

AeroTech E20W Model Rocket Motor Technical Specifications



WARNING-FLAMMABLE: Read Instructions Before Use

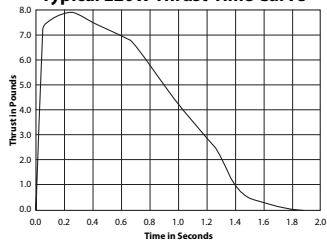
Motor Designation	E20-4W
Outer Diameter938" (24mm)
Length	2.75" (70mm)
Motor Weight	50 g
Propellant Weight	17.6 g
Propellant Type	White Lightning™ (W)
Propellant Effect	Brilliant white flame, dense white smoke
Total Impulse36 N-sec (equivalent to 2.1 X D12, 1.3 X E9)
Burn Time	1.7 seconds
Delay Time4 seconds

Maximum Recommended Liftoff Weight:
16 oz/454 g

AeroTech Motor Delay Conversion:

- E20-4 in place of D12-3
- E20-4 in place of E9-4

Typical E20W Thrust-Time Curve



Product Number: 52004



RECOMMENDED FOR AGES 16 YEARS OR OLDER.
Adult supervision recommended for those under 16. CAUTION: Keep out of the reach of small children.



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E20-4W

Ammonium Perchlorate Composite Propellant
MODEL ROCKET MOTOR



Photo by Ray LaPanse.

E20W Model Rocket Motor

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ADULT SUPERVISION recommended for those under 16 years of age.

WARNING-FLAMMABLE: Read Instructions Before Use.

READ AND FOLLOW all instructions before and during use. Use these model rocket motors only in accordance with these instructions. Handle with care and respect.

CAUTION: DO NOT SMOKE when using these motors or use in the vicinity of open flames. Keep out of reach of small children.

GENERAL INFORMATION

AeroTech composite propellant rocket motors are the most powerful and technically advanced model rocket motors in the world. AeroTech motors use the same type of propellant found in the Shuttle and military rockets. Pound for pound, this propellant can deliver over 3 times the power of black powder used in other model rocket motors. AeroTech composite model rocket motors allow you to fly larger rockets, heavier payloads, and achieve higher altitudes than ever before!

MOTOR CLASSIFICATION

Each AeroTech composite model rocket motor is labeled with a code (e.g. E20-7W) which gives important information about the motor's performance. The letter indicates the total impulse (in Newton-seconds) produced by the motor. Each succeeding letter indicates a power level up to twice that indicated by the previous letter. For example, an "F" motor can be twice as powerful as an "E" motor. The number following the letter code indicates the motor's average thrust in Newtons. The next number of the code shows the time delay in seconds between propellant burn-out and the firing of the ejection charge. The letter following the time delay code shows the type of propellant formulation used in the motor: "W" for White Lightning™, "T" for Blue Thunder™, "J" for Black Jack™, "FJ" for BlackMax™, "R" for Redline™, "N" for Warp-9™ and "G" for Mojave Green™.

STORAGE AND HANDLING

Store AeroTech composite model rocket motors in a dry place where the temperature will remain between 45 deg. F and 100 deg. F. Do not cut, saw, attempt to alter the size, attempt to disassemble, attempt to modify, or drop an AeroTech composite model rocket motor. Do not use an AeroTech composite model rocket motor that you believe has been damaged in any way. Do not ignite an AeroTech composite model rocket motor indoors. Do

not breathe fumes from the rocket motor exhaust.

IGNITION AND LAUNCHING

1. Select and carefully straighten the Aero-Tech FirstFire Jr.™ initiator provided.
2. Fig.-1 Holding the FirstFire Jr.™ between thumb and forefinger, insert the black-coated end into the nozzle and probe for the slot in the propellant grain. Slowly rotating the motor while probing with the tip of the initiator may help in finding the slot.
3. Once the FirstFire Jr.™ has entered the propellant grain slot, continue inserting it until contact is made with the delay element at the forward end of the motor. Failure to insert a FirstFire Jr.™ initiator as described may result in low-thrust ignition of the motor.
4. Fig.-2 Gently spread apart the initiator leads that protrude from the nozzle. Use a small piece of masking tape to secure the initiator to the nozzle.
5. Insert the AeroTech model rocket motor into your rocket. If your rocket does not have a motor mount with a motor hook, wrap a layer of masking tape around the motor tube/motor thrust ring junction to secure the motor in the rocket and to prevent motor ejection when the ejection charge fires. "Friction fitting" an AeroTech composite model rocket motor into the motor mount is not recommended.
6. Prepare the recovery system of your rocket. Make sure that all elements of the recovery system are in good working order.
7. Slide the rocket onto the rod or rail of your launch pad. Model rockets powered by AeroTech composite model rocket motors should be flown

