKET COMPONENTS

## HIGH-PERFORMANCE LIGHTWEIGHT COMPOSITE MOTOR CASES

General Dynamics Ordnance and Tactical Systems has a long history and remains an industry leader in designing, analyzing, developing and producing solid propellant rocket motor cases. Today, advances in carbon fiber technology and our use of high temperature resins offer even greater advantages in performance and cost effectiveness.

Since 1963, General Dynamics has delivered over 80,000 rocket/missile motor cases to every solid propellant rocket motor contractor in the United States.

We work closely with our customers in the design, development and production of rocket motor cases, including the following components: rubber insulators, port fittings, integral attachment skirts and pressure chambers used for strategic, tactical and interceptor missile systems.

## APPLICATIONS

Missile Defense, Tactical, Orbital Insertion, Ballistic and Interceptor Missiles

### Design, Analysis and Production Processes:

- » Filament Winding
- » Fin Lug Bonding
- » Hydrostatic Proof Testing
- » Complete Tool Design
- » Precision-Machining
- » Manufacture to Performance Specifications
- » Structural Load Testing

## COMPOSITE MOTOR CASES



MOTOR CASE HERITAGE	DIMENSIONS DIAMETER X LENGTH (in)	STRUCTURAL MATERIAL	APPLICATION
AMRAAM	7 x 50	Kevlar®	Tactical
Arrow 3 Booster	20.9 x 130	Carbon	Interceptor
Arrow 3 Kill Vehicle	15.1 x 14.7	Carbon	Interceptor
Arrow 4 Booster	20.9 x 133.2	Carbon	Interceptor
Air-launched Rapid Response Weapon (ARRW)	25.5 x 140	Carbon	Hypersonic
Blue Origin New Shepard Crew Capsule Launch Abort System	24 x 44	Carbon	Launch Abort
Corvette (Zeus) 1	32 x 126.1	Carbon	Target
Corvette (Zeus) 2	32 x 216.7	Carbon	Target
ERINT	10 x 100	Graphite	Tactical
GMLRS ER	10 x 79	Carbon	Tactical
GMLRS IM	8.9 x 83	Carbon	Tactical
Hypersonic Attack Cruise Missile (HACM)	19.8 x 90	Carbon	Hypersonic
7" Hellfire	7 x 22.3	Carbon	Tactical
JAGM/JCM	7 x 26	Graphite	Tactical
Large Class Stage II (LC2)	92 x 177	Carbon	Ballistic
LowER AD	9.3 x 82.3	Carbon	Interceptor
Mars Ascent Propulsion System (MAPS) SRM1	21.3 x 35.8	Carbon	Space Exploration
Mars Ascent Propulsion System (MAPS) SRM2	14.8 x 15.5	Carbon	Space Exploration
Minuteman III, 3rd Stage	52 x 70	Glass	Ballistic
MPBD	28 x 126	Carbon	Hypersonic
MX, ADP, 2nd Stage, Full Scale	66 x 93	Kevlar®	Ballistic
MX, 2nd Stage, Half Scale	33 x 46	Kevlar®	Ballistic
OpFires FSRM	32 x 122.6	Carbon	Hypersonic
OpFires SSRM	32 x 71.6	Carbon	Hypersonic
PAC-3	10 x 100	Graphite	Interceptor
PAC-3 MSE	11.5 x 98	Carbon	Interceptor
Peacekeeper, 2nd Stage	93 x 158	Kevlar®	Ballistic
Polaris A-3, 2nd Stage	54 x 76	Glass	Ballistic
PrSM	17 x 85	Carbon	Tactical
Scout/Delta, 4th Stage	19.6 x 40	Glass	Orbital Insertion
Sea Lance	16.5 x 88	Graphite	Ballistic
SICBM, 1st Stage	46 x 183	Graphite	Ballistic
SICBM, 2nd Stage	46 x 41	Graphite	Ballistic
SM-3 BIK 2A	16 x 10	Carbon	Interceptor
SM-6 BIK 1B	21 x 92	Carbon	Interceptor
SMAW-CS	3 x 18	Graphite	Tactical
SPRINT, 1st Stage	47 x 88	Glass	Interceptor
SPRINT, 2nd Stage	29 x 58	Glass	Interceptor
Trident C-4, 1st Stage	74 x 179	Kevlar®	Ballistic
Trident C-4, 2nd Stage	74 x 84	Kevlar®	Ballistic
Trident C-4, 3rd Stage	30 x 100	Kevlar®	Ballistic
Trident II D5, 3rd Stage	31 x 103	Graphite	Ballistic
TOW	2.1 x 16.9	Carbon	Tactical
VT-1	6.5 x 48	Graphite	Tactical