



eMpulse Test Systems – seaPLUS Single Axis Shaker Specifications

SPECIFICATIONS ¹	SYMBOL	UNITS	sea ⁺ 13		sea ⁺ 27		sea ⁺ 40		sea ⁺ 54		sea ⁺ 108	
Stroke² Working Stroke, peak - peak	s	mm (in)	160 (6.3)	260 (10.2)	160 (6.3)	260 (10.2)	160 (6.3)	260 (10.2)	160 (6.3)	260 (10.2)	160 (6.3)	260 (10.2)
Motor Dynamic Peak Force Motor Peak Force	Fpk, mot	N (lbF)	13,486 (3,032)		26,910 (6,049)		40,326 (9,065)		53,820 (12,100)		107,640 (24,200)	
Motor Continuous Dynamic Force³ Motor Continuous or RMS Force	Fn, mot	N (lbF)	5,018 (1,128)		10,530 (2,367)		21,060 (4,734)		21,060 (4,734)		42,120 (9,469)	
Static Load Support Max Air Spring Capacity at Prated	Fpk, air	N (lbF)	7,117 (1,600)		14,235 (3,200)		14,235 (3,200)		14,235 (3,200)		28,470 (6,400)	
Total Peak Force Fpk mot + Fpk air	Fpk, total	N (lbF)	20,603 (4,632)		41,145 (9,249)		54,561 (12,265)		68,055 (15,299)		136,110 (30,598)	
Total Continuous Force Fn,mot + Fpk,air	Fcont, tot	N (lbF)	12,135 (2,728)		24,765 (5,567)		35,295 (7,934)		35,295 (7,934)		70,590 (15,869)	
Velocity max at Fn,mot	Vmax, fn	ms/ (in/s)	4.6 (181)		4.2 (165)		4.2 (165)		4.2 (165)		4.2 (165)	
Velocity max at Fpk,mot	Vmax, fpk	m/s (in/s)	2.0 (78.7)		1.9 (74.8)		1.9 (74.8)		1.9 (74.8)		1.9 (74.8)	
Acceleration max (unloaded)	gmax	G	45	36	44	31	42	40	55	49	50	45
Absolute Digital Encoder Resolution	Δs	nm (in)	<10, or 0.01um (<3.94E-07)									
Noise Level – Typical (NVH Mode)	SPL(A)	dbA	<55									
Safety Rating, DIN EN 61508***	SIL		2									
Safety Rating, DN EN ISO 13849-1	Cat		3									
Performance, DIN EN ISO 13849-1	PL		D									
Bearing Materials			Qty 4 - Prelubricated, preloaded t-rail caged roller bearings. Replacement interval: 15 years under designed usage.									
Facility Requirements		V A	380-480Vac, 3φ, 50-60 Hz Current Rating based on motor sizing and system performance requirements.									
Air Supply, Rated	Prated	Psi (bar)	100 Higher Static Load Support possible at higher supply pressures. (6.9)									
Recommend Liquid Cooling Flow, approximately 20deg delta C	Q	Lpm (gpm)	20 (5.3)		22 (5.8)		26 (6.9)		26 (6.9)		52 (13.7)	
Max Motor Heat Removal @100% duty cycle, full durability rating	Qp	kW Btu/hr ton	15.5 52,832 4.4		29.4 100,205 8.4		29.4 100,205 8.4		53.8 183,713 15.3		53.8 183,713 15.3	
			107.7 367,426 30.6		107.7 367,426 30.6							



Notes:

1. *All performance parameters are estimates based on design considerations and are subject to change at any time. As such, eMpulse cannot be held liable for any incidental or consequential damages or losses arising from the use of this information.*
2. *Custom Strokes are available upon request*
3. *Continuous or RMS Dynamic Force, independent of Air Support for inertial or compressed spring loads, is achievable with liquid cooling option rated for Max Motor Heat Removal at 100% duty cycle Qp.*

Interpretation and use of the data are the sole responsibility of the user. Please consult eMpulse Test Systems for further clarification.