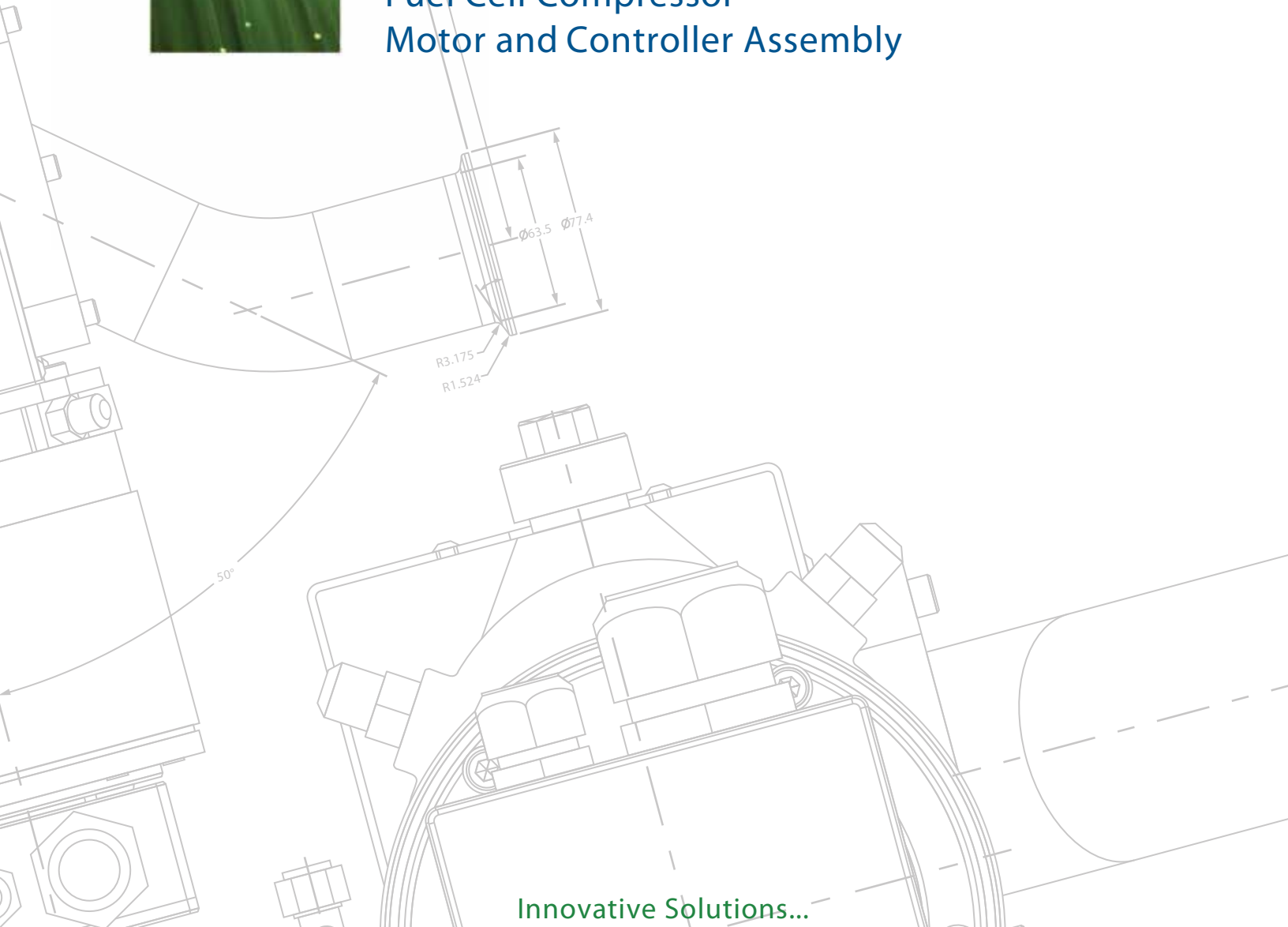




281.7

R340 and R410 Fuel Cell Compressor Motor and Controller Assembly



Innovative Solutions...
..for Electrifying Vehicles



342.6

UQM Fuel Cell Compressor Systems are ideal for ease of maintenance, long term durability, and low lifetime operational cost. The UQM System is an integral component of hydrogen powered fuel cell vehicles designed for light duty automotive and commercial bus applications for 75kW to 150kW fuel cell stacks. The UQM Fuel Cell Compressor System offers a larger efficiency window than centrifugal compressors and offers significant heat and noise reduction over comparable twin screw compressors.



