

Tactuator BMXC series

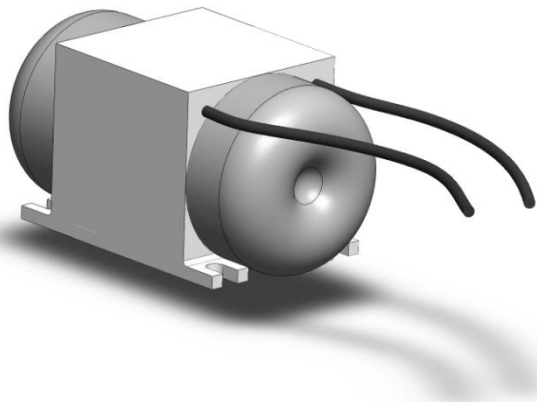
(Tactuator: Tactile Actuator; BMXC: Big Motor, XC: series number)

Tactuator BMXC series presents new contribution to Tactile Labs' products, the 'voice coil vibrotactile motor' family. It is designed by revolutionary method which is based on years experience during the 'Haptuator Mark II' manufacture. High valuable feedbacks from collaborators, scientific partners and customers bring it into form so as to overcome the unsatisfied points of Haptuator series products according to many application requirements.

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

Products of BMXC Series

Three models are available: BM1C, BM2C, BM3C.



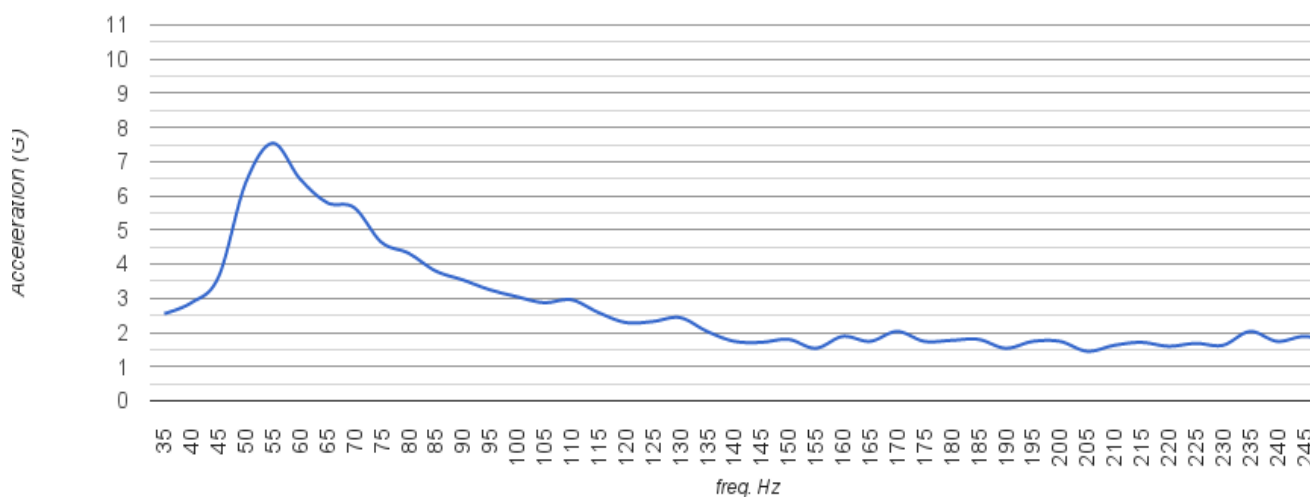
Tactuator BMXC-A

Characteristics

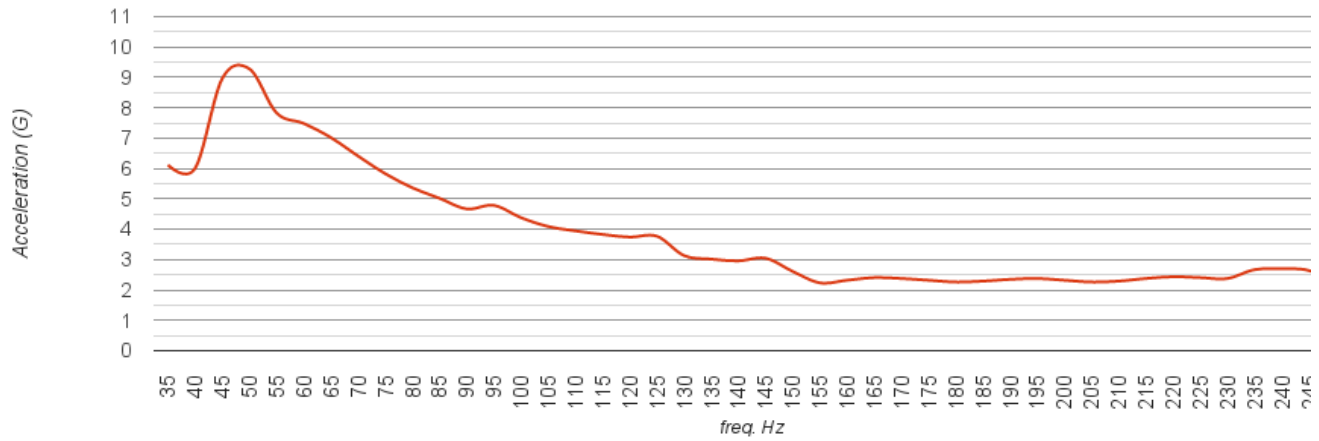
Model	Units	BM1C	BM2C	BM3C
Dimensions	mm	31.5x20x20	47.5x20x20	55.5x20x20
Weight	g	95	110	125
Resonance frequency	Hz	55	47	40
Acceleration @ 3V input, @ res. freq.	G	7.5	9	10
Rated Bandwidth	Hz	30-1000	30-1000	30-1000
Typical Impedance	Ω	8	12	16
Maximum Input Voltage	Volt	5	5	5
Maximum Input Current	Amper	1	1	1

