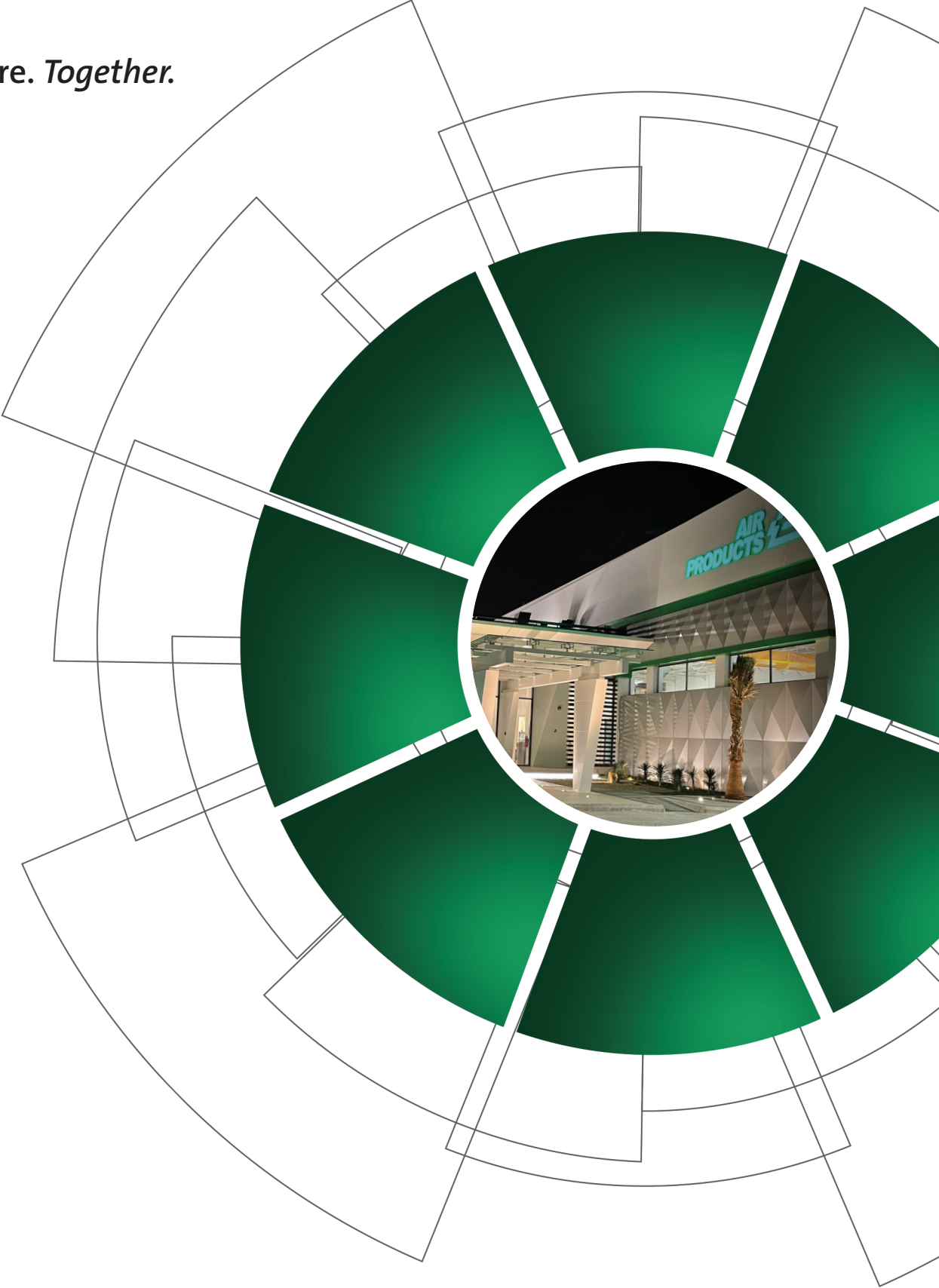


Experience more. *Together.*



**ROTOFLOW**  
An Air Products Business

# Experience more. *Together.*

Rotoflow, an Air Products business, stands at the forefront of the turbomachinery industry, leveraging the most trusted name in the field alongside unparalleled expertise in industrial gases. This unique combination allows us to revolutionize the hydrocarbon, LNG, petrochemical, and industrial gas markets, delivering exceptional performance and high value to our clients.

Our integrated capabilities are the cornerstone of our superior quality. By merging cutting-edge technological innovations with decades of industry experience, Rotoflow consistently produces valued products known for their proven performance and world-class service. This synergy ensures that our customers achieve their specific technological and operational goals more efficiently than ever before.

Designed for longevity and minimal maintenance, our turbomachinery is engineered to meet the highest standards of safety, reliability, and efficiency. Through meticulous component engineering and comprehensive analyses, we enhance the operational life and performance of our machinery, catering to every application requirement with precision and excellence.

Safety is paramount at Rotoflow. All Rotoflow turbomachinery is designed, manufactured, and repaired to stringent safety requirements, and every one of our technicians has undergone extensive safety training and adheres to global safety policies.

