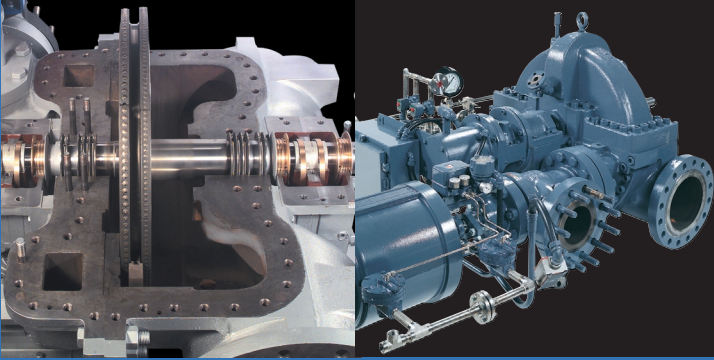
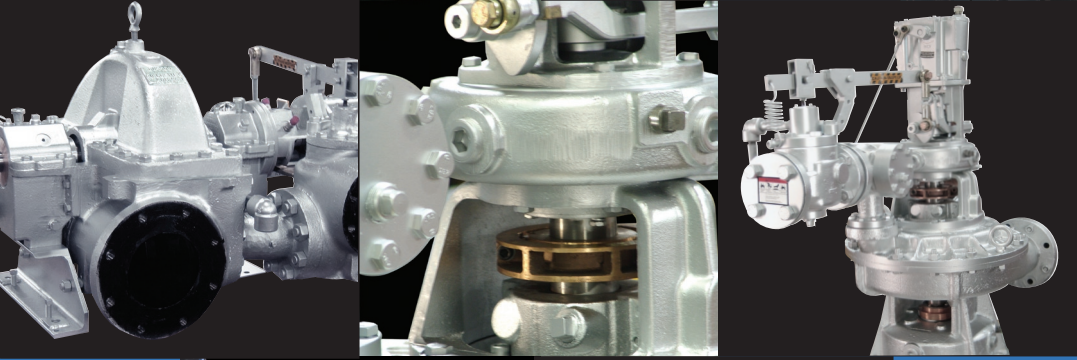
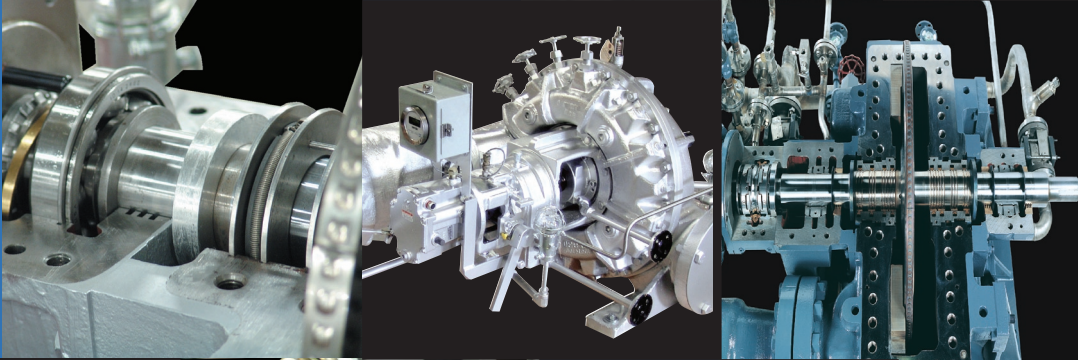
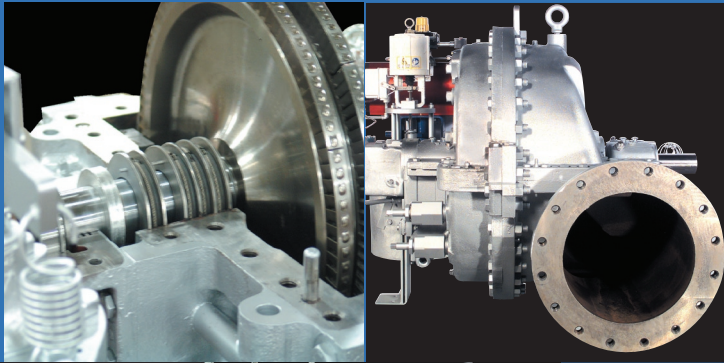


