

# SIGMA STRUT™

SIGMA STRUT™ is Park Aerospace Corp.'s proprietary composite strut. The SIGMA STRUT design provides significant weight savings compared to metal struts and other composite struts. The SIGMA STRUT utilizes a unique metal end-fitting which is co-cured into each end of the strut without the use of adhesives. This technique allows the fittings to carry the full load of the strut body without having to rely on bond areas to carry shear loads as with typical designs. The end-fittings can be threaded internally to receive a metal rod end attachment, or can be designed to fit other specific applications. Since these end-fittings use no adhesive, they are not as susceptible to failure at high or low temperatures outside the capability range of some bonding materials.

SIGMA STRUTS can be used in either tension or compression and have been used to support loads up to 240,000 lbs. SIGMA STRUTS have been tested to temperatures ranging from -150°F to 400°F.

These light-weight struts can be custom designed for specified load, length and fitting size requirements. A typical two foot long, 10,000 pound tension strut weighs only 130 grams (0.28 pounds). Current SIGMA STRUT designs range from 6 inches to over 12 feet in length.



SIGMA STRUTS on NASA's Max Launch Abort System ("MLAS") test vehicle for the Orion Space Program. The struts indicated by the arrows are 11 feet in length.



PARK  
AEROSPACE  
CORP.

## SPECIFICATION LOAD BEARING CAPACITY EXAMPLES

Part Number	Ultimate Load (lbs)		Dimensions (inches)			Weight (lbs)
	Max Axial (Tension)	Min Axial (Compression)	Tube Length	Strut Diameter (ref)	Rod End Thread Diameter	SIGMA STRUT™ Weight
1	12,000	-12,000	61	3.00	3/8	2.0
2	500	-2,000	51	2.00	3/8	0.6
3	2,700	-20,000	63	3.00	1/2	2.7
4	4,000	-15,000	68	3.00	1/2	2.8
5	6,000	-25,000	62	3.00	5/8	2.8
6	20,000	-15,000	95	3.00	5/8	4.4
7	20,000	-35,000	55	3.00	5/8	3.1
8	6,000	-30,000	66	3.00	5/8	3.8
9	80,000	-15,000	75	5.00	1	5.5
10	70,000	-70,000	71	5.00	1	7.9
11	150,000	-145,000	48	5.00	1.5	7.4

## ABOUT PARK

Park Aerospace Corp. which develops and manufactures solution and hot-melt advanced composite materials used to produce composite structures for the global aerospace markets. Park's advanced composite materials include film adhesives (undergoing qualification) and lightning strike materials. Park offers an array of composite materials specifically designed for hand lay-up or automated fiber placement (AFP) manufacturing applications. Park's advanced composite materials are used to produce primary and secondary structures for jet engines, large and regional transport aircraft, military aircraft, Unmanned Aerial Vehicles (UAVs commonly referred to as "drones"), business jets, general aviation aircraft and rotary wing aircraft. Park also offers specialty ablative materials for rocket motors and nozzles and specially designed materials for radome applications. As a complement to Park's advanced composite materials offering, Park designs and fabricates composite parts, structures and assemblies and low volume tooling for the aerospace industry. Target markets for Park's composite parts and structures (which include Park's proprietary composite Sigma Strut and Alpha Strut product lines) are, among others, prototype and development aircraft, special mission aircraft, spares for legacy military and civilian aircraft and exotic spacecraft. Park's objective is to do what others are either unwilling or unable to do. When nobody else wants to do it because it is too difficult, too small or too annoying, sign us up.

## CONTACT INFORMATION

Telephone:  
Newton, KS +1.316.283.6500

Email:  
[info@parkaerospace.com](mailto:info@parkaerospace.com)

Web:  
[www.parkaerospace.com](http://www.parkaerospace.com)



Park Aerospace Corp. • 486 North Oliver Road, Building Z • Newton, Kansas 67114

### Important Notice:

Park Aerospace Corp. reserves the right to make changes without notice to any products described herein. Park does not assume any liability arising out of the application or use of any product described herein; and it does not grant any license under its patent or other rights or any such rights of others. Park also disclaims all warranties whether expressed, implied or statutory, including implied warranties of merchantability or fitness for a particular purpose.

Given the variety of factors that can affect the use and performance of Park's products, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and/or suitable for the user's method of application. These factors may include, but are not limited to, the materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform.