REVISIONS
EFFECTIVITY
STM
DESCRIPTION
DATE
APPROVED
NOTES:
1. UNLESS OTHERWISE SPECIFIED:
A. BREAK EDGES
B. SURFACE ROUGHNESS
CONSUMER AEROSPACE
AEROTECH®
CONSUMER AEROSPACE
rocket motors > performance data > propellant types > composite >
DESCRIPTION
ITEM
QTY
PART NUMBER
LIST OF MATERIAL
CONTRACT NUMBER
1955 S. Palm St. Suite 15
Las Vegas, NV 89104
(702)641-2301 (PH)
(702)641-1883 (Fax)
98MM MEDUSA NOZZLE
PREP G. ROSENFIELD 10/6/98
CHKR
APVD
APVD
SIZE A
NUMBER 100698-01
SCALE 1/2
SHEET 1 OF 1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
.XX +/- .010
.XXX +/- .005
ANGLES +/- 2 deg.
MATERIAL
FINISH
PART No.
NEXT ASSY
USED ON
APPLICATION

Reloadable Motor Systems (RMS)

AeroTech revolutionized the rocket industry in 1990 with the introduction of its Reloadable Motor System (U.S. Patent 5,212,946). Each RMS™ precision machined, anodized aluminum motor can be flown again and again with easy to use reload kits. AeroTech reload kit prices are far below the prices of single use composite motors. After purchasing one Reloadable Motor System™ (RMS™), you choose from a series of reload kits using replaceable propellant modules. A new reload kit can be easily installed in a few minutes. RMS™ motors reflect the same reliability, quality, and professional design that have become the trademark of AeroTech products. By making most of the expensive parts of the motor reusable, the cost per flight is greatly reduced. In addition, RMS™ motors produce far less non-biodegradable waste than single use motors. The basic design of the RMS™ motors also permits performance characteristics simply not feasible with single use motors.

29mm 38mm 54mm 75mm 98mm

Motor Hardware Size Comparison

Notes:

- Propellant Codes: W=White Lightning, T=Blue Thunder, J=Black Jack
- Total Impulse Shown is Optimum
- Short = Aprox. 6 sec.; Medium = Aprox. 10 sec.; Long = Aprox. 14 sec.; X-Long = Aprox. 18 sec.
- Plugged reload kits do not utilize a motor actuated ejection charge. Plugged motors must be used in conjunction with a timer, altimeter or radio-activated recovery system.
- 29mm H220T & I200W reload kits must be used in conjunction with the 29mm forward seal disc.
- 38/480 – 38/1080 reload kits must be used in conjunction with the 38mm forward seal disc.
- 54mm J90W, J135W and K185W must be used with extended forward closure.

RMS-29 Reload Kit Data

Hardware	Reload	T. Impulse	PropIlnt. Wt.	Loaded Wt.	Delay Times
RMS-29/60	F37W	50 N-sec	28.2 g	112.2 g	Short, Medium, Long
RMS-29/60	F62T	50 N-sec	25.0 g	109.0 g	Short, Medium, Long
RMS-29/100	G54W	90 N-sec	46.0 g	140.8 g	Short, Medium, Long
RMS-29/100	G104T	90 N-sec	40.8 g	135.6 g	Short, Medium, Long
RMS-29/180	G75J	155 N-sec	105.6 g	227.9 g	Short, Medium
RMS-29/180	H128W	175 N-sec	92.2 g	214.5 g	Short, Medium, Long
RMS-29/180	H238T	175 N-sec	79.8 g	202.1 g	Short, Medium, Long
RMS-29/240	H97J	200 N-sec	140.9 g	281.5 g	Short, Medium
RMS-29/240	H180W	230 N-sec	123.0 g	263.6 g	Short, Medium, Long
RMS-29/240	H220T	220 N-sec	106.4 g	238.6 g	Short, Medium, Long
RMS-29/360	I200W	330 N-sec	175 g	364 g	Short, Medium, Long

Ejection charge included with all 29mm reload kits.

