

# RLHA

## Single-Stage Steam Turbine

The API 611 compliant RLHA is a sturdy, versatile mechanical drive steam turbine for applications up to 2,500 HP (1,865kW). It's routinely specified by refineries, petro-chemical plants, sugar mills, food processing and other industries using steam for process to drive lube oil pumps, feed water pumps, process pumps, fans, compressors, and generators.

### Axial Split Casing

The axial split construction of the RLHA steam turbine allows the upper half of the casing to be removed for easy access to internal components for inspection and maintenance. The bearings can be inspected and replaced independent of each other and without removing the casing cover.

### Overspeed Trip System

The overspeed trip actuating mechanism is a bolt-type, spring-restrained weight, positioned on the turbine shaft. At a pre-selected speed the bolt is released to unlatch the overspeed trip valve and completely stop the turbine.

The overspeed trip valve is a force-actuated, single-seated, piloted positive shutoff independent of the governor valve. It's designed to minimize pressure drop in the open position and to instantly shut off steam when tripped by the overspeed trip mechanism, optional electronic trip actuators or manually. The valve can be manually reset against full-line pressure.

### Governing Systems

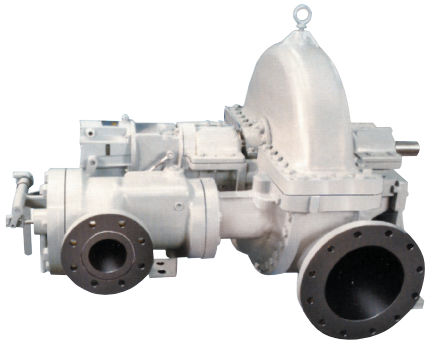
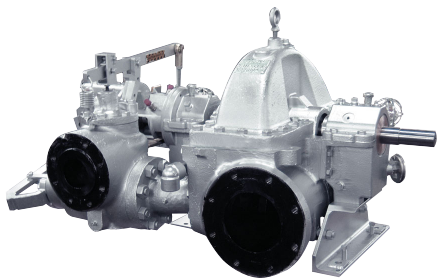
The Woodward TG series constant speed oil relay governor is standard equipment for RLHA steam turbines. Alternate governing systems are supplied when required for some operating conditions or when specified by the client.

### Rotors, Bearings, Sealing Glands

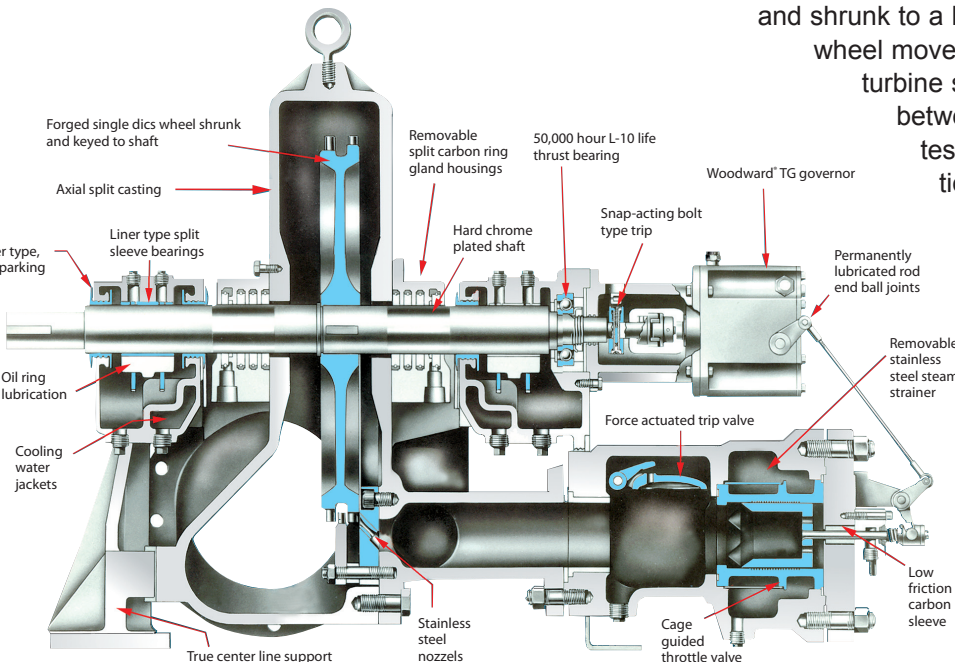
Single-disc, two-row Curtis impulse-type wheels, shouldered, keyed and shrunk to a large diameter 4140HT steel shaft, prevent wheel movement relative to the shaft throughout the turbine speed range. Turbine wheels are located between the bearings; balancing and vibration testing are in compliance with the dynamics section of API 611.

Radial bearings and housings are split at the horizontal centerline for easy access and replacement. Snap-in, liner-type sleeve bearings are steel backed, tin based babbitt for long life. Both oil ring and pressure lubrication are available.

Anti-friction journal bearings also are available for quick-start applications or where oil mist lubrication systems are specified.



### RLHA 24



For more information on **RLHA single-stage steam turbines**, contact our Worcester, MA Technology Center at:

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Split carbon ring steam sealing glands are readily accessible and easy to remove without disturbing other parts of the turbine.

**Standard Features**

- Meets or exceeds API 611 requirements
- Direct drive, oil relay (Woodward TG Series) or NEMA Class A constant speed governor
- Overspeed mechanical trip and shut off system
- Manual speed changer
- Curtis type wheel
- Carbon ring sealing glands
- Built-in removable steam strainer
- Centerline support with vertical jacking screws
- Lagging-blanket insulation (API applications)

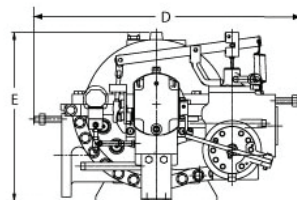
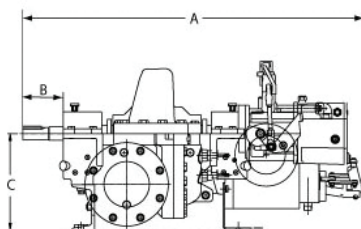
**Optional Features**

- NEMA Class D and variable speed governors
- Solenoid trips for remote shutdown
- High backpressure trip
- Forged steel wheels
- Manual nozzle hand valves
- Special and double shaft extensions
- Copper-free construction for corrosive atmosphere
- Pneumatic valve actuation
- High inlet and back pressure construction
- Labyrinth, carbon/labyrinth, mechanical and six carbon ring steam seal designs



**Maximum Capabilities**

Model	Power HP (kW)	Inlet Pressure PSIG <sub>1</sub> (BARG)	Inlet Temp °F (°C)	Exhaust PSIG <sub>2</sub> (BARG)	RPM	Inlet Dia. In (mm)	Exhaust Dia. In (mm)
RLHA-15	450 (335)	600 (41)	750 (400)	105 (7)	6000	3 (75)	6 (150)
RLHA-24	2500 (1865)	900 (62)	950 (510)	300 (20)	6300	6 (150)	10 (250)



Note: Steam inlet locations are fixed as illustrated. Steam exhaust locations available as right or left hand orientation.

**Dimensions - in (mm)**

	RLHA15	RLHA24
A	46 (1166)	57 (1454)
B	5 (136)	5 (136)
C	13 (324)	22 (552)
D	35.5 (902)	44 (1110)
E	22 (562)	42 (1075)

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