

# M-Force

## Moving Magnet Linear Motor Transducer for low frequency applications

**M-Force** is an innovative and unique transducer based on a patented moving magnet linear motor structure.

Unbelievable performance in terms of power handling, electromagnetic conversion, reliability and maximum SPL are a few of the incredible innovative features and improvements with respect to conventional moving coil arrangement.

The **M-Force** motor is the result of years of FEM magnetic and mechanical simulations, careful integration of the latest magnetic materials, digital signal processing, acoustic design and power electronic conversion.

Robust and reliable, its performance with-stand years of abuse and operation: **M-Force** is a true paradigm shift from the old and fashionable coil and cone.

Powersoft's DPC – Differential Pressure Control –, as a powerful tool to create a full boundary condition acoustic processing, has to be considered as a complimentary active control and performance enhancing method.



- ▶ Very high power and energy efficient Subwoofer
- ▶ Low distortion high SPL applications
- ▶ Steerable low frequency arrays
- ▶ Low frequency noise and standing waves active removal systems
- ▶ Dipole low frequency acoustic generation
- ▶ Moving floors
- ▶ Acoustical stress testing devices
- ▶ Mechanical to electrical conversion applications
- ▶ Vibrational energy harvesting
- ▶ Structural active damping control

**M-Force** is available in two models:

- ▶ **M-Force 01** for extremely low frequency applications:
  - ▷  $(Bl)^2/Re = 2215 (T \cdot m)^2/\Omega$
  - ▷ Maximum acceleration 3800 m/s<sup>2</sup>
- ▶ **M-Force 02** for low frequency applications:
  - ▷  $(Bl)^2/Re = 3000 (T \cdot m)^2/\Omega$
  - ▷ Maximum acceleration 4800 m/s<sup>2</sup>

- ▶ Extremely low distortion levels
  - ✓ Zero Power Compression.
  - ✓ Very easy to match with different radiating surfaces / shapes.
- ▶ Very easy to combine in large arrays to create “wall diaphragms”
  - ✓ Dual diaphragm / Push-Pull capability (for multi-resonator acoustical loads / multi-horn load).
  - ✓ Different transducer to cabinet combination concept.
- ▶ Extremely reliable and efficient
  - ✓ No service needed for years of abuse.
  - ✓ Age - Usage independent magnetic compliance.
  - ✓ Extremely insensitive to forces acting outside displacement axis (rocking).
  - ✓ Unique performances in terms of reliability.
  - ✓ Extreme performance in terms of overall efficiency.
- ▶ Extremely High SPL performances
  - ✓ More than 3 times output SPL capability for the same driver weight with respect to any other conventional design.
- ▶ Robust
  - ✓ No moving conductors in the active part of the transducer.
  - ✓ No electrical connection with moving parts and stationary parts
  - ✓ Premium Motor Strength
  - ✓ Outstanding acceleration performances
- ▶ Environmental Friendly
  - ✓ 1/20 of Neodymium usage for the same SPL in comparison to conventional design.