## AIR PRODUCTS MATERIALS CHARACTERIZATION LAB

The facility is equipped with a materials characterization lab to support materials testing and failure analysis using specialized instrumentation in the areas of spectroscopy, chromatography, electron and optical microscopy, thermal analysis, surface analysis, and materials characterization. Within the lab, the following testing can be performed:

- Fracture failure modes and origins
- Fatigue and other slow crack growth mechanisms
- Brittle and ductile failures
- Corrosion, oxidation, and erosion
- Hydrogen embrittlement failures
- Contamination
- Wear failures
- Heat treatment
- Welding, brazing, and soldering
- Design and materials selection
- Purity evaluations of precious metals
- Determination and classification of alloys
- Conformance according to international or industrial standards
- Examination of grain size and structure and grain boundary analysis
- Vendor comparison studies through metallurgical analysis
- Surface cleanliness of metals to monitor cleaning methods
- Thickness of surface oxides in passivation layer
- Material hardness

## SOLUTIONS & SERVICES

At Rotoflow, we understand that expert service and support are essential for maintaining optimal operations. As one of the world's few OEMs involved in both the manufacturing and operation of turbomachinery, we bring unparalleled expertise in equipment, operational processes, and reliability. Our comprehensive, technology-driven solutions cater to all types of turbomachinery and rotating equipment, regardless of the manufacturer.

To ensure we meet our customers' needs with world-class support and efficient, cost-effective services, Rotoflow is continually expanding our solutions center locations. This expansion allows us to provide timely and effective support globally.

Our ISO9001:2015 certified Dhahran Solutions Center exemplifies our commitment to excellence, offering complete support for rotating equipment. Whether addressing performance deviations, failures, or seeking to optimize performance and reliability, our center is equipped with advanced engineering expertise and diagnostic testing, balancing, and machining equipment. Additionally, we provide remote monitoring and support to optimize and troubleshoot equipment in real-time.

Our team excels in root cause analysis, reliability assessments, upgrades and rerates, all aimed at enhancing reliability and performance. Furthermore, the Dhahran Solutions Center offers inventory management and spare turboexpander plug-in storage, ensuring that critical components are readily available when needed.

By leveraging our extensive experience and cutting-edge technology, Rotoflow delivers solutions that keep your operations running smoothly and efficiently.

### TECHNICAL SERVICE SOLUTIONS (FULL-SERVICE OEM)

- Performance Assessments
- Reliability Assessments
- Root Cause Analysis
- Field Diagnostics
- Upgrades & Rerates
- Reverse Engineering
- Plant Assessments
- Operational Optimization
- Troubleshooting
- Development & Training

## TRAINING & EXPERIENCE

*Rotoflow Dhahran Solutions Center, situated in the Dhahran Techno Valley, serves as a premier turbomachinery support facility. It offers extensive hands-on training programs designed to develop local talent. For more information about our internship programs and training opportunities, please contact us.*



## FACILITY CAPABILITY

### Climate-Controlled

- ISO 9001:15 certified, air conditioned facility
- Servicing / overhauling and maintenance of rotating equipment with mechanical and technical expertise

### Overhead Cranes

- 20-ton capacity (3)

### Manufacturing

- 1,200 m<sup>2</sup>

### Parts Storage

- 100 m<sup>2</sup>

## EQUIPMENT SERVICED

- Turboexpanders
- Centrifugal compressors / Pumps
- Reciprocating compressors
- Cryogenic pumps
- Small steam and gas turbines
- Gearboxes
- Fans / Blowers

## INSPECTION CAPABILITY

- FARO ARM Quantum S 2.5 m 7 Axis -measures to 1/10,000 of an inch (volumetric accuracy)
- Shaft deglitch & electrical/ mechanical runout
- Shaft lamination / varnishing gap voltage
- Tilt pads bearing inspection with shaker rig
- Magnetic bearings shaft levitation
- L1/L2 magnetic bearings inspection
- Shaft magnetic inspection (G)
- Various instruments for measuring ID/OD, surface finish with accuracy up to 0.0001"
- Positive Material Identification (PMI)
- In-house calibration
- Rockwell hardness test
- Diamond Burnishing
- Mercury & H2S level detection verification
- Hydraulic torquing

## SHOP TOOLS

### Lathe Machine

- 17" maximum working diameter, 55" maximum working length
- 14" maximum working diameter, 40" maximum working length

### Milling Machine

- 52" travel in X direction, 30" travel in Y direction, 25" maximum piece height
- Weight capacity: 1,500 lb

### Automatic Surface Grinder

- 20" travel in X direction, 8" travel in Y direction, 10" maximum piece height

### Decontamination/Cleaning

#### Media Blaster

- 60" W x 60" D x 44" H clearance capacity
- Weight Capacity: 2,000 lb

#### Self-Contained Parts Washer

- 60" W x 60" D x 78" H clearance capacity
- Weight Capacity: 5,000 lb

### Material Handling Capacities

- 2.5-ton forklift

### Cleaning Room

- 400 ft<sup>2</sup> isolated room
- NDT with black light
- External crane capacities
- Oxygen cleaning / Class A, B & C

### Schenck Dynamic Balance Machine

Balance machine model	Category	HM40B		HM20BU		PASIO15	
Operating capacity	Shaft OD	From	To	From	To	From	To
		10 cm	24 cm	1 cm	14 cm	0.6 cm	6.5 cm
	Rotor length	From	To	From	To	From	To
		30 cm	250 cm	20 cm	120 cm	10 cm	65 cm
	Impeller OD	120 cm Max		100 cm Max		25 cm Max	
	Max Weight	3000 Kg		200 Kg		15 Kg	
Max RPM	1500		2000		2200		
Balancing ISO grade	DIN ISO 21940-11 / G 0.4, G 0.63, G 1, G 1.6, G 2.5						



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