Output Acceleration

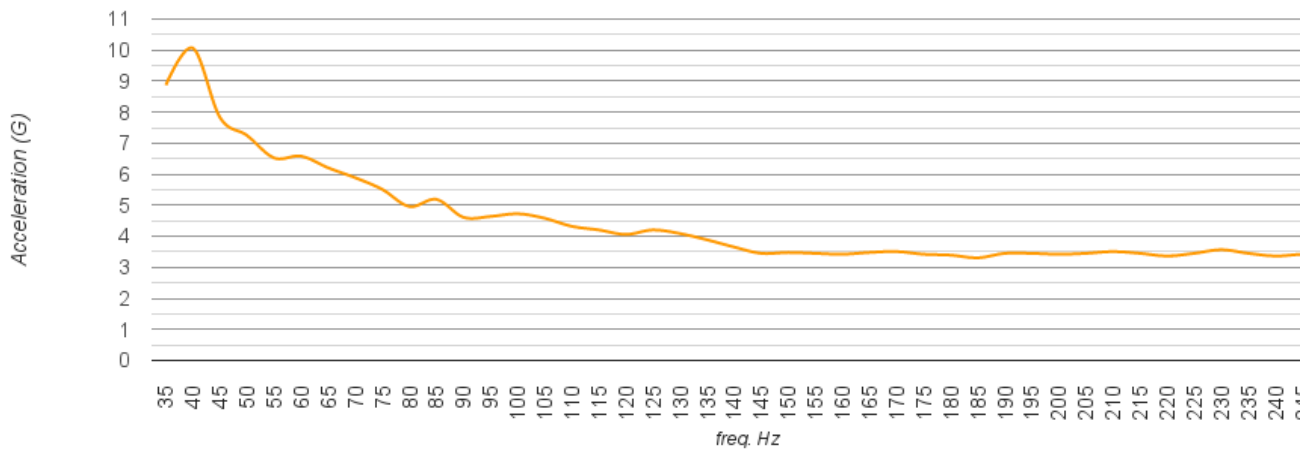
Normalized Acceleration for BMXC, 3V output.



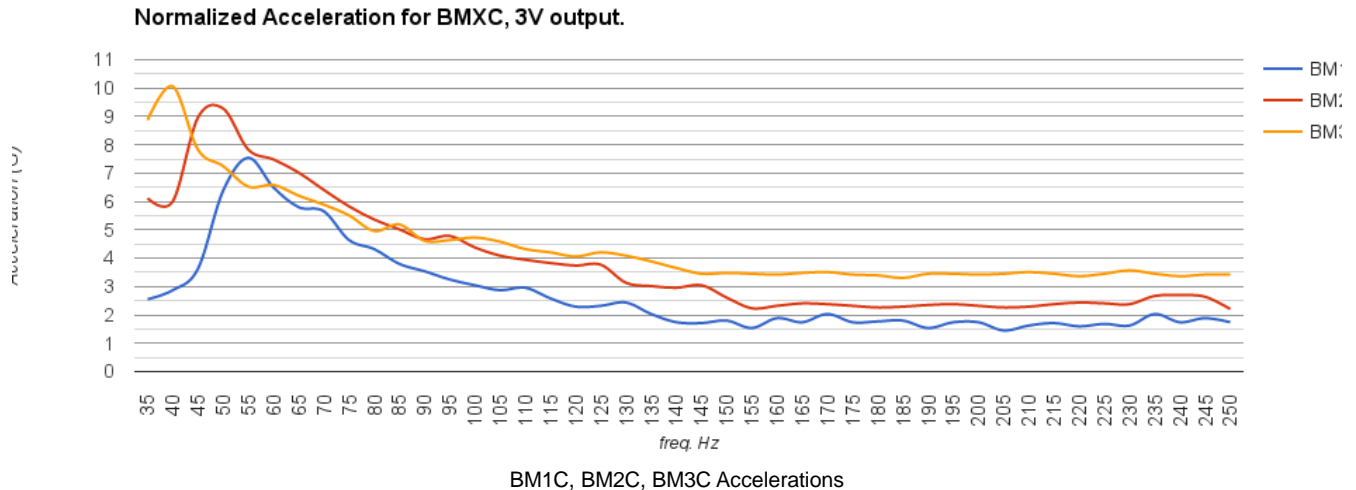
BM1C Acceleration

Normalized Acceleration for BMXC, 3V output.


