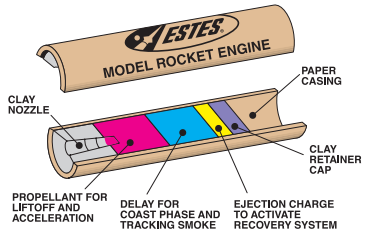


# ESTES MODEL ROCKET ENGINES

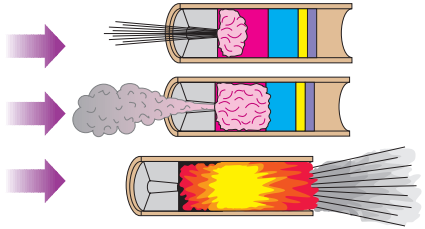
The famous model rocket engines that made model rocketry the great activity it is today. Estes model rocket engines have been proven consistent and reliable in more than 275,000,000 launches.

- The concept of a factory assembled model rocket engine is the foundation of this scientific and educational activity!
- 3% of all Estes engines are static-tested at the factory for reliability and adherence to performance specifications.
- All engines comply with the code requirements of the National Fire Protection Association and are certified by the National Association of Rocketry.



## HOW DOES A MODEL ROCKET ENGINE WORK?

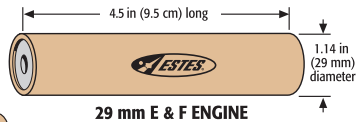
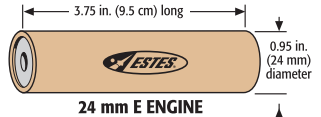
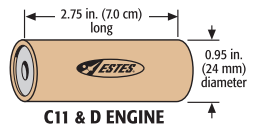
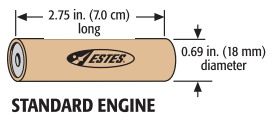
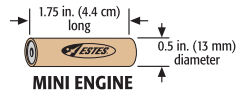
1. When engine is ignited, it produces thrust and boosts rocket into sky.
2. After propellant is used up, delay is activated, producing tracking smoke and allowing rocket to coast.
3. After delay, ejection charge is activated, deploying recovery system.



## WHAT SIZES ARE AVAILABLE?

Estes engines are available in a wide variety of sizes and power levels:

TYPE	TOTAL IMPULSE	ENGINE TYPES
1/4A	0.313 - 0.625	Mini
1/2A	0.626 - 1.25	Standard, Mini
A	1.26 - 2.50	Standard, Mini
B	2.51 - 5.00	Standard
C6	5.01 - 10.00	Standard
C11	5.01 - 10.00	Standard
D	10.01 - 20.00	D Size
E	20.01 - 30.00	E Size
F	45.01 - 50.00	F Size



## Each engine type is color coded.

- Single Stage** - Green
- Upper Stage** - Purple (Upper stage engines can be used as single stage engines in lightweight rockets.)
- Booster** - Red (Booster engines contain no delay or ejection charge.)
- Plugged** - Blue (Plugged engines are used for R/C gliders and contain no delay or ejection charge.)

## Each engine has an alpha-numeric code printed on it.



### B = TOTAL IMPULSE

This letter is the total power (in Newton-seconds) produced by the engine. Each succeeding letter has up to twice the total power as the previous letter. (Example: "B" engines have up to twice the power of "A" engines, which results in approximately twice the altitude the rocket will reach.)

### 6 = AVERAGE THRUST

This number shows the engine's average push or how fast the engine powers the rocket to go. The higher the number, the faster the speed. It is measured in Newtons (4.45 Newtons = 1 lb.).

### 4 = TIME DELAY

This number gives you the time delay in seconds between the end of the thrust phase and ignition of the ejection charge. Engine types ending in "0" have no time delay or ejection and are used for booster stages and special purposes only. Engines ending in "P" have no time delay or ejection charge and the forward end is plugged.