RMS-38 Reload Kit Data

Hardware	Reload	T. Impulse	PropIlnt. Wt.	Loaded Wt.	Delay Times
RMS-38/240	H73J	180 N-sec	125.0 g	293.3 g	Short, Medium
RMS-38/240	H123W	230 N-sec	125.0 g	293.3 g	Short, Medium, Long
RMS-38/240	H242T	230 N-sec	110.8 g	279.1 g	Short, Medium, Long
RMS-38/360	H112J	280 N-sec	187.5 g	384.8 g	Short, Medium
RMS-38/360	I161W	350 N-sec	187.5 g	384.8 g	Short, Medium, Long
RMS-38/360	I357T	350 N-sec	166.2 g	363.5 g	Short, Medium, Long
RMS-38/480	I154J	360 N-sec	250.0 g	476.3 g	Short, Medium
RMS-38/480	I211W	460 N-sec	250.0 g	476.3 g	Short, Medium, Long
RMS-38/480	I300T	440 N-sec	221.6 g	440.5 g	Short, Medium, Long
RMS-38/600	I195J	480 N-sec	312.5 g	582.4 g	Short, Medium
RMS-38/600	I284W	590 N-sec	312.5 g	567.8 g	Short, Medium, Long
RMS-38/600	I435T	600 N-sec	277.0 g	526.9 g	Short, Medium, Long
RMS-38/720	J350W	700 N-sec	375.0 g	665.0 g	Short, Medium, Long
RMS-38/1080	J570W	1060 N-sec	527.0 g	908.0 g	plugged only

Ejection charge included with 38/240-360 reload kits only.

RMS-54 Reload Kit Data

Hardware	Reload	T. Impulse	PropIlnt. Wt.	Loaded Wt.	Delay Times
RMS-54/852	J90W	770 N-sec	391.4 g	834.1 g	Short, Medium, Long
RMS-54/852	J180T	800 N-sec	398.2 g	840.9 g	Short, Medium, Long
RMS-54/852	J275W	850 N-sec	440.2 g	882.9 g	Short, Med, Long, X-long
RMS-54/852	J460T	850 N-sec	390.2 g	832.9 g	Short, Med, Long, X-long
RMS-54/1280	J135W	1200 N-sec	587.1 g	1125.7 g	Short, Medium, Long
RMS-54/1280	J415W	1280 N-sec	660.3 g	1198.9 g	Short, Med, Long, X-long
RMS-54/1280	J800T	1280 N-sec	595.3 g	1133.9 g	Short, Med, Long, X-long
RMS-54/1706	K185W	1500 N-sec	782.8 g	1417.5 g	Short, Medium, Long
RMS-54/1706	K550W	1700 N-sec	880.4 g	1515.1 g	Short, Med, Long, X-long
RMS-54/1706	K1100T	1500 N-sec	733.3 g	1368.0 g	Short, Med, Long, X-long
RMS-54/2560	K700W	2400 N-sec	1232 g	2059 g	plugged only

Ejection charge not included with 54mm reload kits.

RMS-75 Reload Kit Data

Hardware	Reload	T. Impulse	PropIlnt. Wt.	Loaded Wt.	Delay Times
RMS-75/2560	K560W	2560 N-sec	1341 g	2774 g	plugged only
RMS-75/3840	L850W	3840 N-sec	2011 g	3741 g	plugged only
RMS-75/5120	L1120W	5120 N-sec	2681 g	4708 g	plugged only
RMS-75/6400	M1315W	6400 N-sec	3351 g	5675 g	plugged only

RMS-98 Reload Kit Data

Hardware	Reload	T. Impulse	PropIlnt. Wt.	Loaded Wt.	Delay Times
RMS-98/2560	K458W	2560 N-sec	1330.0 g	3106.2 g	plugged only
RMS-98/2560	K650T	2560 N-sec	1176 g	2957 g	plugged only
RMS-98/5120	L952W	5120 N-sec	2351 g	5026.5 g	plugged only
RMS-98/5120	L1500T	5120 N-sec	2660.0 g	4728 g	plugged only
RMS-98/7680	M1419W	7680 N-sec	3990.0 g	6930.7 g	plugged only
RMS-98/7680	M2400T	7680 N-sec	3527 g	6483 g	plugged only
RMS-98/10240	M1939W	10240 N-sec	5320.0 g	8844.5 g	plugged only
RMS-98/10240	M2500T	10240 N-sec	4572 g	8117 g	plugged only
RMS-98/15360	N2000W	14000 N-sec	7676.0 g	12412.0 g	plugged only

RMS-29 Motor Hardware Data

Hardware	Diameter	Length	Weight	Options
RMS-29/60	1.125 (29mm)	3.902″	57.5 g	Plugged forward closure
RMS-29/100	1.125 (29mm)	4.902″	61.6 g	Plugged forward closure
RMS-29/180	1.125 (29mm)	7.660″	84.7 g	Plugged forward closure
RMS-29/240	1.125 (29mm)	9.420″	105.3 g	Plugged forward closure
RMS-29/360	1.125 (29mm)	13.10″	138 g	Plugged forward closure

