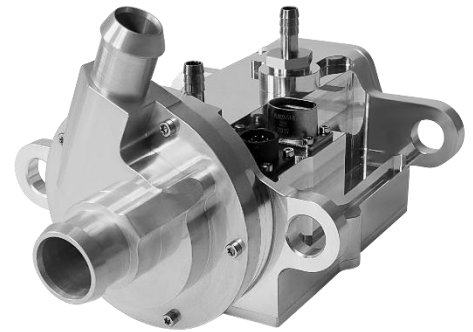


CTi-110x integrated turbo compressor system

Electrical turbo compressor with air bearings for the air supply of 5 - 15 kW fuel cells with applications mainly in material handling, stationary, and drone applications. Alternative applications include the circulation and compression of various gases and refrigerants.

- Turbo compressor with aerodynamic optimization and integration of power electronics for highest total efficiency and lowest ratio of volume and weight versus pressure and mass flow
- Aerodynamic variants available for pressure ratios from 1.6 to 1.9 at mass flows ranging from 8 to 18 g/s
- High-speed gas bearings for oil free operation
- Continuous and non-pulsing air supply
- Designed for 48 V, 80 V or 96 V nominal battery voltage (unrestricted operation for DC input voltage 40 - 110 V)



Specifications turbo compressor system

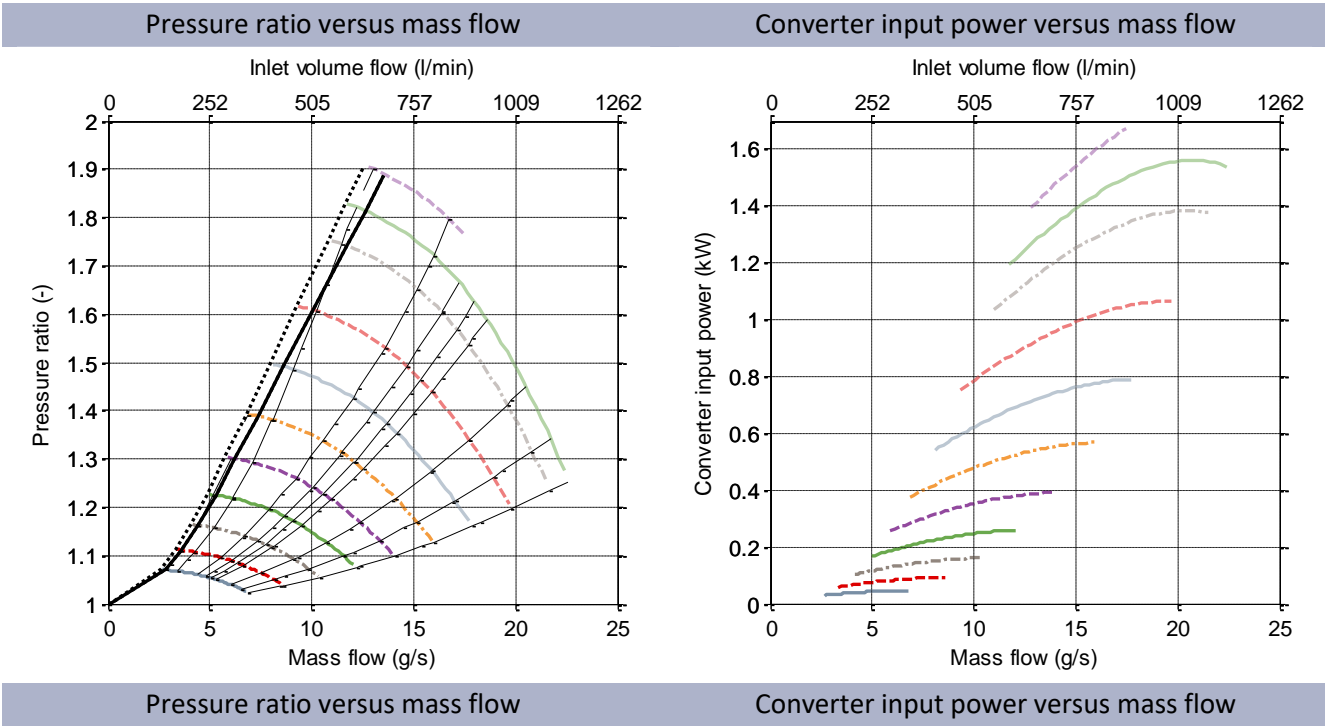
Model CTi-1100	
Maximum pressure ratio	1.9 at 13 g/s
Maximum mass flow	17 g/s
Maximum isentropic overall efficiency ¹	55 %
Model CTi-1101	
Maximum pressure ratio	1.6 at 18 g/s
Maximum mass flow	25 g/s
Model CTi-1102	
Maximum pressure ratio	1.8 at 8 g/s
Maximum mass flow	14 g/s
Maximum speed	260,000 rpm
Acceleration time ²	< 2.0 s
High voltage power demand	1.5 kW
High-voltage input (unrestricted operation)	40 – 110 VDC
Low-voltage input range	8 – 32 VDC
Communication interface	CAN 2.0A/B (500 kbps), RS232-USB (service interface)
Ambient temperature range	-20 – 85°C
Protection class	IP67
Mechanical fixation	4x brackets, through hole
Dimensions (L x W x H)	242 x 188 x 155 mm
Weight	3.9 kg