Product Description

- Each UQM System features Eaton Corporation's 6th generation TVS, 4-lobed involute profile rotors with 160° helical twist in its superchargers (compressors).
- The Multiple Orientation Capable Compressor (MOCC) allows for various installation orientations and oil level monitoring.
- Sound dampening enclosure surrounding the supercharger minimizes system noise.
- Optional inlet attenuator reduces intake noise further without restricting airflow.
- A fully integrated UQM 20kW brushless DC motor is available in 12-turn 400Vdc or 24-turn 800Vdc configurations to direct drive the compressor.
- The system is Hall-controlled over a CAN interface at 250 or 500 kbps rate.
- Liquid cooled UQM motor and controller are configured to be interchangeable with similar systems for fleet operation and maintenance.
- Power and communication cables are provided with the motor. Connectors are provided to interface with user's application and the controller.
- End of Line Verification testing performed on all UQM Fuel Cell Compressor Systems.
- Performance verification data available upon request.
- Leak check performed on all motors and controllers.
- On-board error data logging.
- Power limitation for thermal protection. Power is limited automatically by controller once internal temperature limit is reached.
- Positive pressure seals protect compressor oil from entering air stream.
- The TVS Roots-based R340 and R410 compressors offer significant noise and heat reduction than comparable twin screw compressors.
- The TVS Roots-based R340 and R410 compressors offer a larger efficiency window than centrifugal compressors.
- Warranties available on all UQM Fuel Cell Compressor Systems (prior engineering approval of customer operating duty cycle and application parameters required).



TVS Rotors
EATON



Inlet Attenuator

Applications

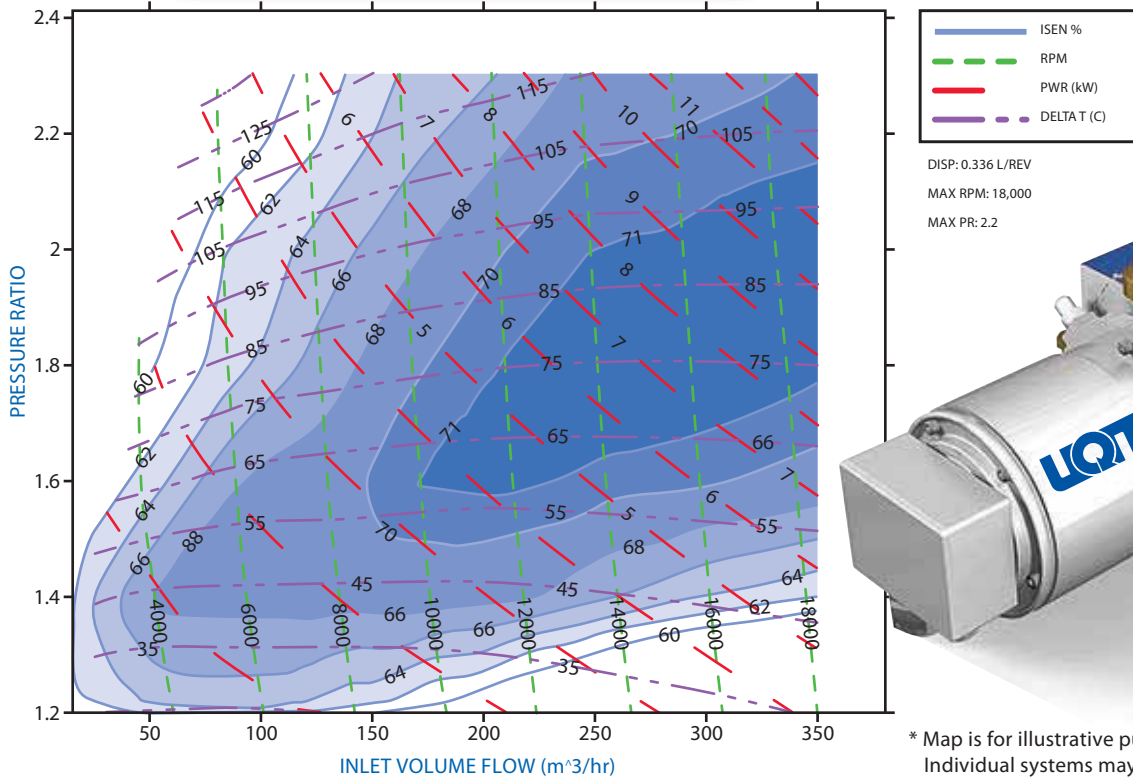
- The **R340 System** is designed for light-duty automotive applications for up to 75kW stacks.
- The **R410 System** is designed for medium-duty automotive and commercial bus (coach) applications for up to 150kW stacks.

