



ELEMENT TEMPE, AZ

EMI, ENVIRONMENTAL, &
DYNAMICS TEST ENGINEERING

element.com

INTRODUCTION

EMI, ENVIRONMENTAL & DYNAMICS TEST & ENGINEERING

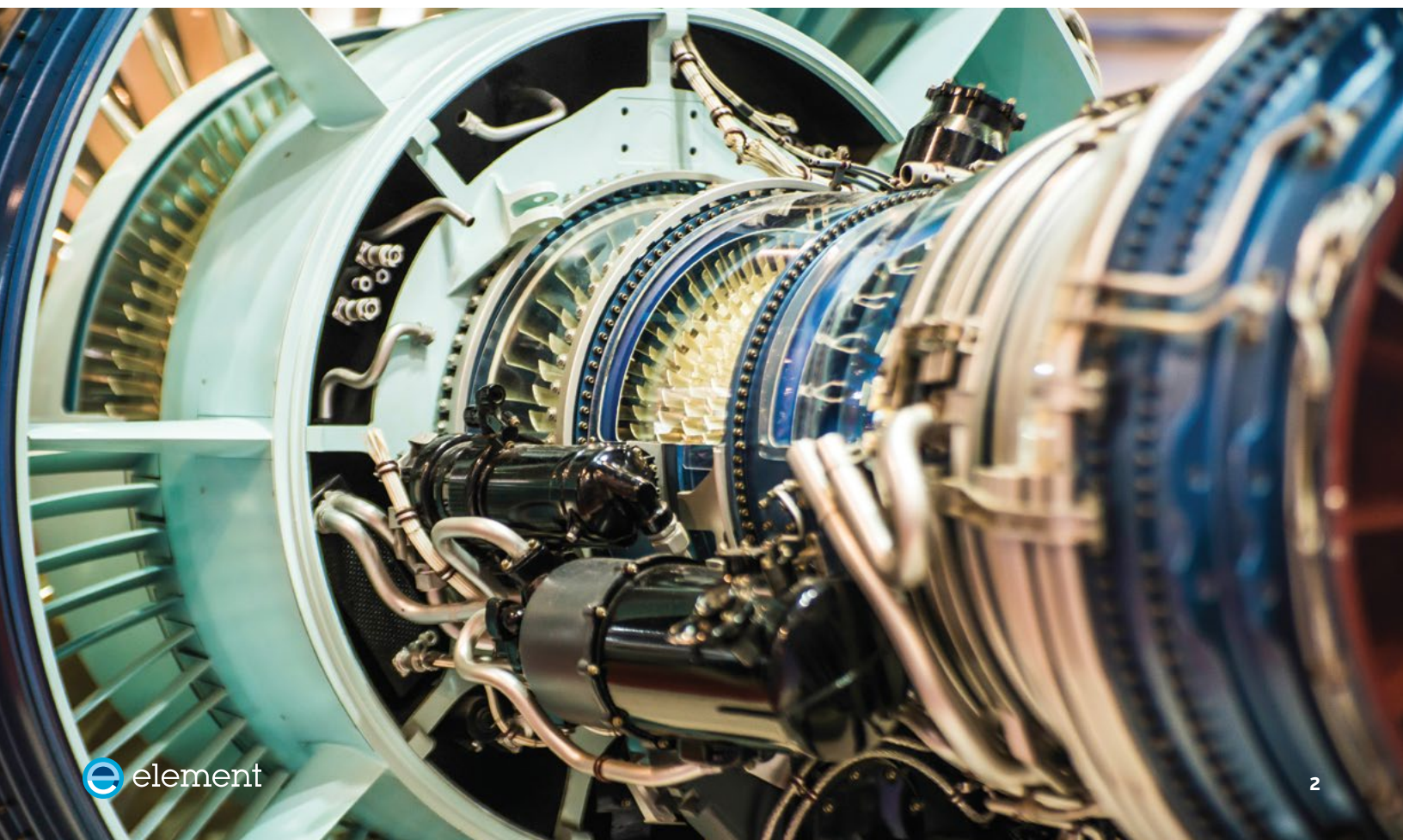
Element Tempe provides expert engineering and testing services to a wide range of industries in both the commercial and military sectors. Element works to anticipate your needs, and deliver them – on time and on budget. We know that our success depends on successfully meeting your requirements and expectations. Why not let our extensive experience help your organization accelerate your product development time and verify international compliance to the necessary government and commercial regulations?

Engineering Services

Element offers a full range of integrated engineering solutions. From idea to prototype, development to test, Element can support you throughout your product lifecycle. The technical personnel at Element Tempe have extensive experience in EMI/EMC, hydraulics/pneumatics, dynamics, and environmental testing. Element has the expertise to accurately monitor equipment response and performance during the most severe test environments. Our extensive knowledge of current test and conformity requirements, both domestic and international, can assist you in your product assessment and define the proper requirements for your test program to achieve maximum customer acceptance. Aerospace, defense, telecommunications and many other markets are served by our Tempe location.

