

Hydrogen Compressor Package - Model YD3-140GH-OL



QUALITY MANAGEMENT SYSTEM
ISO 9001



ENVIRONMENTAL MANAGEMENT SYSTEM
ISO 14001



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1. Product Overview

The **YD3-140GH-OL** is a specialized high-pressure, oil-free reciprocating compressor designed for critical hydrogen service. Utilizing Kaji Technology's advanced **Y-Type** cylinder arrangement, this unit offers superior balance and reduced vibration compared to traditional vertical configurations, making it ideal for continuous heavy-duty operation in refineries and petrochemical plants.

2. Technical Specifications

A. Operating Conditions

Parameter	Value	Unit
Gas Handled	Hydrogen (H_2)	-
Molar Weight	2.02	g/mol
Capacity (Flow Rate)	500	Nm^3/h
Suction Pressure	22	$kg/cm^2 A$
Discharge Pressure	201	$kg/cm^2 A$
Compression Ratio	Approx. 9.1	Total

B. Mechanical Data

Parameter	Value	Unit
Model	YD3-140GH-OL	-
Compressor Type	Reciprocating	-
Configuration	Y-Type	-
No. of Stages	3	Stages
Lubrication Type	Oil-Free	Cylinder
Cooling Method	Water-Cooled	-
Driver Type	Electric Motor	-
Motor Output	90	kW
Drive Transmission	V-Belt / Direct	-

3. Design Features & Benefits

- 100% Oil-Free Gas Path:** Ensures zero contamination of the process gas, critical for protecting downstream catalysts in hydrogenation processes.
- Y-Type Configuration:** The cylinders are arranged in a Y-shape, which cancels out unbalanced forces more effectively than vertical types, resulting in lower vibration and reduced foundation requirements.
- High Pressure Capability:** Engineered to handle discharge pressures up to 20 MPa (approx 200 bar), suitable for high-pressure storage or process injection.
- Durability:** Designed with specialized materials to resist hydrogen embrittlement.

6. Reference Project

Client: Abu Dhabi Oil Refining Company (Takreer) | **Location:** UAE **Application:** Hydrogen Gas Compression for Refinery Process. This unit has proven reliability in high-ambient temperature environments typical of the Middle East.

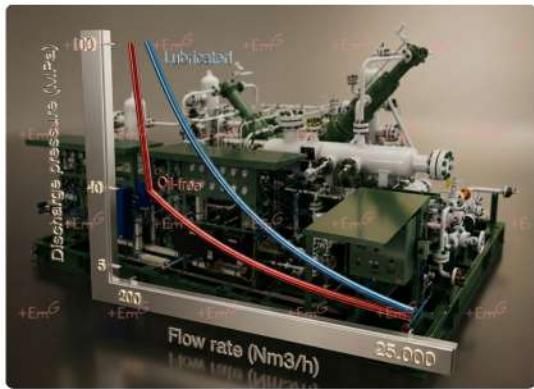


Figure 1: Compressor Unit Representation

4. Applications

Based on Kaji Technology's portfolio:

- Petroleum Refining (Desulfurization)
- Hydrogenation Processes
- Petrochemical Plants
- Polysilicon Manufacturing
- Fuel Cell Hydrogen Stations

5. Scope of Supply

Standard package typically includes:

- Bare Compressor Block
- Main Drive Motor (90 kW)
- Baseplate & Mountings
- Intercoolers & Aftercooler
- Suction/Discharge Dampers
- Lube Oil System (for Crankcase)
- Local Gauge Board