

Actuator Fleet — Overview

26 actuators, ranked by peak mechanical power

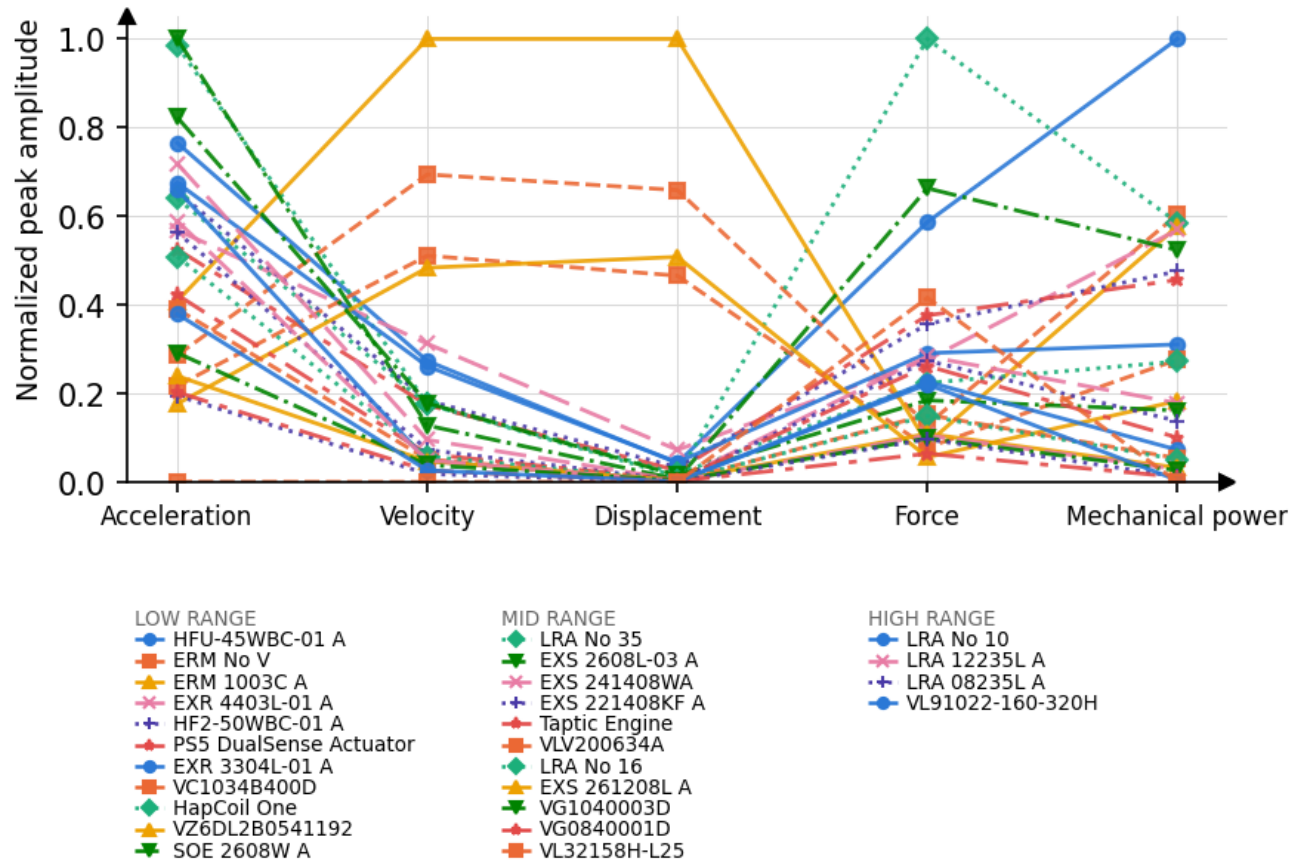
Ranked by peak power

#	Actuator	Type	Peak power	At frequency	At drive	Peak force	Peak acceleration
1	HFU-45WBC-01 A	LRA	496 mW	55 Hz	2.2 V	52.3 N	8.35 G
2	ERM No V	ERM	300 mW	9.5783 Hz	1.74 V	11.5 N	3.13 G
3	LRA No 35	LRA	290 mW	114 Hz	3 V	89.2 N	10.7 G
4	ERM 1003C A	ERM	286 mW	8.86806 Hz	1.73 V	7.76 N	4.46 G
5	EXR 4403L-01 A	LRA	282 mW	41 Hz	3 V	24.6 N	6.2 G
6	EXS 2608L-03 A	LRA	260 mW	163 Hz	3 V	59.1 N	10.9 G
7	HF2-50WBC-01 A	LRA	236 mW	48 Hz	2.6 V	31.8 N	7.15 G
8	PS5 DualSense Actuator	LRA	226 mW	58 Hz	2.6 V	33.5 N	5.73 G
9	EXR 3304L-01 A	LRA	154 mW	41 Hz	3 V	25.9 N	7.37 G
10	VC1034B400 D	ERM	137 mW	9.47965 Hz	1.74 V	6.96 N	2.37 G