¹ Isentropic overall system efficiency including aerodynamic, motor, bearing and inverter efficiency

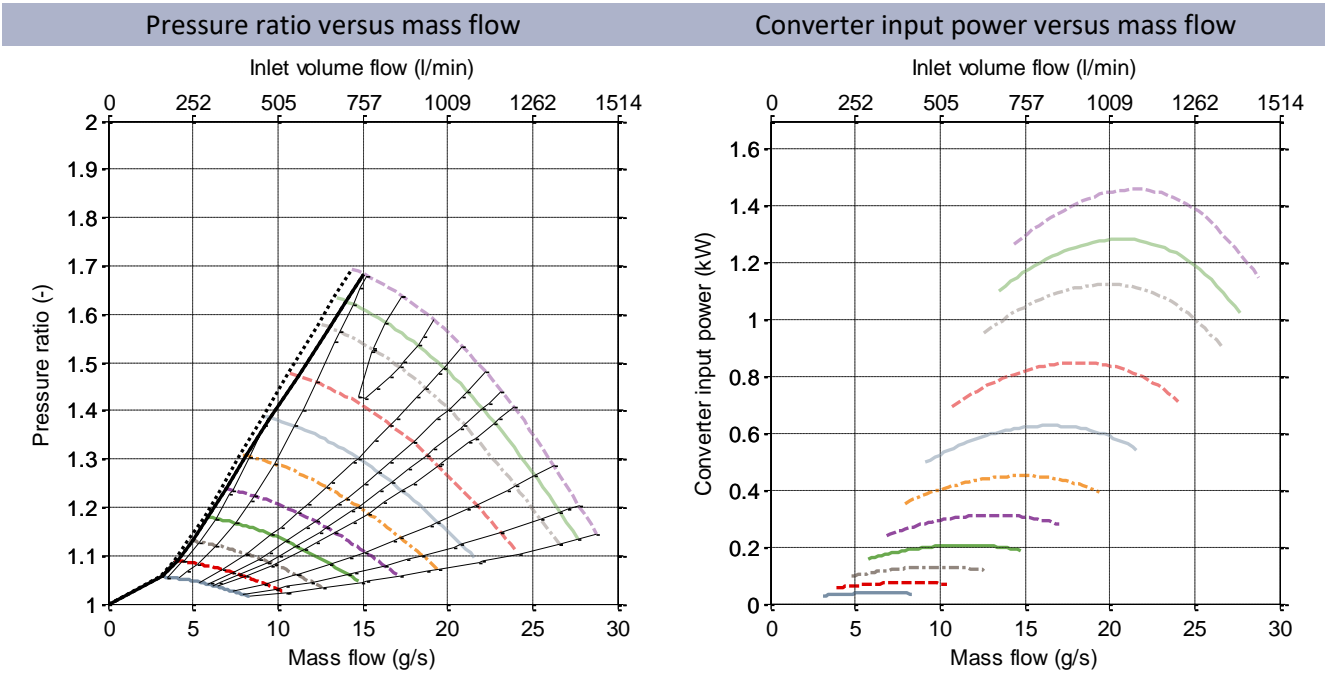
² 20 to 80% of maximum speed

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Compressor map: CTi-1100



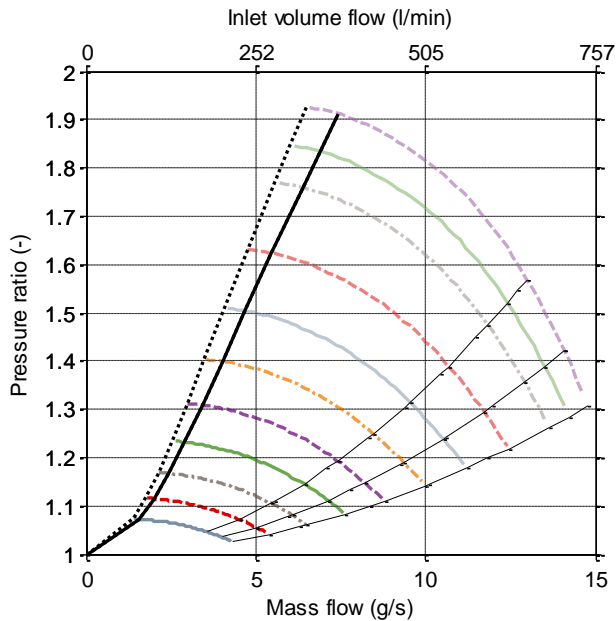
Compressor map: CTi-1101 (simulation result)



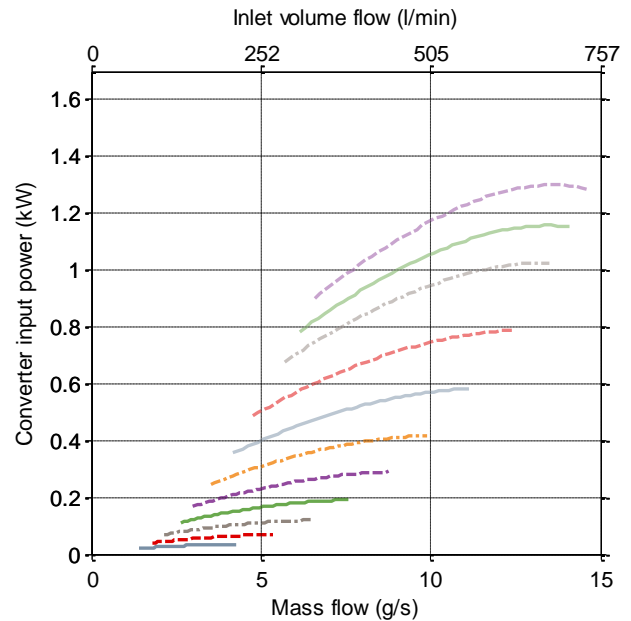
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Compressor map: CTi-1102 (simulation result)

Pressure ratio versus mass flow



Converter input power versus mass flow



Compressor air interfaces

Inlet air fluid temperature	-20 – 55°C
Inlet air fluid pressure	0.79 – 1.05 bara
Interface inlet	Clamp and hose (ID = 34 mm)
Interface outlet	Clamp and hose (ID = 25 mm)

Cooling interfaces

Liquid	Inhibited 50%/50% water glycol mixture
Coolant temperature	-20 – 75 °C
In-/outlet connector	Clamp and hose (ID = 13 mm)