Customer fleet and vehicle applications currently supported globally

- | | | |
|---------------------|-----------------------|-------------------------|
| • England (fleet) | • Canada (fleet) | • Germany (evaluations) |
| • Belgium (fleet) | • India (evaluations) | • Italy (evaluations) |
| • Amsterdam (fleet) | • USA (evaluations) | • China (evaluations) |

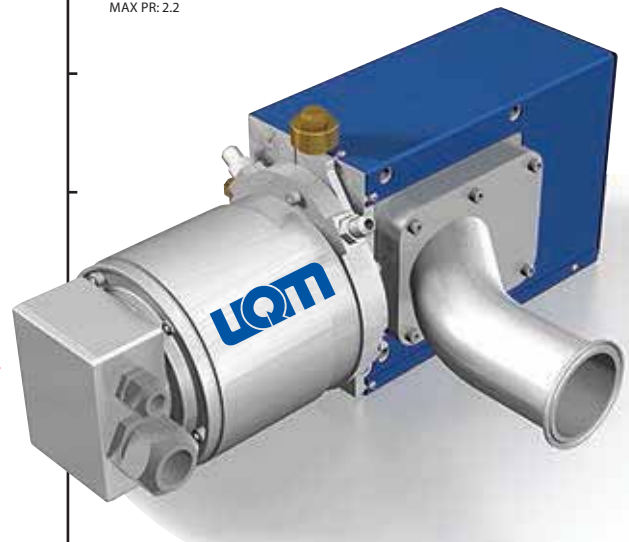
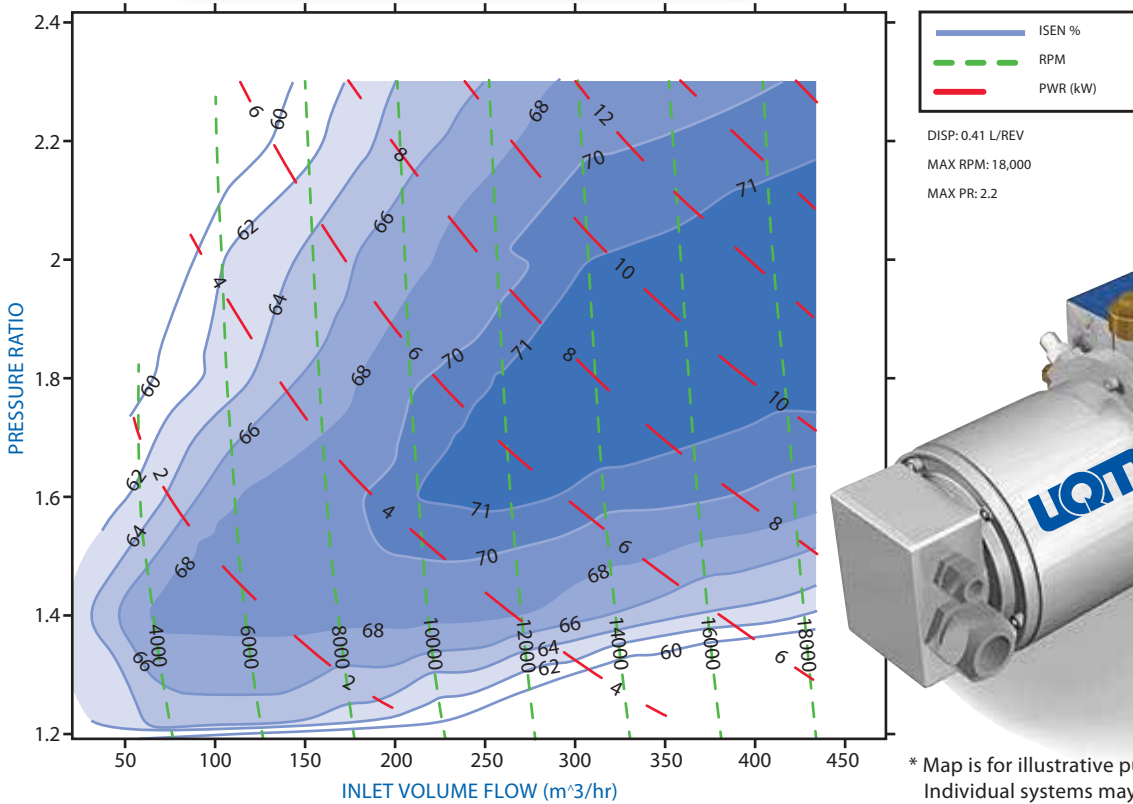