11	HapCoil One	LRA	135 mW	82 Hz	3 V	19.9 N	6.98 G
12	VZ6DL2B054 1192	ERM	90.8 mW	8.21702 Hz	1.88 V	5.02 N	1.93 G
13	EXS 241408WA	LRA	88.4 mW	170 Hz	3 V	25.3 N	7.84 G
14	SOE 2608W A	LRA	80.3 mW	86 Hz	3 V	16.5 N	8.98 G
15	EXS 221408KF A	LRA	68.4 mW	170 Hz	3 V	24.4 N	6.15 G
16	Taptic Engine	LRA	49.9 mW	151 Hz	2.6 V	23.4 N	4.61 G
17	LRA No 10	LRA	36.1 mW	308 Hz	3 V	20.2 N	7.2 G
18	VLV200634A	LRA	26.8 mW	170 Hz	3 V	13.5 N	4.26 G
19	LRA No 16	LRA	25.2 mW	176 Hz	2.6 V	13.3 N	5.55 G

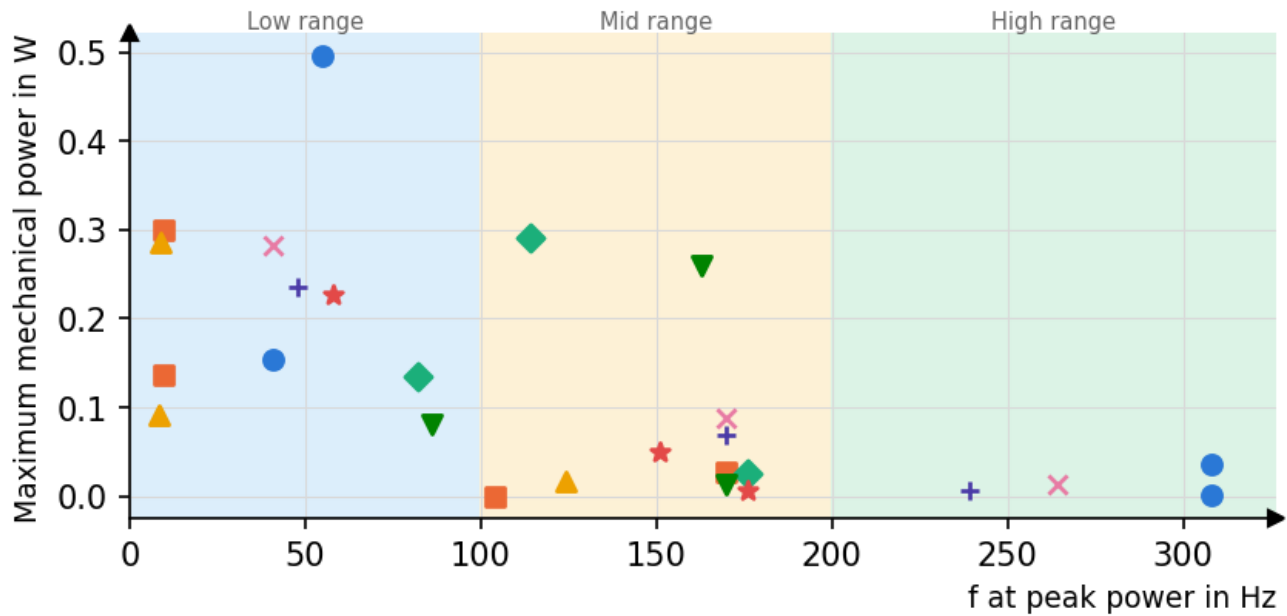
Ali Elnwegy, Dr. Ornella Tortorici, Maximilian Becker, Juliana Lüer and Prof. Dr. Thorsten A. Kern — Institute for Mechatronics in Mechanics, Hamburg University of Technology, Hamburg, Germany

