

Haptuator BMXC series

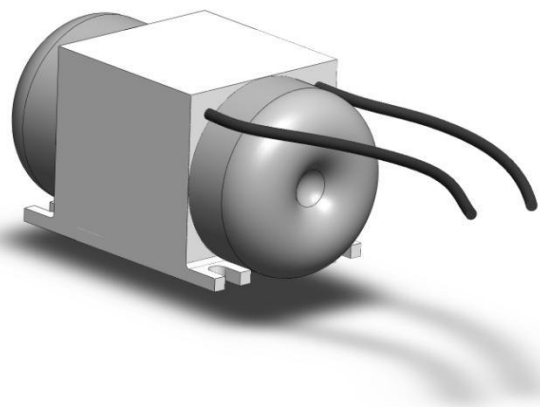
(BMXC: Big Motor, XC: series number, -A: Attachment parts)

Haptuator BMXC series, a new contribution from Tactile Labs' products 'voice coil vibrotactile motors' family, is a revolutionary new design based on years of experience in manufacturing 'Haptuator Mark II'. High valuable feedbacks from collaborators, scientific partners and customers bring it into form to overcome the unsatisfied points of Haptuator Mark II for most application requirements.

The new series products increase the acceleration/volume density, focus on applications that need higher acceleration and lower resonance frequency, meanwhile offer wider performance frequency bandwidth. Therefore, BMXC series provide better efficient vibrotactile results. Same as other Haptuator products, it can be driven as a common loudspeaker and is compatible with most audio amplifiers.

Products of Haptuator BMXC Series

Three models are available: BM1C, BM2C, BM3C.



