

Diaphragm Compressors

PDC supplied a diaphragm compressor to Air Liquide as part of their fueling station in Oshawa for a forklift application project.



Linde uses a PDC compressor for its forklift application.



For Fuel Cell Applications

Benefits

The unique design of our diaphragm compressors provides the user with an exceptional product that delivers significant operational benefits, including:

- High product purity – The design and construction materials do not contaminate the process gas
- High reliability and uptime resulting in low maintenance – Customers experience life of 10,000 to 40,000 hours without the need for spare parts replacement
- Safer operation – Compressed gases cannot leak into the atmosphere or crankcase and the crankcase requires no purging
- Extremely low noise levels – 85 dbA without sound-proofing
- Compact design – Requires minimal floor space
- Multiple service – Can be used with hydrogen, CNG, and blended fuels
- Horizontally-opposed designs for optimal power consumption

Exceptional product value leads to high throughput, high productivity, and high uptime, which translates to a cost-effective product.



APCI has installed a hydrogen fueling demonstration station in Mantova, Italy utilizing a PDC supplied series 200 compression skid.



PDC
www.pdcmachines.com



BOC/Linde used a PDC compressor in its joint venture to build 1st Shanghai hydrogen station in collaboration with Tongji University & Shell.

Air Products compressor as part of its Hydrogen Fueling Station for bus fills in Beijing, China



Applications

- Fueling fuel cell powered cars, buses, and forklifts
- Power back-up using hydrogen fuel cells for telecommunication towers and power plants
- Residential re-fuelers for fuel cell cars and power generation
- Solar power to hydrogen power
- Filling and off-loading of gases from tube trailers
- Filling gas cylinders and bulk storage tanks
- Life cycle testing of on-board tanks
- Feedstock for chemical, petrochemical and pharmaceutical industries
- Wind power to hydrogen power

Auto and Bus Fueling

- Auto fueling – Models are available for applications ranging from single auto demo sites to full-scale production sites designed to fuel 25 and more vehicles per day. Pdc offers a wide selection of compressor models that are compatible with typical compressor inlet and discharge conditions for most fueling applications. Inlet pressures of 100-200 PSIG (0.7-1.4 MPa) and discharge pressures of 3600, 7000 and 12,000 PSIG (25, 48, 83 MPa) are available with flow rates from 50 to 2000 SCFH (1 to 54 Nm³/hr). Suction source can be from generators, reformers or tube trailers
- Bus fueling – Pdc offers a model featuring up to 3000 PSIG (21 MPa) suction and 6000 PSIG (41 MPa) discharge pressures with a flow rate 74,640 SCFH (2000 Nm³/hr). This compressor will fill a bus in 10 minutes

Features of Pdc Compressors

- Triple diaphragm construction – Isolates process gas from hydraulic oil
- Compatible materials of construction – All process-wetted components are constructed from corrosion-resistant materials
- Filters and oil removal systems are not necessary
- Advanced cavity contour design and unique proprietary manufacturing process reduces diaphragm stresses, prolongs fatigue life and extends maintenance intervals
- Automatic positive priming – Minimizes knocks, cavitation, and vibrations, resulting in smooth start-up and operation
- Soft, high-strength plastics for check valves – Reduces leakage, improves efficiency, extends equipment life, and reduces noise levels
- High compression ratio per stage – When compared to reciprocating compressors – helps reduce capital costs
- Unique oil distribution system – Assures pressure equalization

Horizontally-Opposed Designs For High-Efficiency Operation

- Duplex and multi-stage designs are available to accommodate a wide range of pressures and flows
- Duplex units are capable of compressing different gases simultaneously
- Simplex units are field-convertible to duplex units to increase flow
- Duplex units provide twice the flow and 1/3 Hp consumption
- Horizontally-opposed and balanced-horizontally-opposed designs reduce vibration and require minimal foundation

Electrical & Systems Integration

Complies with U.S., Japanese, and European codes and standards for electrical and piping systems for high-pressure flammable gases.



12,000 psi (822 barg), Quantum technologies Worldwide



CRES: Lavrion, Greece



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