Testing & Evaluation

Element is the largest independent testing and evaluation organization in North America, with over 25 locations and hundreds of test chambers and experienced technicians. Element Tempe is a full service environmental test facility capable of managing environmental test programs for both military and commercial programs. A wide array of environmental and dynamic test methods are conducted, including thermal, solar, shock and vibration to name a few. Element Tempe is also part of Element's vast network of EMC/EMI laboratories, conducting expert testing to a variety of specifications for military, aerospace, and telecommunications programs.



DYNAMICS

VIBRATION SHAKERS				
TYPE	FORCE POUNDS	VIBRATION CAPABILITIES		ADDITIONAL
T500	7000	Sine to 50 G's	Random to 25 G's	Shock
T1000	19000	Sine to 100G's	Random to 50 G's	Shock
T1000 W/Team	19000	Sine to 100G's	Random to 50 G's	Shock
Ling/Thermotron	7000	Sine to 50 G's	Random to 25 G's	Shock
UD R24	9000	Sine to 60G's	Random to 30 G's	Shock
ETS I1045	24000	Sine to 220G's	Random to 180 G's	Shock

Note: Combined temperature and vibration testing available on all shaker systems.

MECHANICAL SHOCK IMPACT	
DESCRIPTION	DIMENSIONS
Drop Shock Tower 1 Small	10 ft
Drop Shock Tower 2 Medium	17 ft
Drop Shock Tower 3 Large	45 ft
Package Tester	N/A
Shock Beam, Pyro	10" x 10"



SPACE SIMULATION

THERMAL VACUUM, RAPID DECOMPRESSION, ALTITUDE			
CHAMBER	TYPE	TEMPERATURE RANGE	SIZE
TV – 1	Thermal Vacuum	-150° to 175°C Amb to 1×10^{-5} torr	45 x 53 Internal 33"x33" Platen
TV – 3	Overpressure Rapid Decompression/ Altitude	Ambient temp +26PSIG to 100,000 feet	32 x 27

ACCELERATION		
DESCRIPTION	DIMENSIONS	G-RATING
Centrifuge 1	Radius arm 36"	100 g's
Centrifuge 2	Radius arm 56"	80 g's
Centrifuge 3	Radius arm 12"	1200 g's



ENVIRONMENTAL

TEMPERATURE CHAMBERS			
CHAMBER	TEMPERATURE RANGE	RAMP RATE	SIZE
T1	-150° to 150° C	30° C/min	40 x 40 x 36
T2 & T3	-75° to 150° C	5° C/min	20 x 20 x 20
T4	-150° to 150° C	30° C/min	38 x 38 x 38
T7	-75 to 125° C	4° C/min	54 x 54 x 43
T6	-75° to 125° C	3° C/min	40 x 27 x 33
T5	-75° to 125° C	3° C/min	20 x 18 x 20

THERMAL SHOCK		
TEMPERATURE RANGE	TRANSITION RATE	SIZES
-75° to 150° C	<10 sec	24" x 24" x 24"
-200° to 200° C	<5 sec	12" x 12" x 12"
-100° to 250° C	30 sec	6" x 6" x 6" - (Liquid-Liquid)

TEMPERATURE HUMIDITY CHAMBERS		
TEMPERATURE RANGE	RAMP RATE	SIZES
-75° to 125 ° C 0-95% RH	3° C/min	(2) 24 x 24 x 24 38 x 38 x 38 38 x 39 x 42 48 x 63 x 101

TEMPERATURE/HUMIDITY/ALTITUDE CHAMBERS		
TEMPERATURE RANGE	RAMP RATE	SIZES
-75° to 150° C 0-95% RH 15,000 ft Alt.- 60,000ft Alt.	3° C/min	30" x 46" x 45" 38" x 39" x 42"



ENVIRONMENTAL

SOLAR SIMULATION CHAMBERS

TEMPERATURE RANGE	INTENSITY	SIZE
MIL-STD-810G (Proc I) Heating Effects	1120 w/m	9' x 9'; (3' x 5' Exposure)
MIL-STD-810G (Proc II) Actinic Effects	1120 w/m	9' x 9'; (3' x 5' Exposure)
MIL-STD-810G (Proc II) Actinic Effects	1120 w/m	9' x 9'; (3' x 5' Exposure)

