

ROTOFLOW TURBOEXPANDERS



Darren Prosser, Global Business Manager for Aftermarket at Rotoflow, discusses his company and the products and services it offers in turbomachinery

Tell our readers about Rotoflow

Rotoflow, an Air Products business, is a trusted name in turbomachinery with industrial gas expertise. We bring expertise to the design, build and support of mission-critical turbomachinery. As an OEM manufacturing and operating turbomachinery, we know the equipment and the processes.

This access to operational data enables Rotoflow to incorporate feedback and knowledge into our machinery design. Air Products has designed turbomachinery for over 75 years. We acquired the Rotoflow turboexpander business in 2018. They have been integrated into a single portfolio.

What turboexpanders do you offer?

Rotoflow's high-pressure compressor-loaded turboexpanders (companders) provide refrigeration for the most efficient air separation and liquefaction facilities in the world. Our companders offer efficiency and reliability in a compact, simple-to-operate-and-maintain package. Features include single-stage, high power-density expansion ratios up to 19:1, up to 15 MW refrigeration, and isentropic efficiencies up to 92%.

What about generator-loaded expanders?

Rotoflow's generator-loaded turboexpanders (direct-drive, integral gear, external gear and multi-stage) provide refrigeration and economic power recovery in air separation and liquefaction facilities. Used for gas service and dense fluid appli-

cations, they offer efficient designs for power recovery on new or existing processes. Features of integrally geared types include an expander impeller mounted directly to the gearbox pinion to eliminate the need for high-speed coupling and an extra set of high-speed bearings. Direct drive and external gear approaches simplify installation and offer flexibility.

How about your energy-dissipative expanders?

Available in three types (oil-loaded, blower-loaded, and resistor-loaded), Rotoflow's energy-dissipative turboexpanders provide refrigeration options for efficient hydrocarbon, air separation, and liquefaction operations. They are often used in cryogenic gas separation facilities. Features include efficiency (87%) and a range of sizes. They have millions of successful hours of operation in Air Products plants.

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What do you offer in reciprocating cryogenic pumps?

Primarily handling liquid oxygen, argon and nitrogen, Rotoflow's reciprocating cryogenic pumps reduce cryogenic tank losses and deliver increased refrigeration.

What services do you provide?

Rotoflow's service technicians have experience with a wide range of rotating and reciprocating equipment and are able to service and repair all brands of expanders, in addition to Rotoflow equipment.

Aftermarket service and support is available 24/7/365. We are a full-service

OEM with a complete offering including service in the field, spare parts inventory, shop and field repairs, upgrades and rerates, performance and reliability assessments, remote monitoring and training.

Is there an expander model you'd like to highlight?

Recently we have seen a lot of opportunity for our expander-compressor product line designed for the hydrocarbon market. They offer a broad, standard set of features, while still allowing customization. With development activities, we have achieved a 15-25% reduction in delivery time for some models.

What markets do you primarily serve?

Rotoflow primarily serves the industrial gas, hydrocarbon, and energy recovery markets, as well as other markets where precision and reliability are key. The industrial gas market includes the use of oxygen, nitrogen, hydrogen, helium and carbon monoxide. We are experienced in the separation, compression, and processing of these gases and other gaseous compounds, backed by the industrial gas expertise of Air Products.

Rotoflow is a pioneer in turboexpander technology in natural gas applications. In 1958, Dr. Judson S. Swearingen, founder of the original Rotoflow Corporation, initiated the program for building and operating the world's first hydrocarbon turboexpander. Today, Rotoflow designs and manufactures specialized turboexpanders used in processes that remove heavy hydrocarbons from natural gas and transform gaseous natural gas into LNG.

Rotoflow turboexpanders can also be used to recover energy. Applications include converting industrial or geothermal waste heat, as well as excess process or pipeline pressure into either electricity or supplemental compression.

What about new products?

Our focus continues to be further optimizing efficiency and performance across all product lines. We're working on designs that are a result of customer discussions. In some cases, we collaborate with a customer's technology team to optimize our equipment and their process in parallel, with equipment options that enable innovative process cycle solutions.