



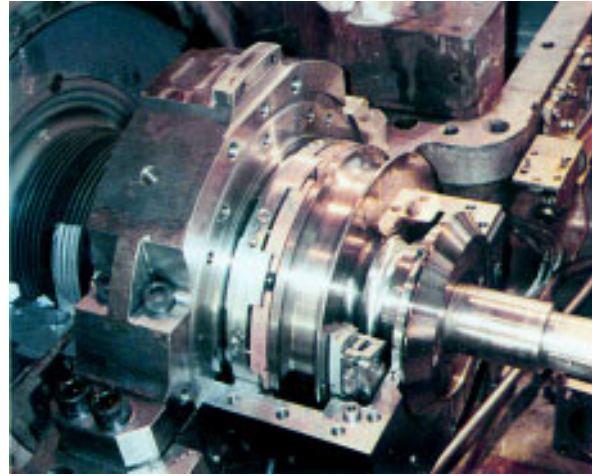
# Transmission & Bearing Corp.

A Division of Turbo Research, Inc.

## TRI Align-A-Pad® Bearings



6 Pad Align-A-Pad® Bearing with  
Saddle Blocks and Ears



Combined Align-A-Pad® and Thrust Bearing



Instrumented 6 Pad Align-A-Pad® Bearing  
with Circular Housing

### For Maximum Performance & Minimum Maintenance

New Applications & Retro-Fit for Existing Units: GE, W, A-C, ABB, etc.

#### Features and Improvements

- Size Range: 3" to 26" journal diameter
- Optional overhung tilting pad thrust bearing available
- TRI's unique Align-A-Pad® design allows maximum response flexibility to system dynamics. Bearing configuration provides optimum operation and performance. Bearing mounting configurations are available that minimize the time necessary to make rotor alignment moves.
- Excellent Vibration Control - Preloaded design
  - Low vibration amplitude for high unbalance
  - Controls subsync vibration
    - Oil whip, steam whirl, etc.
- High misalignment capability - 1/16" per axial foot
  - Replaces spherical seats and eliminates related problems
  - No twist and tilt checks
  - Eliminates end loading and reduces wear
- Rotor alignment moves made easily and reliably
- Extended load capacity (W/LD) range
  - 0 (unloaded) to 400+ psi in any direction at 3600 rpm
  - To 250 psi on turning gear without lift oil
  - Higher loading on turning gear with lift oil
- Simplified Maintenance
  - Easily performed by plant personnel
  - No mandrels required
  - No need for outside service shops

**TRI** Transmission  
& Bearing Corp.  
**TRI Fluid Drives**

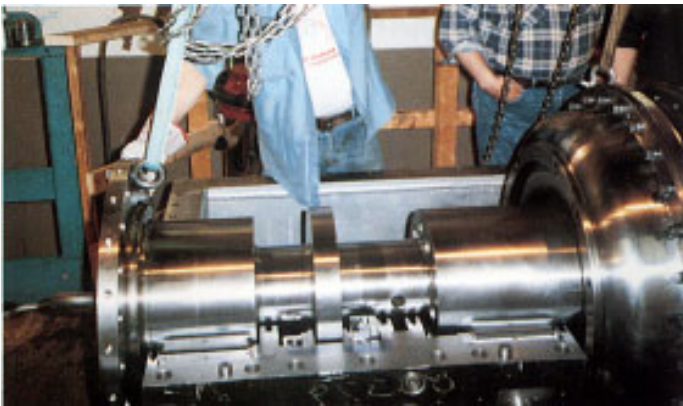
America's Leader in the Technological Advancement of  
High Power Fluid Drives Since 1973

**New, Reconditioned and Repowered Fluid Drives**  
**1,000 to 30,000+ HP**  
**With or Without Speed Increaseers and Decreasers**

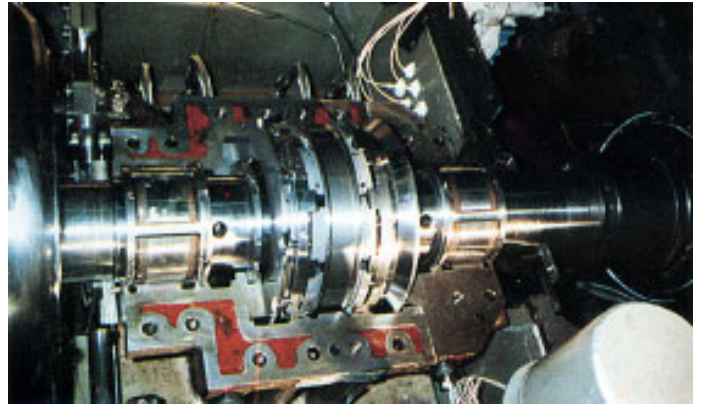
TRI Heavy Duty Fluid Drives are built with Align-A-Pad bearings and impellers with integral reinforcing rings machined from steel forgings (Pat. 5,331,881). TRI also offers two additional proprietary features that improve the efficiency and reliability of high powered fluid drives.

TRI patent 5,315,825 covers a fluid drive oil system that incorporates a circuit oil temperature control valve and separate oil reservoir. This system improves efficiency and reduces oil leakage, foaming, and disposal. TRI patent 5,303,801 is a brake system that provides greater braking power, improves reliability and simplifies maintenance. The system also functions with air in the lines and minor leaks. Other patents are pending.