OTHER CHAMBERS

TYPE	DETAILS	SIZES (INCHES)
Blowing Sand	Velocities to 40 MPH	48 x 48 x 48
Blowing Dust	Velocities to 40 MPH	48 x 48 x 48
Explosive Atmosphere	Ambient to 80° C	48 x 36 x 36
Blowing Rain	Velocities to 40 MPH	36 x 40 x 45
Salt Fog 1	35° C	45 x 30 x 39
Salt Fog 2	35° C	30 x 18 x 12
Salt Fog 3	35° C	96 x 72 x 96



EMI / EMC

CHAMBERS	
DESCRIPTION	SIZES
Chamber 1	16' x 24'
Chamber 2	16' x 20'
Chamber 3	20' x 28'
Reverb chamber	16' x 12'
EMI "Conducted" Bench	3' x 8'

AMPLIFIERS	
FREQUENCY RANGE	WATTS
.01 MHz – 200Mhz	2000
80 MHz – 1 GHz, 1000W	200
1-4 GHz, 525 W	200
8 GHz – 12.4 GHz	200
12.4 GHz – 18 GHz	150
18 GHz – 26 GHz	40
26 GHz – 40 GHz	40



EMI / EMC SPECIFICATIONS

AIRCRAFT – RTCA/DO-160	
SECTION	DESCRIPTIONS
15	Magnetic Effects
17	Voltage Spike
18	Audio Frequency Conducted Susceptibility
19	Induced Signal Susceptibility
20	Radio Frequency susceptibility, AM, CM, and Pulsed; Radiated and Conducted (Radiated Susceptibility: 10kHz – 40 GHz: 200 V/m)
21	Radiated and Conducted Emissions, 150 kHz – 6 GHz
22	Lightning Induced Transient Susceptibility
25	Electrostatic Discharge

MILITARY – MIL-STD-461		
TEST #	DESCRIPTION	CAPABILITY
CE101	Conducted Emissions, Power Leads	30 Hz – 10 kHz
CE102	Conducted Emissions, Power Leads	10 kHz – 10 MHz
CS101	Conducted Susceptibility, Power Leads	30 Hz – 150 kHz
CS114	Conducted Susceptibility, Bulk Cable Injection	10 kHz – 200 MHz
CS115	Conducted Susceptibility, Impulse Excitation	
CS116	Conducted Susceptibility, Damped Sinusoidal Transients, Cables & Power Leads	10 kHz – 100 MHz
CS117	Lightning Induced Transients; Single Stroke, Multiple Stroke	Multiple Burst up to Level 3
CS118	Electrostatic Discharge (ESD)	2 – 15kV
RE101	Radiated Emissions, Magnetic Field	30 Hz – 100 kHz
RE102	Radiated Emissions, Electric Field	10 kHz – 18 GHz
RS101	Radiated Susceptibility, Magnetic Field	30 Hz – 100 MHz
RS103	Radiated Susceptibility, Electric Field	200 V/m: 10 kHz – 40 GHz

EMI / EMC SPECIFICATIONS (CONT.)

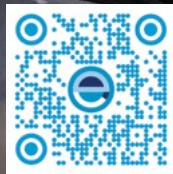
MIL-STD-704F LDC HDC TEST LIST	
METHOD	DESCRIPTION
LDC101	Load measurements
LDC102	Steady-state voltage limits
LDC103	Voltage distortion spectrum
LDC104	Total ripple
LDC105	Normal voltage transients
LDC201	Power interrupt (transfer)
LDC301	Abnormal steady-state voltage
LDC302	Abnormal voltage transients
LDC401	Emergency steady-state voltage
LDC501	Starting voltage transients
LDC601	Power failure
LDC602	Polarity reversal
HDC101	Load measurements
HDC102	Steady-state voltage limits
HDC103	Voltage distortion spectrum
HDC104	Total ripple
HDC105	Normal voltage transients
HDC201	Power interrupt (transfer)
HDC301	Abnormal steady-state voltage
HDC302	Abnormal voltage transients
HDC401	Emergency steady-state voltage
HDC501	Starting voltage transients
HDC601	Power failure
HDC602	Polarity reversal

CONCLUSION

With a proven track record across aerospace and defense platforms, Element Tempe stands as a critical partner in delivering the data, reliability, and technical assurance required to qualify mission-critical systems. From MIL-STD-810 environmental testing and RTCA/DO-160 aerospace compliance to high-force vibration, acceleration, and EMI/EMC testing to MIL-STD-461, our comprehensive capabilities and deep engineering expertise reduce risk, accelerate development, and ensure regulatory alignment. **Whether you're advancing next-gen avionics, validating ruggedized components, or launching into orbit, Element Tempe offers responsive support, precise execution, and the confidence you need to move forward.**

CONTACT US

Element Tempe
1155 W 23rd Street, Ste. 11A
Tempe, AZ 85282



Contact.us@element.com | US: +1 888 786 7555 | UK & rest of world: +44 (0) 808 234 1667