#	Actuator	Type	Peak power	At frequency	At drive	Peak force	Peak acceleration
20	EXS 261208L A	LRA	16.1 mW	124 Hz	3 V	9.72 N	2.61 G
21	LRA 12235L A	LRA	14.2 mW	264 Hz	2.2 V	9.4 N	6.43 G
22	VG1040003D	LRA	13.1 mW	170 Hz	3 V	8.79 N	3.18 G
23	LRA 08235L A	LRA	6.11 mW	239 Hz	3 V	8.63 N	2.13 G
24	VG0840001D	LRA	5.73 mW	176 Hz	3 V	5.72 N	2.21 G
25	VL91022-160 -320H	LRA	2.06 mW	308 Hz	3 V	19.7 N	4.14 G
26	VL32158H-L2 5	LRA	70.1 μ W	104 Hz	2.2 V	37.1 N	0.00984 G

Normalized amplitudes



Mechanical Power Class (MPC)



LOW RANGE

- HFU-45WBC-01 A
- ERM No V
- ERM 1003C A
- EXR 4403L-01 A
- HF2-50WBC-01 A
- PS5 DualSense Actuator
- EXR 3304L-01 A
- VC1034B400D
- HapCoil One
- VZ6DL2B0541192
- SOE 2608W A

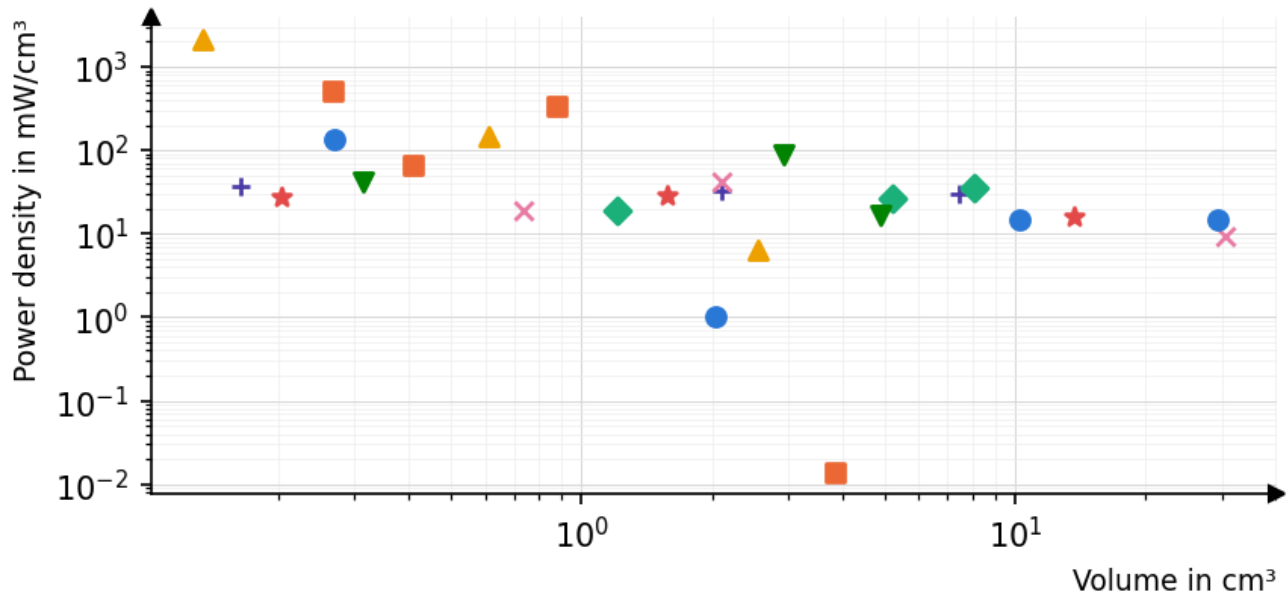
MID RANGE

- LRA No 35
- EXS 2608L-03 A
- EXS 241408WA
- EXS 221408KF A
- Taptic Engine
- VLV200634A
- LRA No 16
- EXS 261208L A
- VG1040003D
- VG0840001D
- VL32158H-L25

HIGH RANGE

- LRA No 10
- LRA 12235L A
- LRA 08235L A
- VL91022-160-320H

Power density



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- ERM 1003C A
- EXR 4403L-01 A
- HF2-50WBC-01 A
- PS5 DualSense Actuator
- EXR 3304L-01 A
- VC1034B400D
- HapCoil One
- VZ6DL2B0541192
- SOE 2608W A

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