**TRI Supplies a full line of renewal parts and services for TRI, American Blower, American Standard, Voith and other fluid drives.**



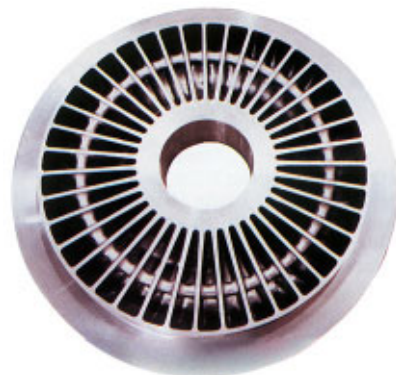
Heavy Duty Input Section



Tilt Pad Bearing Construction



Reconditioned



Extended Life Impeller with  
**Integral** Reinforcing Ring (Pat. 5, 331,881)



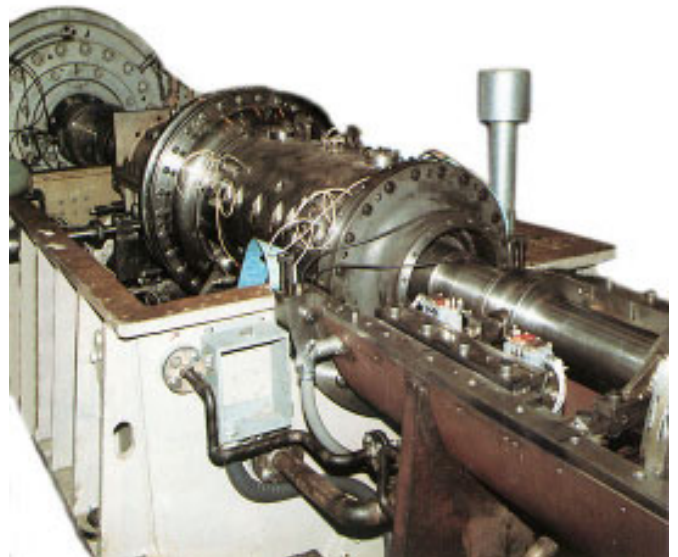
# Boiler Feed Pump Drive Trains

**New**

**Reconditioned**

**Repowered: Increased  
or Decreased Power  
and/or Speed Ratings**

**Supplemental Components  
Available Such as  
Quick Disconnect Couplings**



## Oil Conditioning & Filtration Systems

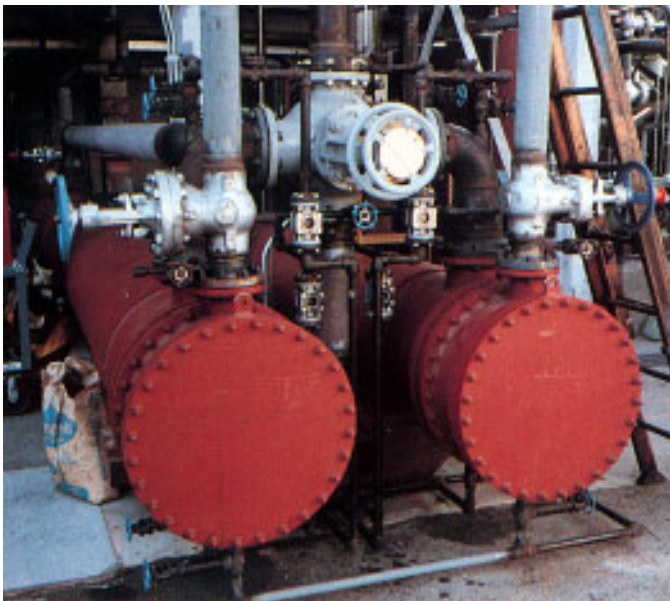
**New, Rebuilt and Upgraded for Power Plant Applications  
Turbine-Generators, Fluid Drives, etc.**

Proprietary TRI products for oil conditioning and filtration systems are available.

TRI Patent 5,207,903 covers a filter stand assembly that supports conventional filters and double circuit valves, incorporates trays for draining used filter elements, and has an environmentally friendly pan to contain oil drips and leaks.

A rocker connection for heat exchangers and pipes (TRI Pat. 5,188,170) that permits rolling, and not the typical sliding support action is offered. This connection is used at one end and offers no restraint along the heat exchanger axis and almost rigid support in both transverse directions.

Site specific licenses are available for TRI proprietary products.

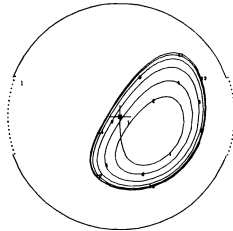


# Consulting & Engineering Services

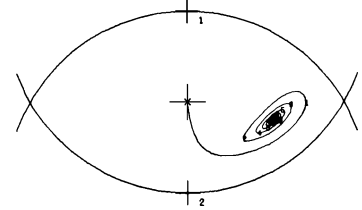
## Rotor Dynamic Analyses

TRI Transmission & Bearing Corp. has been performing rotor dynamic analyses since the 1960s using proven proprietary computer programs. These are used to pinpoint problem sources, and to design bearings and rotors to control vibrations and extend bearing life.

- Undamped critical speeds
- Synchronous lateral vibratory rotor response with nonlinear bearings
- Design of fixed bore and tilting pad journal bearings
- Non-synchronous, nonlinear, time-transient lateral vibratory rotor response (stability)
- Torsional critical frequencies



Unstable Rotor:  
Large Amplitude Orbit



Stable Rotor:  
No Orbit Amplitude

Typical vibration traces predicted by the TRI non-synchronous, nonlinear, rotor response computer program.

## Stress Analyses & 3-D Computer Aided Machining

TRI Transmission & Bearing Corp. performs stress analyses of rotating machinery components and other structures using Cosmos Works and other commercially available computer programs, integrated into TRI's 3-D CAD and CNC Operations



Fan with integral blades & hub



Stress distribution at 3600 rpm

Align-A-Pad is a registered trademark of Turbo Research, Inc.

*Solving Bearing, Seal, Lubrication and Vibration Problems Worldwide Since 1961*