

ROTOFLOW TURBOMACHINERY

Integrally Geared Generator Turboexpanders



World-Class Performance

Rotoflow's integrally geared generator turboexpanders are the best match of efficiency and long-term capital investment. Power recovery is achieved by directly mounting the expander on a gearbox and loading it with an electric generator. Operability and maintainability have been optimized in our design as a result of millions of successful hours of operation. Our integrally geared generator turboexpanders are typically found around the world providing refrigeration and economic power recovery in air separation and liquefaction facilities.

Design/build expertise, operational insight, and unrivaled experience work together to create Rotoflow's comprehensive line of turboexpanders, serving the full spectrum of turbomachinery markets and applications.

Typical Design Capabilities

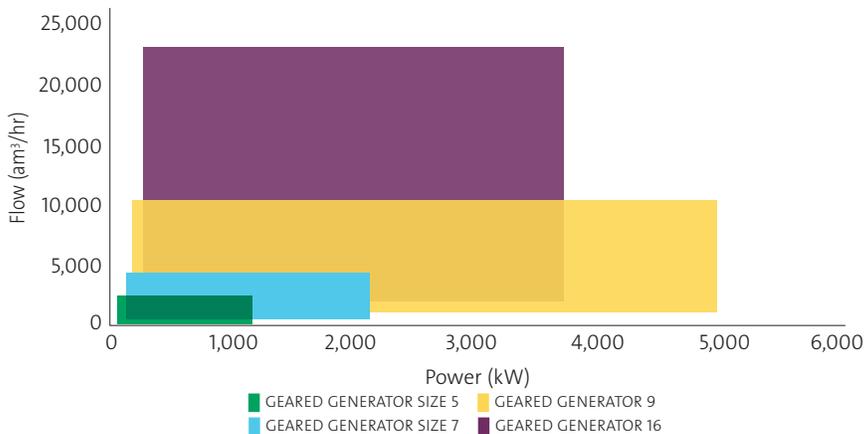
	ASU	Hydrocarbon
Power	4 to 5,000 kW (6 to 6,705 hp)	32 to 22,569 kW (43 to 30,265 hp)
Speed	Up to 40,000 rpm	Up to 50,000 rpm
Inlet Pressure	4 to 100 barg (60 to 1,450 psig)	1.7 to 210 barg (25 to 3,045 psig)
Temperature	-200 to +150°C (-320 to +300°F)	-270 to +340°C (-454 to +644°F)
Outlet Flow	57 to 12,000 am ³ /hr (33 to 12,360 ACFM)	56 to 163,173 am ³ /hr (33 to 96,040 ACFM)
Impellers	89 to 483 mm (3.5 to 19.0 in.)	70 to 1270 mm (2.75 to 50 in.)

Benefits

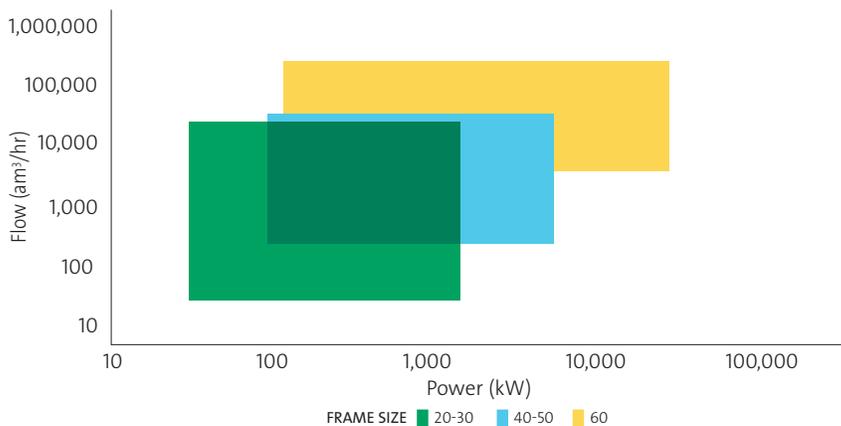
- Broad operating ranges from a portfolio spanning over 70 years
- High-efficiency turboexpanders directly mounted to a parallel shaft gearbox eliminates the need for high-speed couplings and additional high-speed bearings
- Single or multiple stages can be configured on a single gearbox
- Equipment aerodynamically optimized to the customer's process
- Zero clearance inlet guide vanes generate accurate flows and efficiencies
- Custom-designed precision helical gearing manufactured to AGMA Q12/ DIN Class 5 standards provides a long service life, with low vibration and low noise levels
- Horizontally split gearbox provides easy access to gears and bearings, resulting in minimal downtime for inspection and maintenance
- ISO 9001 certified since 1997 (currently ISO 9001:2015)

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ASU Product Operating Range



Hydrocarbon Product Operating Range



Engineered to order for customer-specific applications. Represented is an overview of our turbomachinery capabilities. Please contact us to discuss your specific needs.

Experience more. Together.

Rotoflow, an Air Products business, combines one of the industry's most trusted names in turbomachinery with world-leading industrial gas expertise. We're transforming the hydrocarbon, LNG, petrochemical, and industrial gas markets with superior equipment performance and unrivaled reliability, safety, and value. Our combined capabilities are the key to this new level of quality. Technological innovations expertly integrated with decades of know-how are the foundation for Rotoflow's valued products, proven performance, and world-class service. This synergy helps customers around the world reach their unique technology and operational targets more efficiently than ever before.

Rotoflow Headquarters and Solutions Center

2320 Highland Avenue
Bethlehem, PA 18020
USA
T +1 610-706-6000
connect@rotoflow.com

Rotoflow Solutions Centers

Air Products Public Ltd. Branch
Air Products Technology Center
Ibn Al Haitham Street
Dhahran Techno Valley
Dhahran, 34464-4855
Kingdom of Saudi Arabia
T +966 13 8021327

Air Products and Chemicals
(Shanghai) Systems Co., Ltd.
(Qingpu) Branch
Building 2, #110 Yingtian Rd
Liantang Industrial Park
Shanghai, 201716
P.R. China

Regional Head Offices

Air Products and Chemicals
(China) Investment Co. Ltd.
East Wing, Floor 1
Building #88, Lane 887
Zu Chong Zhi Road
Zhangjiang Hi-Tech Park
Shanghai, 201203
P.R. China
T +86-21-38962000

Air Products and Chemicals
16945 Northchase Drive
Houston, Texas 77060 USA
T +1 610-706-6000

Air Products PLC
1000 Hillswood Drive
Chertsey, Surrey
KT16 OPS, UK
T +44 1932 24900

Technical Highlights

- Fully skidded accessory system incorporates the motor-generator
- Simplified start-up and shutdown sequence allows for smooth machine operation
- Exceeds API 617 Rotordynamic requirements
- Proven high-speed and high-load tilt pad bearings handle steady state and transient thrust loads
- Electric actuator provides precision control of inlet guide vanes over a wide operating range
- Selected high-strength, wear-resistant materials and anti-friction coatings
- Robust impeller attachment and torque transmission design for high reliability

Options

- Expander and gearbox spare assembly
- International code compliance
- API compliant on request
- Safe area or hazard area location
- Package control system
- Purged enclosure
- Inlet strainers
- Inlet trip valve