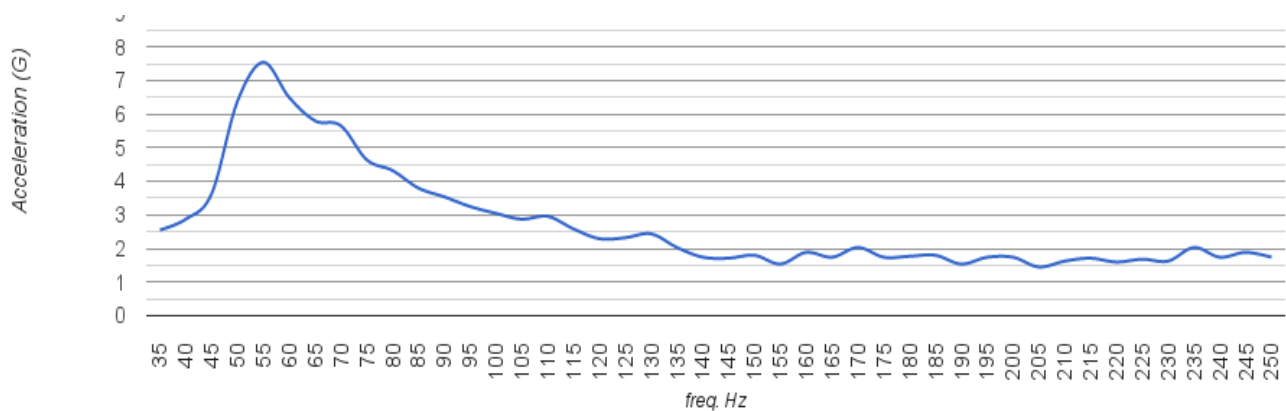
Haptuator BMXC-A

Characteristics

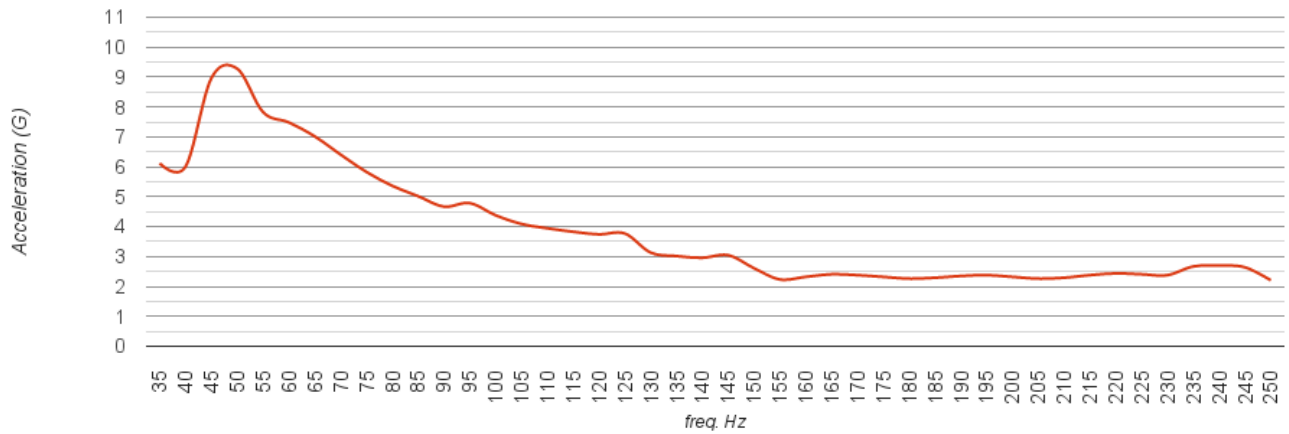
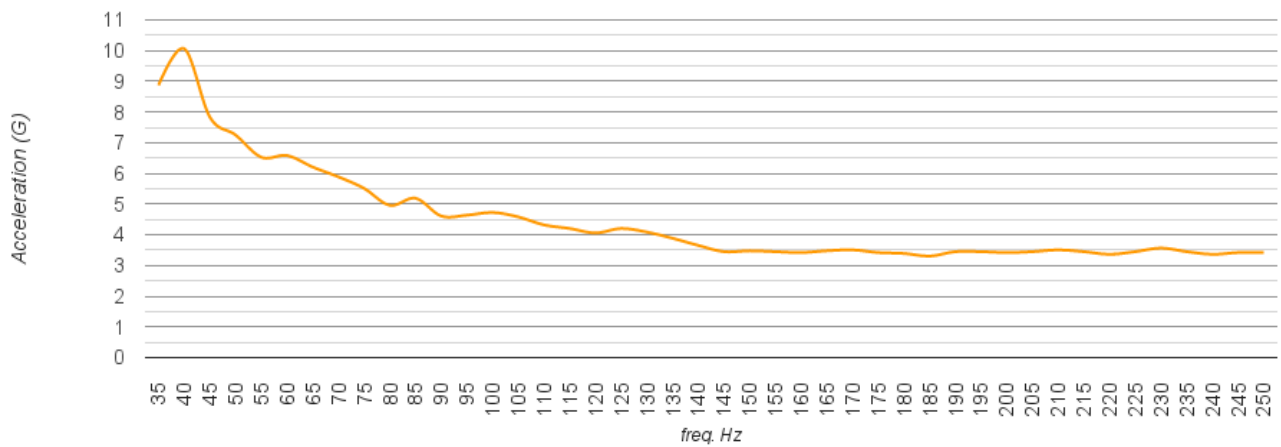
Model	Units	BM1C	BM2C	BM3C
Dimensions	mm	31.5x20x20	37.5x20x20	45.5x20x20
Weight	g	15	20	30
Resonance frequency	Hz	55	47	40
Acceleration @ 3V input, @ res. freq.	G	7.5	9	10
Rated Bandwidth	Hz	30-1000	30-1000	30-1000
Typical Impedance	Ω	8	12	16
Maximum Input Voltage	Volt	5	5	5
Maximum Input Current	Amper	1	1	1

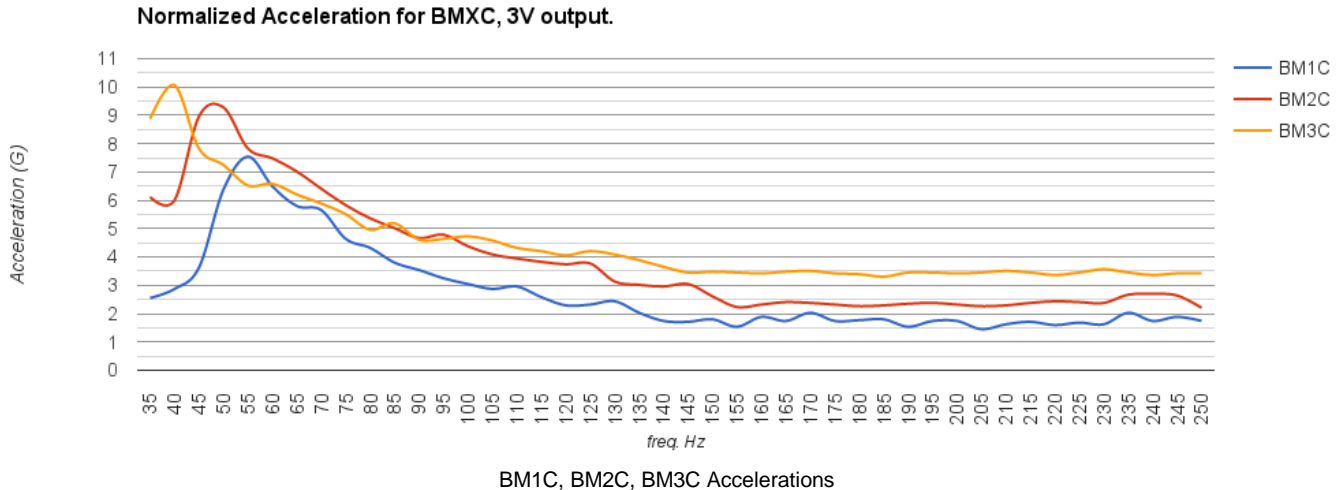
Output Acceleration

BM1C Normalized Acceleration at 3v



BM1C Acceleration

BM2C Normalized Acceleration at 3v

BM2C Acceleration
BM3C Normalized Acceleration at 3v

BM3C Acceleration



To calculate the output acceleration for a given input voltage of V_i (rms):

