

SIGMA STRUT™

SIGMA STRUT™ is Park Aerospace Corp.'s patented 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
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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 patented 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.

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