BM2C Acceleration

Normalized Acceleration for BMXC, 3V output.


BM3C Acceleration



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

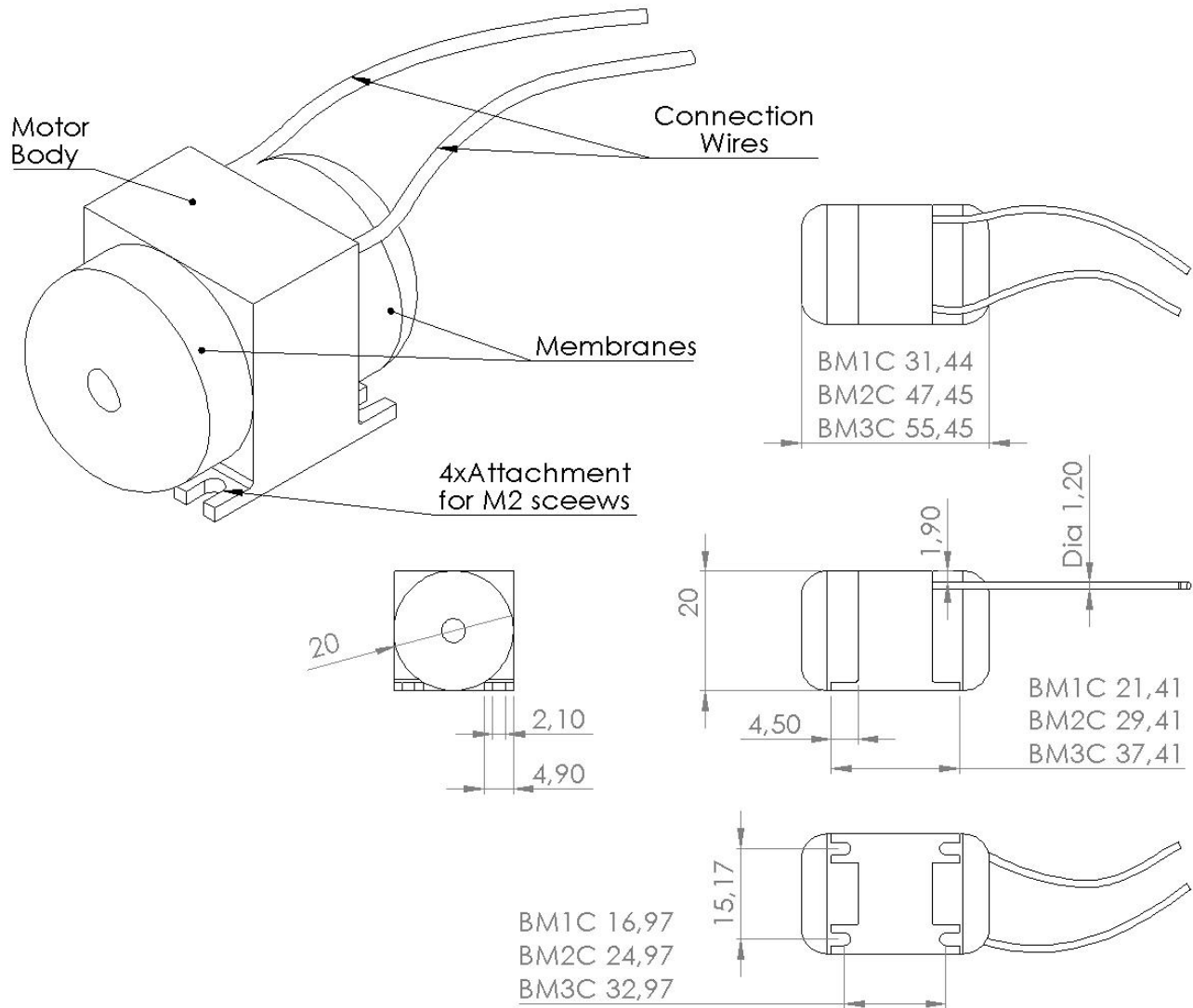
1. For the desired operating frequency, find the normalized acceleration value A_n from the above figures. For example, at 60 Hz, $A_n = 6.5g$.
2. Perform the following calculation: $Acceleration(G) = V_i/3 \times A_n$.

Notes:

1. Tactuators 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. Tactuator should be AC-coupled to avoid driving a DC current into the unit.
2. It is not recommended to drive the Tactuator under 20Hz: 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 Tactuator to objective, we recommend leave 3mm clearance at both ends of Tactuator, 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