

## Nitrogen Gas Compressor - Model HDB-400GH-OL



**QUALITY  
MANAGEMENT SYSTEM  
ISO 9001**



**ENVIRONMENTAL  
MANAGEMENT SYSTEM  
ISO 14001**



**KHK  
CERTIFIED**

**高圧ガス設備  
試験・製造認定事業所**  
経済産業大臣認定番号  
**MAB 133**

認定 熱交換器、往復動式圧縮機、管類、弁類  
機器 その他の附属機器類、複合機器

# 1. Product Overview

The Model HDB-400GH-OL is a Horizontal Balance-Opposed reciprocating compressor designed for high-capacity nitrogen gas service.

This unit features a robust horizontal configuration where opposing cylinders cancel out inertia forces, resulting in exceptionally smooth operation with minimal vibration. Designed with an oil-free system, it is ideally suited for critical industrial applications such as steel manufacturing and large-scale inert gas supply where gas purity and operational reliability are paramount.

# 2. Technical Specifications

## 2.1 A. Operational Conditions

Parameter	Value	Unit
Handled Gas	Nitrogen (N <sub>2</sub> )	-
Capacity (Flow Rate)	4,500	Nm <sup>3</sup> /h
Suction Pressure	0.52 ~ 0.65	MPaG
Discharge Pressure	1.96	MPaG

## 2.1 B. Mechanical Data

Parameter	Value	Unit
Compressor Type	Horizontal Balance-Opposed	-
Number of Stages	1	Stage
Lubrication Type	Oil-Free	Cylinder
Cooling Method	Water-Cooled	-
Motor Output	360	kW

# 3. Key Design Features & Advantages

- **Balance-Opposed Design:** Inertia forces of opposing reciprocating masses cancel each other out, significantly reducing vibration and foundation loads.
- **High Capacity Handling:** Engineered to handle large volumes (up to 4,500 Nm<sup>3</sup>/h) efficiently in a single unit.
- **Oil-Free Operation:** Ensures zero oil contamination in the nitrogen stream, critical for steel processing and purging applications.
- **Maintenance Friendly:** Horizontal layout provides easy access to cylinders and valves for routine maintenance.

# 6. Project Reference

Nippon Steel Corporation. N<sub>2</sub> Gas Compressor. Status successfully commissioned and operating.

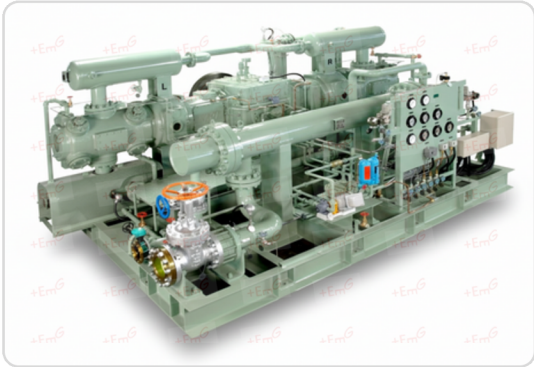


Figure 1: HDB-400GH-OL

# 4. Applications

- **Steel Manufacturing:** Inert gas purging and blanketing for blast furnaces or converters.
- **Large-Scale Chemical Plants:** Nitrogen supply for process safety and inerting.
- **Pipeline Services:** High-volume gas transmission or purging.
- **Industrial Gas Supply:** Main compressor for air separation units (ASU).

# 5. Scope of Supply

The standard package typically includes:

- HDB Compressor Bare Block (Horizontal Balance-Opposed).
- 360 kW Main Driving Motor.
- Heavy-Duty Common Baseplate.
- Water-Cooled Heat Exchangers (Inter/Aftercooler).
- Pulsation Dampeners, Lube Oil System & Local Panel.