R340 Performance Map*

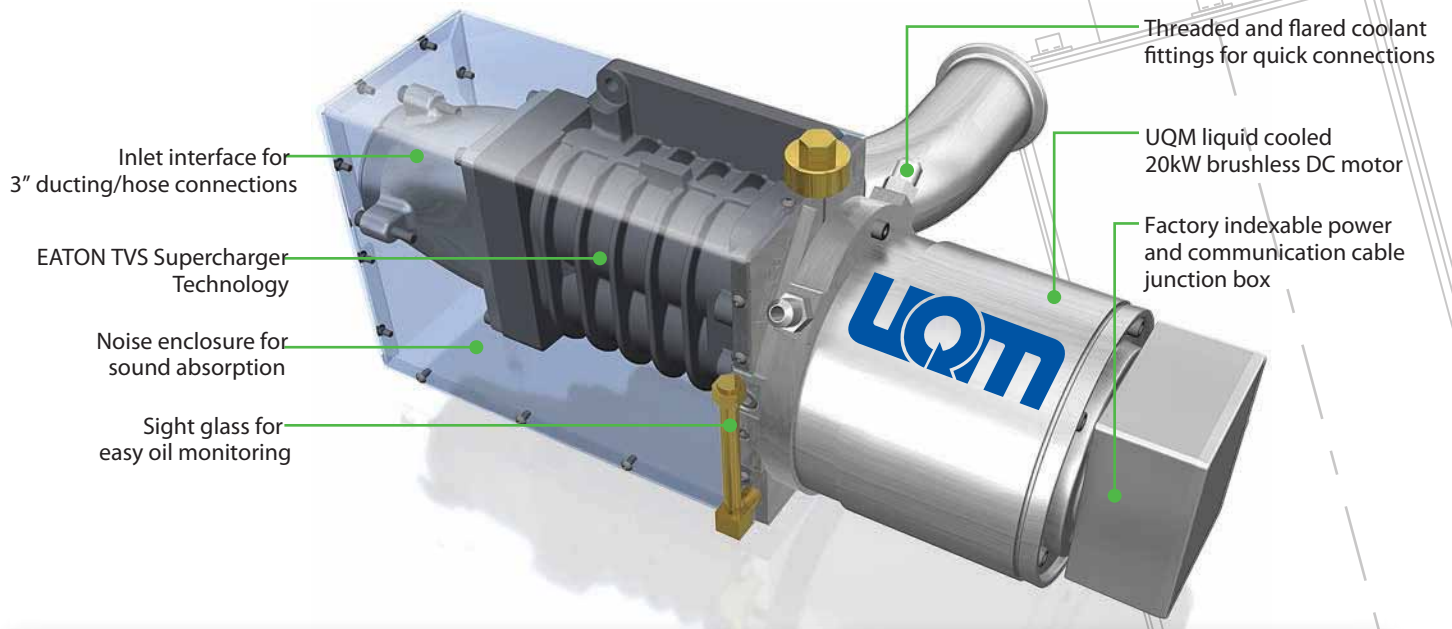


* Map is for illustrative purposes only. Individual systems may vary slightly.

R410 Performance Map*



* Map is for illustrative purposes only. Individual systems may vary slightly.



R340 and R410 Configurator Specifications

Parameter Name	Units	Min	R340 Max.	R410 Max.	Comment
Outlet Flow Rate	m ³ /h	0	340	420	At 1.1 pressure ratio
Outlet Line Air Pressure (Continuous)	kPa abs.	95	180	180	
Outlet Line Air Pressure (Instantaneous)	kPa abs.	95	220	220	
Inlet Ambient Pressure	kPa abs.	85	107	107	
Inlet Ambient Temperature	°C	-20	40	40	
Inlet Ambient Relative Humidity	%	5	99	99	
System Input Voltage (Low Voltage Platform)	Vdc	300	375	375	12-turn motor configuration
System Input Voltage (High Voltage Platform)	Vdc	450	N/A	775	24-turn motor configuration
Max. Input Current (High Voltage System)	Amps	0	N/A	50	
Max. Input Current (Low Voltage System)	Amps	0	100	100	
System Up-Transient	Sec.	-	5	5	"Minimum time to accelerate from 10% to 90% flow"
Coolant Type	50/50 Glycol/Water mix				
Coolant Flow Type	L/min	6	20	20	"All testing conducted at 10L/min. Pressure not to exceed 8 psi"
Controller Inlet Coolant Temperature	°C	-20	50	50	

For more information and to discuss UQM capabilities in more detail, please contact us using any one of the following:

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