

48V 10kW Electric Supercharger

For automotive applications



Aeristech Ltd

Aeristech leads the world in breakthrough engine turbocharging technology. Aeristech has “game changing” proprietary patent technology using ultra high speed motors. The heart of the solution is our ability to control and use the world’s fastest and fastest accelerating permanent magnet motors to provide substantial power on demand, eliminating perceived turbo lag ...even from rest.



Aeristech’s technology leadership was recognised by the Energy Institute, when in 2012 it named Aeristech winner of the prestigious Energy Institute Technology Award.



In 2010 Aeristech was declared Regional Winner and UK finalist of the Shell Springboard Award for new green technologies.

More Than Just a Transient Machine

Aeristech’s electric supercharger not only provides rapid transient response under 0.5 seconds, but also delivers high levels of steady-state power for torque fill. Aeristech’s eSupercharger frees the main mechanical turbocharger to deliver peak power with minimal engine back pressure, while the electric supercharger provides steady-state boost at lower engine speeds, beyond the surge capability of the main mechanical turbocharger.

An Efficient Supercharger

Aeristech’s motors and generators are unique in their torque density and efficiency. This uniqueness comes from Aeristech’s control technology and proprietary design know-how in high-speed permanent magnet machines. Aeristech’s electrical switching frequency is lower than conventional motor drives, delivering higher efficiency and torque density. Aeristech’s machines are capable of operating at the speeds required by the turbomachine, without any speed limitation from the control electronics. This results in more efficient, wider compressor maps and smaller package sizes.

48V 10kW Electric Supercharger

Aeristech’s 48V electric supercharger is available as a fully integrated package with power electronics, motor, compressor, and CAN interface. Units with separate power electronics are also available.

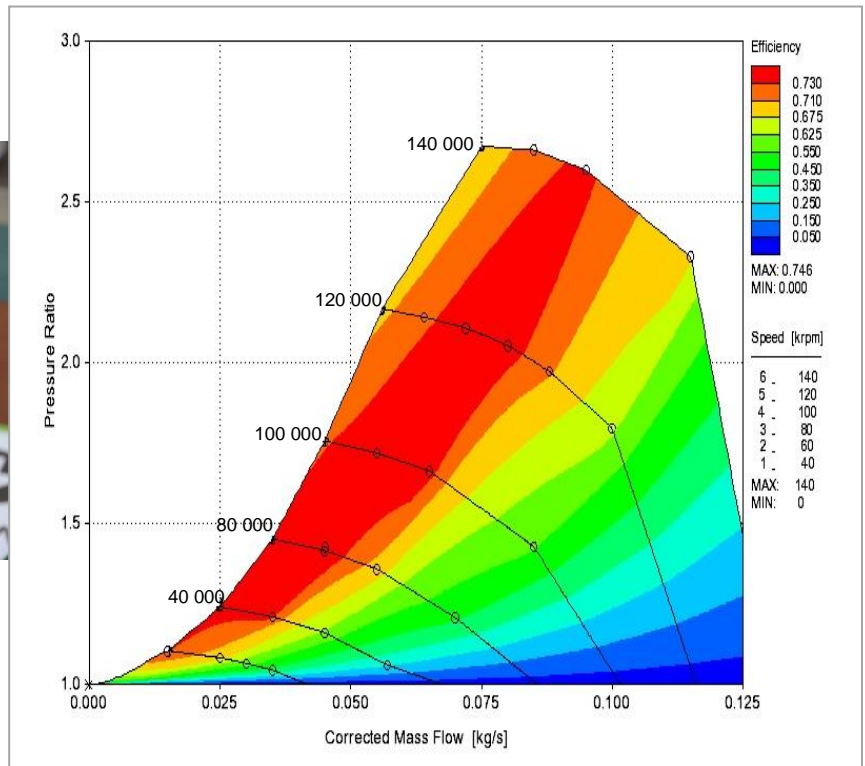
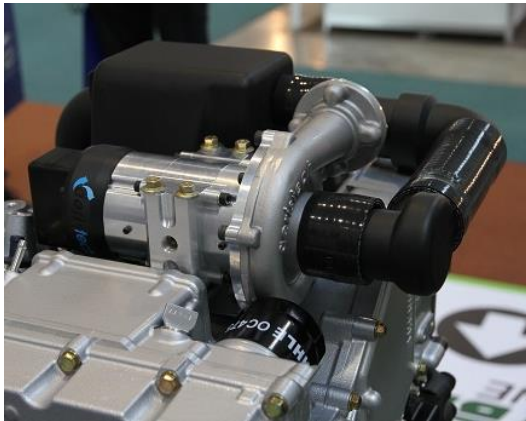


Motor compressor unit



Unit with integrated controller

Compressor Map



48V 10kW Electric Supercharger Specifications

General	Air compressor type	Centrifugal
	Motor type	High Speed Permanent Magnet
	Bearings	High Precision Ceramic Hybrid Rolling Element
	Lubrication	Greased (for life)
	Cooling	Liquid (water/glycol)
	Input voltage	46V – 50V (48V nominal) High Voltage option for Hybrid and FC applications
Performance	Max Operating Speed	120 000 RPM
Transient	Idle to Max Operating Speed	< 0.5s
Packaging	Motor / Compressor Mass	4.2 kg
	Motor / Compressor Volume	< 1.4 ltr

Product Ready

Aeristech’s 48V 10kW electric Supercharger has been developed to “A-Sample” stage or “Technology Readiness Level” 5. The unit is capable of engine and vehicle installation and is exhibits indicative characteristics (size, performance, mass) of a production system. Aeristech are available to support product development and/or redesign to suit specific applications. The designs and underpinning technology may be licensed for mass manufacture.

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