

ESTES E9

CERTIFIED VALUES

Total Impulse: 28.50 newton-seconds
Delays: 0, 4, 6, 8, P seconds

Propellant Type: Black Powder
Propellant Mass: 35.8 grams

Casing Dimensions: 24 mm × 95 mm

Certification Date: 2001-May-7
Contest Use Date: 2001-August-17

Certification Type: Model Rocket

STATIC TEST DATA

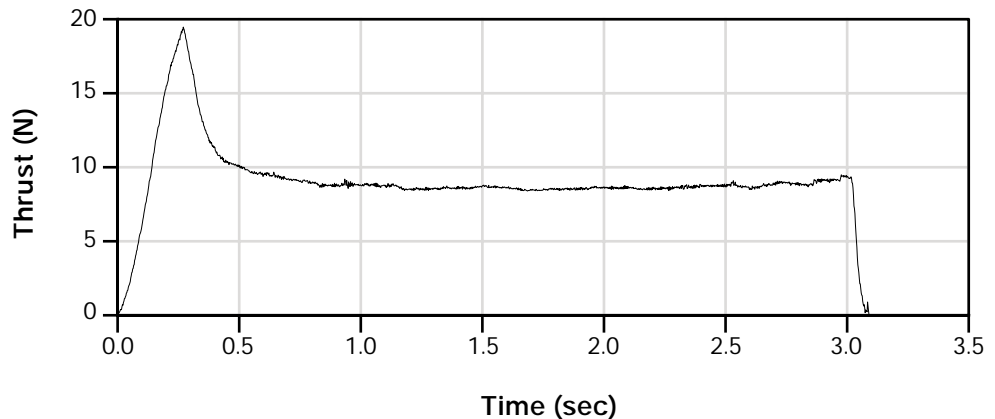
Date Tested: 2001-May-6

Total Impulse: 27.87 newton-seconds (σ 0.42)
Peak Thrust: 19.47 newtons (σ 1.25)
Burn Time: 3.09 seconds (σ 0.06)
Average Thrust: 9.02 newtons

Mass After Firing: 22.1 grams

Delay Time	Average Measured Delay	Initial Mass	Mfg Recommended Max Liftoff Weight
0	0.00	56.8 g	
4	3.26	64.1 g	
6	5.97	64.8 g	
8	7.24	64.9 g	
P	None	62.7 g	

TYPICAL THRUST-TIME CURVE



REMARKS

Zero delay motors: Total Impulse = 26.01 N-Sec;
Burn Time = 2.96 Sec

; ESTES E9 RASP.ENG file made from NAR published data
 ; File produced JANUARY 1, 2002
 ; The total impulse, peak thrust, average thrust and burn time are
 ; the same as the averaged static test data on the NAR web site in
 ; the certification file. The curve drawn with these data points is as
 ; close to the certification curve as can be with such a limited
 ; number of points (32) allowed with wRASP up to v1.6.

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E9 24 95 0-4-6-8-P .0358 .0646 E
0.039 1.623
0.087 5.360
0.135 9.746
0.178 13.971
0.216 16.810
0.269 19.470
0.299 17.141
0.329 14.292
0.364 12.427
0.413 10.802
0.507 9.989
0.649 9.421
0.810 8.852
1.138 8.771
1.178 8.527
1.457 8.527
1.579 8.608
1.809 8.608
2.044 8.527
2.284 8.608
2.499 8.689
2.597 8.608
2.710 9.014
2.803 8.689
2.891 9.096
2.959 9.258
3.008 9.339
3.023 7.227
3.034 4.466
3.049 1.623
3.090 0.000
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