Figure 1



Figure 2



Instructions for Use

from a launch pad having a launch rod or rail at least 36 inches long or two-thirds the combined length of the rocket body and nose cone, whichever is greater. Do not launch a model rocket powered by an AeroTech composite model rocket motor from any launch rod or rail shorter than that specified in the rocket kit assembly and use instructions. The AeroTech Mantis™ model rocket launch pad will accommodate launch rods of several diameters and lengths and may be used with all types of model rockets.

8. Make sure the electrical launch controller is disarmed and then attach the initiator clips to the initiator. Test the electrical launch controller for proper safe operation before each flying session.
9. Stand at least 30 feet from the launch pad when flying a model rocket powered by an "E"-class or larger AeroTech composite model rocket motor. Do not allow spectators to stand less than 30 feet from the launch pad. After arming the electrical launch controller give a loud, audible five second countdown before pressing the launch button. Depending on the launch controller used, allow up to three (3) seconds for the initiator to function.
10. Read and follow the Model Rocket Safety Code of the National Association of Rocketry (NAR) and comply with all federal, state and local laws in all activities with model rockets.

MISFIRES

If a misfire occurs and an AeroTech composite model rocket motor does not ignite for any reason within five seconds of pressing the launch button, release the launch button and remove the safety key from the electrical launch controller. WAIT ONE MINUTE before approaching or allowing anyone else to approach the model rocket. Keep your fingers and hands out from underneath the model rocket and away from the possible path of the exhaust jet. Do not place any part of your body over the launch pad. Disconnect the initiator clips from the initiator. Carefully remove the model rocket from the launch pad. Keeping the motor nozzle pointed away from your face and body - and away from any other person's face or body - remove the initiator, and repeat the motor preparation and launching process with a new initiator. CAUTION: The nozzle and the plastic casing of an AeroTech composite model rocket motor remain hot for several minutes after operation. Do not touch any part of the motor for at least five minutes after operation. Remove an expended motor casing from a model rocket with pliers.

FIRST AID

For a minor burn, apply a burn ointment. For a severe burn, immerse the burned area in ice water at once and see a physician as quickly as possible. In the unlikely event of oral ingestion of the propellant, induce vomiting and see a physician as quickly as possible. AeroTech composite propellant consists primarily of Ammonium Perchlorate and a rubber-like plastic elastomer.

DISPOSAL

Damaged, defective, or unwanted motors should be disposed of in the following manner. Pack the motor firmly in the ground, with just the nozzle showing, away from buildings, people, animals, and flammable materials. Be sure the nozzle is pointing straight up and is clear. Ignite electrically, per ignition instructions, from a distance of 30 feet or more. Propellant, delay and ejection charge will burn until consumed. Do not approach for at least five minutes after the firing. Do not put any part of your body over the motor during the process. Dispose of spent motor in inert trash. WARNING: The motor will be very hot after firing. Allow time for it to cool down!

FIRE SAFETY

Controlled tests show that AeroTech composite propellant model rocket motors will not explode in fires and normally will not ignite if subjected to intense, sustained fires for two minutes or less. Use water to fight fires in which AeroTech composite model rocket motors may become involved; direct the water at the AeroTech composite model rocket motors to keep them below their 550 deg. F autoignition temperature. Foam and carbon dioxide fire extinguishers will NOT extinguish burning propellant of the type used in AeroTech composite model rocket motors.

DISCLAIMER AND WARRANTY

NOTICE: As we cannot control the storage and use of our products, once sold we cannot assume any responsibility for product storage, transportation or usage. RCS shall not be held responsible for any personal injury or property damage resulting from the handling, storage or use of our product. The buyer assumes all risks and liabilities therefrom and accepts and uses AeroTech/RCS products on these conditions. No warranty either expressed or implied is made regarding AeroTech/RCS products, except for replacement or repair, at RCS's option, of those products which are proven to be defective in manufacture within one year from the date of original purchase. For repair or replacement under this warranty, please contact RCS. Proof of purchase will be required. Note: Your state may provide additional rights not covered by this warranty.