RMS-38 Motor Hardware Data

Hardware	Diameter	Length	Weight	Options
RMS-38/240	1.50″ (38mm)	6.073″	125.5 g	Plugged forward closure
RMS-38/360	1.50″ (38mm)	7.948″	147.4 g	Plugged forward closure
RMS-38/480	1.50″ (38mm)	9.823″	168.5 g	Plugged forward closure
RMS-38/600	1.50″ (38mm)	11.698″	190.4 g	Plugged forward closure
RMS-38/720	1.50″ (38mm)	13.573″	212.3 g	Plugged forward closure
RMS-38/1080	1.50″ (38mm)	19.2″	278 g	none

RMS-54 Motor Hardware Data

Hardware	Diameter	Length	Weight	Options
RMS-54/852	2.125″ (54mm)	9.489″	278.1 g	Plugged & Extd. Fwd closure
RMS-54/1280	2.125″ (54mm)	12.817″	338.2 g	Plugged & Extd. Fwd closure
RMS-54/1706	2.125″ (54mm)	16.146″	398.6 g	Plugged & Extd. Fwd closure
RMS-54/2560	2.125″ (54mm)	22.8″	519 g	Plugged & Extd. Fwd closure

RMS-75 Motor Hardware Data

Hardware	Diameter	Length	Weight	Options
RMS-75/2560	2.965″ (75mm)	15.58″	956 g	none
RMS-75/3840	2.965″ (75mm)	20.89″	1182 g	none
RMS-75/5120	2.965″ (75mm)	26.20″	1408 g	none
RMS-75/6400	2.965″ (75mm)	31.52″	1684 g	none

RMS-98 Motor Hardware Data

Hardware	Diameter	Length	Weight	Options
RMS-98/2560	3.875″ (98mm)	11.38″	1140 g	none
RMS-98/5120	3.875″ (98mm)	17.45″	1530 g	none
RMS-98/7680	3.875″ (98mm)	23.51″	1926 g	none
RMS-98/10240	3.875″ (98mm)	29.57″	2367 g	none
RMS-98/15360	3.875″ (98mm)	41.7″	3204 g	none

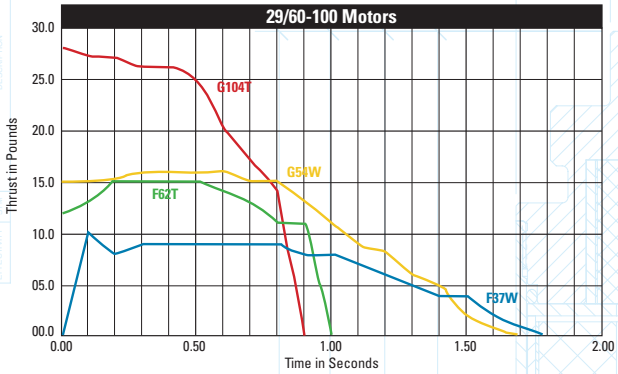
Contents of Typical High Power RMS Reload Kit

AeroTech High Power RMS™ Motor Thrust Curves

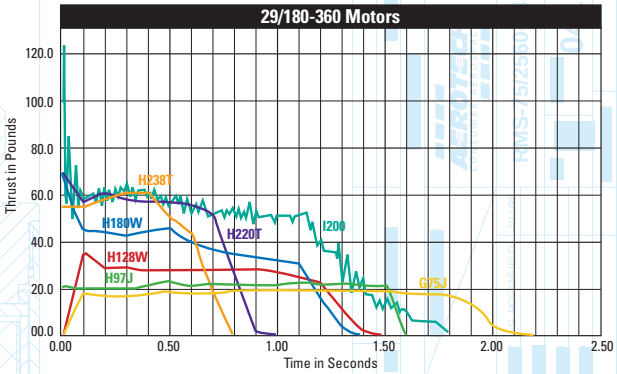
All Reload Kits Certified by the Tripoli Rocketry Association (TRA) and the National Association of Rocketry