High-voltage interface

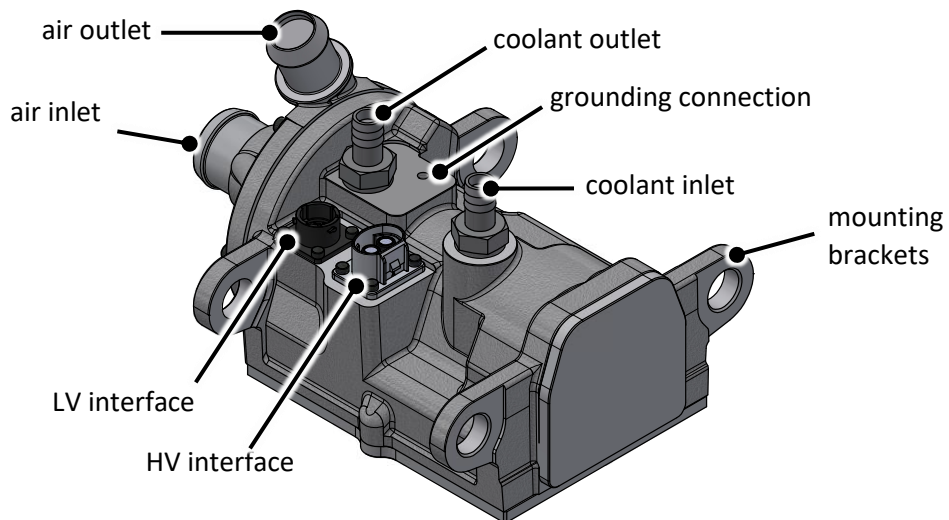
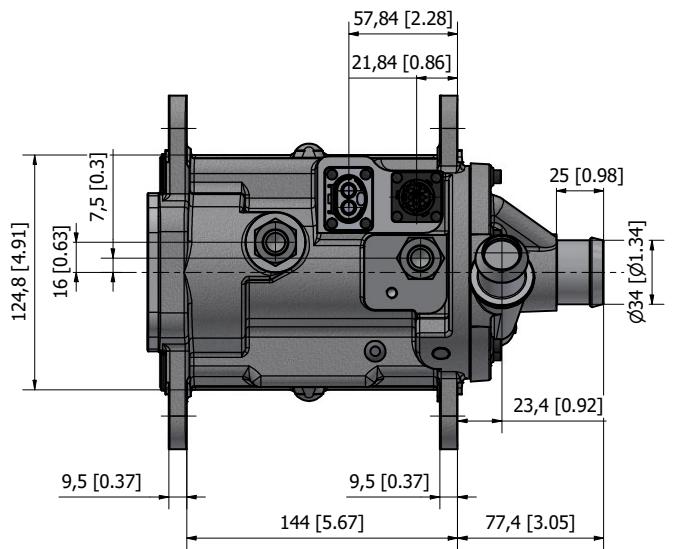
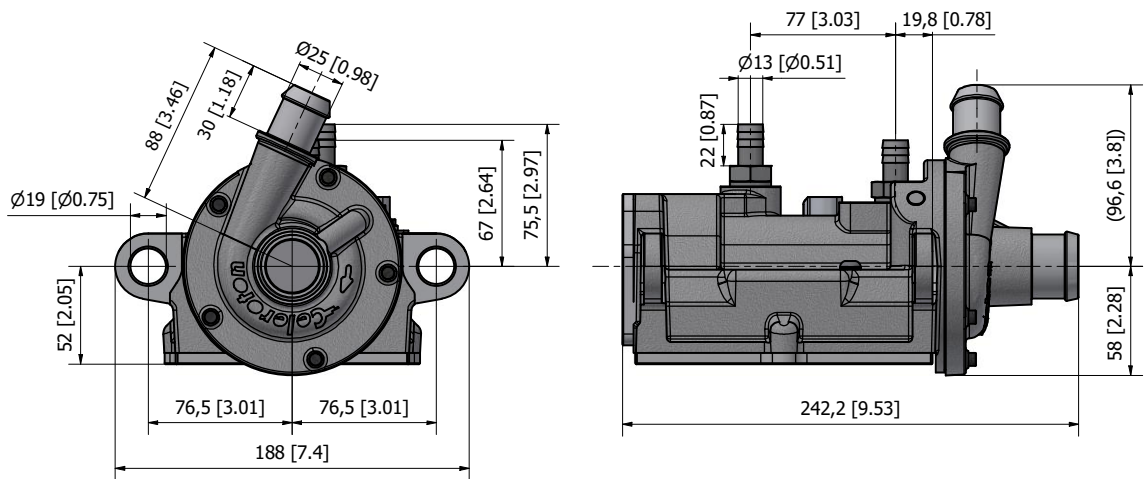
Connector type	Amphenol PowerLok 4.0 (matching cable-side connector: PL182x-61-6)
Cable type	2 x 6 mm ² , shielded
Grounding	1x M6

Low-voltage interface

Connector type	Amphenol eco mate (matching cable-side connector: RTS6BS12N10S03)
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Drawing in mm [inch]



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The specifications and compressor maps in this document refer to air (ISO 8778) at the inlet of the compressor: temperature: $T = 20^{\circ}\text{C}$, absolute pressure: $p_{in} = 1 \text{ bar}$.



Depending on custom specific operation conditions such as e.g. gas inlet pressure and temperature, humidity, cooling conditions, the operation in environmental conditions with vibrations, the compressor maps shown in this document may be different or may have additional limitations. For technical details and further information, please refer to the user manual or contact Celeroton TurboCell directly.

Order codes

Ordering information	Article number
CTi-1100 - Integrated turbo compressor system	A4040079
CTi-1101 - Integrated turbo compressor system	A4040080
CTi-1102 - Integrated turbo compressor system	A4040082

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