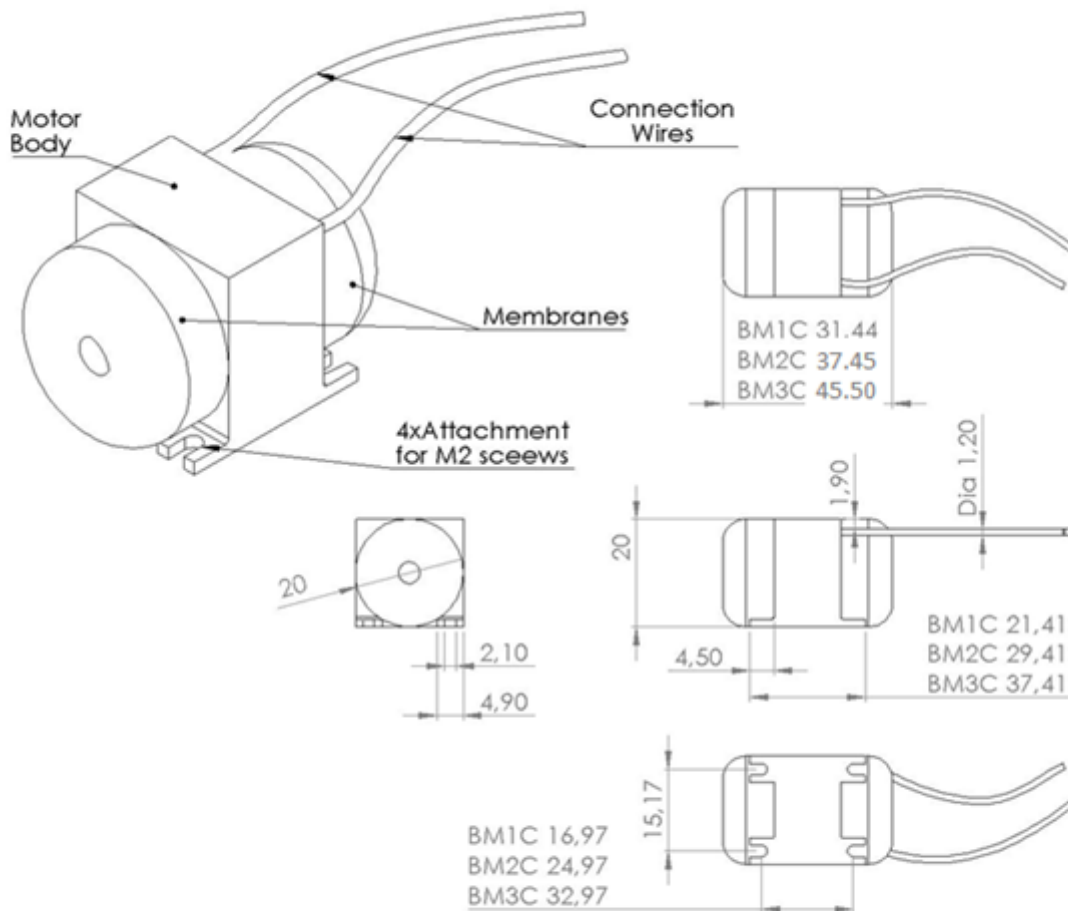
1. For the desired operating frequency, find the normalized acceleration value A_n from the above figures. For example, at 200 Hz, $A_n = 2g$.
2. Perform the following calculation: $Acceleration(G) = V_i \times A_n$.

Notes:

1. It can be driven as a 8-16 Ω loudspeaker by most audio amplifiers if the input current and voltage are within the recommended operating conditions. BMXC should be AC-coupled to avoid driving a DC current into the unit.
2. It is not recommended to drive the BMXC under 30Hz: the output acceleration would not be optimal. Driving at a minimum of 10 Hz or above 1000 Hz should not damage the actuator. However, for frequencies above 800 Hz, the signal output becomes audible, hence not as optimal for haptic applications.

Mechanical Installment and Dimension

When attach the BMXC to objective, we recommend leave 3mm clearance at both ends of it, for the displacement of axle part. If the unit needs to be fixed to certain dedicated attachments, please use at least one M2 hexagonal headed screw on each end.



BMXC-A dimensions