Easy Access

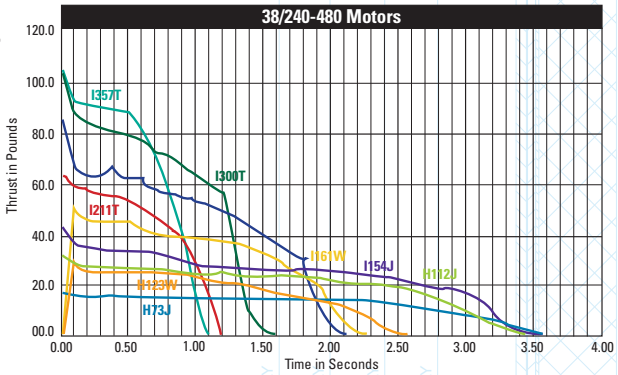
29 mm



29 mm



38 mm



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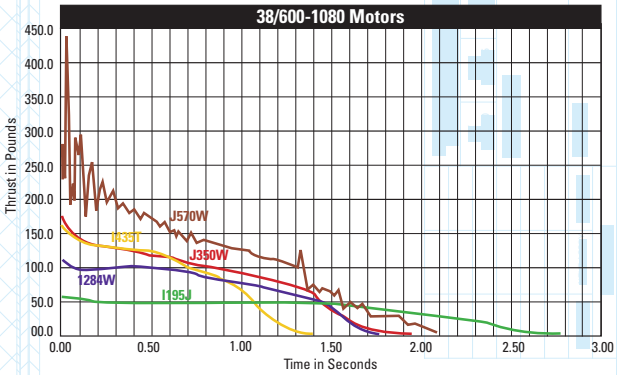
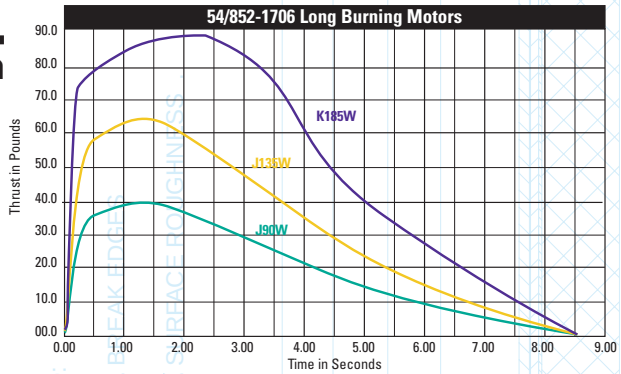
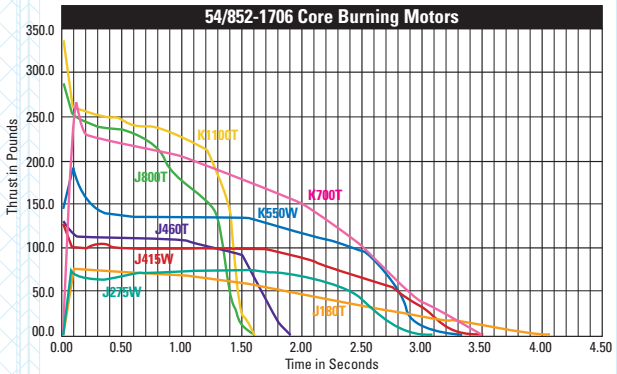


