DUAL TURBO EXPANDER 
COMPRESSOR (TC) SERIES
TC-2000 • TC-3000 • TC-4000 • TC-6000 • TC-9000 • TC-12000

COMPRESSOR LOADED EXPANDERS – DUAL MACHINES

FEATURES & BENEFITS
- Common lube oil system and controls support two expanders/compressors
- “Zero leakage” inlet guide vanes
- Components individually balanced for ease of field replacement
- Tapered shaft wheel attachment for field interchangeability
- Labyrinth shaft seal design minimizes seal gas consumption and prevents process stream contamination
- Shaft-driven boost compressor reduces power consumption, increasing plant efficiency

APPLICATIONS
- Industrial gas production
- Air separation
- Liquefaction

FLUIDS HANDLED
- Air
- Nitrogen
- Waste gas (high oxygen content)
- Carbon dioxide & carbon monoxide

AVAILABLE OPTIONS
- Inlet screens
- Inlet trip valves
- Surge control system
- Low hysteresis high cycle inlet guide vanes
- Cable trays or conduit
- Safe area or hazardous area location
- International code compliance (HPGSL, PED, GOST, etc.)
- Cryogenic performance testing
- Spare cartridge with nozzle assembly
**“Zero Leakage” Inlet Guide Vanes**
- Adjustable inlet guide vanes provide optimum flow patterns as well as precise and continuous control across the machine's full operational spectrum
- Self-energizing back plate maintains zero sidewall clearance for maximum expander efficiency
- Zero backlash variable guide vane configuration provides smooth turn-up capability to 125% of design flow

**Rugged Rotor Design**
- Stiff rotor shaft and high capacity tilt pad bearings assure maximum stability at all operating loads and speeds
- High capacity tilt pad thrust bearings provide the extra margin necessary to handle transients
- Numerous bearing designs available to accommodate specific process applications, including hydrodynamic (journal and tilt pad) bearings, ball bearings, ceramic bearings, and airfoil bearings
- Sealing design offers robust construction and reliable performance

**Dual Independent Labyrinth Shaft Seal**
- Reliable teeth-on-shaft design is precision machined to ultra close clearances, minimizing seal gas consumption
- Dual port, atmospheric center vent prevents process stream contamination

**Self-Aligning Wheel Attachment**
- Tapered bore and stretch rod design automatically compensates for thermal and mechanical changes to maintain alignment under all operating conditions
- Precision machined tapered bore/shaft attachment allows independent balancing of turbine wheel and shaft to facilitate field repair