Restricted Access

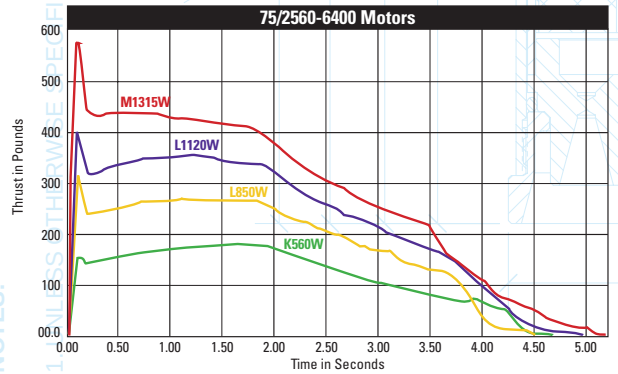
54 mm



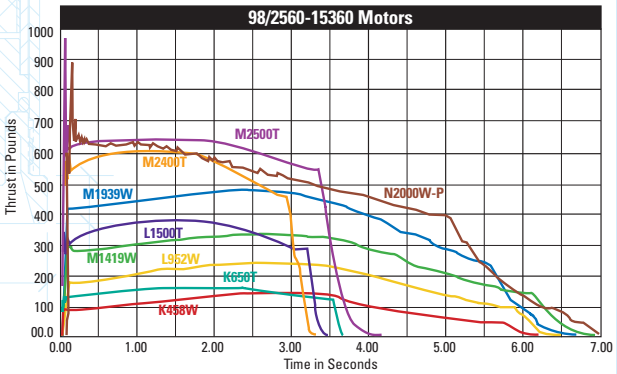
54 mm



75 mm



98 mm



High Power RMS™ Reloadable Motor Systems™ Products

Now you can enjoy high power rocketry at greatly reduced cost, improved reliability and enhanced flexibility with the RMS™ Reloadable Motor System™ from AeroTech! Since 1990, when AeroTech revolutionized the hobby rocket industry with the invention and introduction of the RMS™, rocket enthusiasts have been enjoying the cost and performance advantages of AeroTech's line of precision machined reloadable aluminum rocket motors and reload kits.

With the availability of a growing line of Blue Thunder™, White Lightning™ and Black Jack™ propellant reloading kits, RMS™ high power rocket enthusiasts not only have tremendous versatility at their fingertips but also the advantage of flight costs approaching one-half the price of currently available single-use high power motors!

Motor Diameter in Millimeters

RMS-29/240 — Maximum Total Impulse in N-sec

RMS-38/240-480 — System Total Impulse Range

Typical White™ Lightning Propellant

Easy Access

In 1995, AeroTech took steps to make your involvement in high power even easier through the creation of the Easy Access™ and Restricted Access™ high power rocket motor product lines. With Easy Access™, AeroTech has made it possible for appropriately certified rocket enthusiasts to see at a glance which high power reload kits and related products may be obtained and flown by certified users without special purchase and storage requirements. Easy Access™ encompasses the entire AeroTech 29mm & 38mm high power reload kit line. In 1996, AeroTech introduced a number of new Easy Access™ reload kits, including the 29mm H220T, the 38mm I300T, I195J, I435T and the 38/720 J350W. 1998 saw the release of the new "King of Grunt™", the 9 grain 38mm J570W. For 1999 we have extended the power of 29mm motor line for the first time since the inception of the RMS™ with the 29/360 motor and the six-grain I200W reload kit!

Typical Blue™ Thunder Propellant

Restricted Access

Restricted Access™, on the other hand, allows AeroTech to clearly identify for the high power rocket enthusiast, those high power reload kits and accessories that are currently subject to more stringent federal laws where their purchase, storage and transportation are concerned. If you possess a Bureau of Alcohol, Tobacco and Firearms (BATF) Low Explosives User Permit, keep in mind that AeroTech continues to lead the industry in supplying "J" through "N" class reload kits. This includes AeroTech's hugely popular "Long Burn 54's", the J90W, J135W and K185W reloads. 1996 saw the granting of DOT-E 10996, a shipping exemption which permits the transportation of all Restricted Access™ reload kits by UPS® ground service. Recent product releases in the Restricted Access™ line include the 54/2560 motor and K700W reload, the 75mm motor series and the only Tripoli certified "N" motor available, the 98/15360 N2000W. 1999 saw the introduction of the awesome Blue Thunder™ reload kits for AeroTech's popular 98mm motors.

Typical Black™ Jack Propellant
photo by Tony Peltz

Propellants

White Lightning™ A brilliant white flame, dense bright white exhaust, and a throaty roar are the hallmarks of this popular propellant. Easy to track and exciting to watch! White Lightning™ looks and sounds like actual sounding rockets and launch vehicles. Special effects professionals and aerospace companies specify the AeroTech White Lightning™ propellant to achieve realistic simulation.

Blue Thunder™ Produces a bright violet-blue flame with a minimum of exhaust smoke. These motors provide a higher level of thrust than White Lightning™ or Black Jack™ motors of the same total impulse. Blue Thunder™ is the perfect propellant for the greatest lift-off acceleration.

Black Jack™ Provides the high visibility tracking of dense black exhaust. In addition to a distinctive lift-off roar, Black Jack™ motors give your rockets lower acceleration and longer powered flight than White Lightning™ or Blue Thunder™ motors of the same total impulse.

So, if you wish to experience all the fire, smoke and crackling roar that high power rocket motors have to offer, look no further than AeroTech RMS™. Because when you add it all together, nothing in the industry beats RMS™ products for quality, innovation, interaction, flexibility and pulse pounding performance. Fly AeroTech RMS™ today, and you're flying the future of sport rocketry propulsion!

AEROTECH® CONSUMER AEROSPACE

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