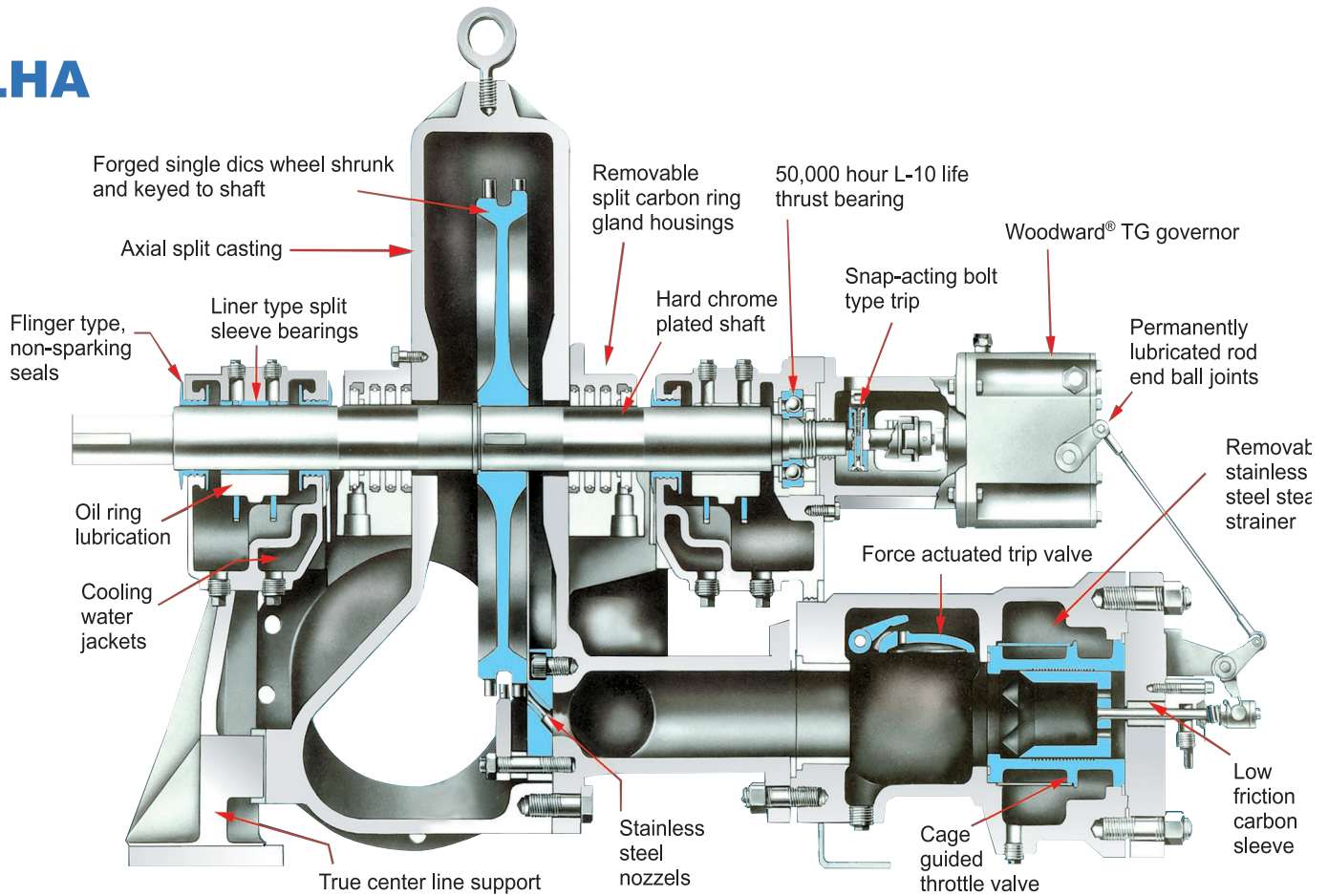
# COPPUS® Steam Turbines

## PRODUCT GUIDE



# COPPUS<sup>®</sup> Single Stage Steam Turbines

## RLHA



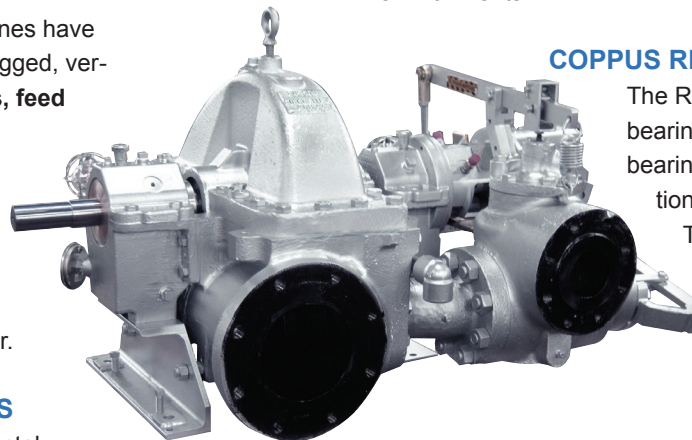
### COPPUS STEAM TURBINES

For over 80 years COPPUS steam turbines have been recognized around the world as rugged, versatile drive solutions for **lube oil pumps, feed water pumps, fans, generators** and other mechanical drive applications. COPPUS turbines are routinely specified by the petroleum, petrochemical, chemical, sugar, paper, food processing and other industries that require continuous or standby emergency power.

### COPPUS RLHA STEAM TURBINES

The RLHA turbine is an axial split horizontal turbine with split sleeve bearings, available in 4 frame sizes offering up to 4,000 HP (2,980 kw). The axial split casting allows easy access for on-site inspection and repair. The time-tested reliability of the RLHA turbine makes it an ideal selection for continuous operation applications for pumps, fans and generators operating in the most demanding industrial

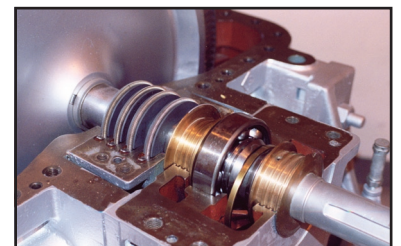
environments.



### COPPUS RLHB STEAM TURBINE

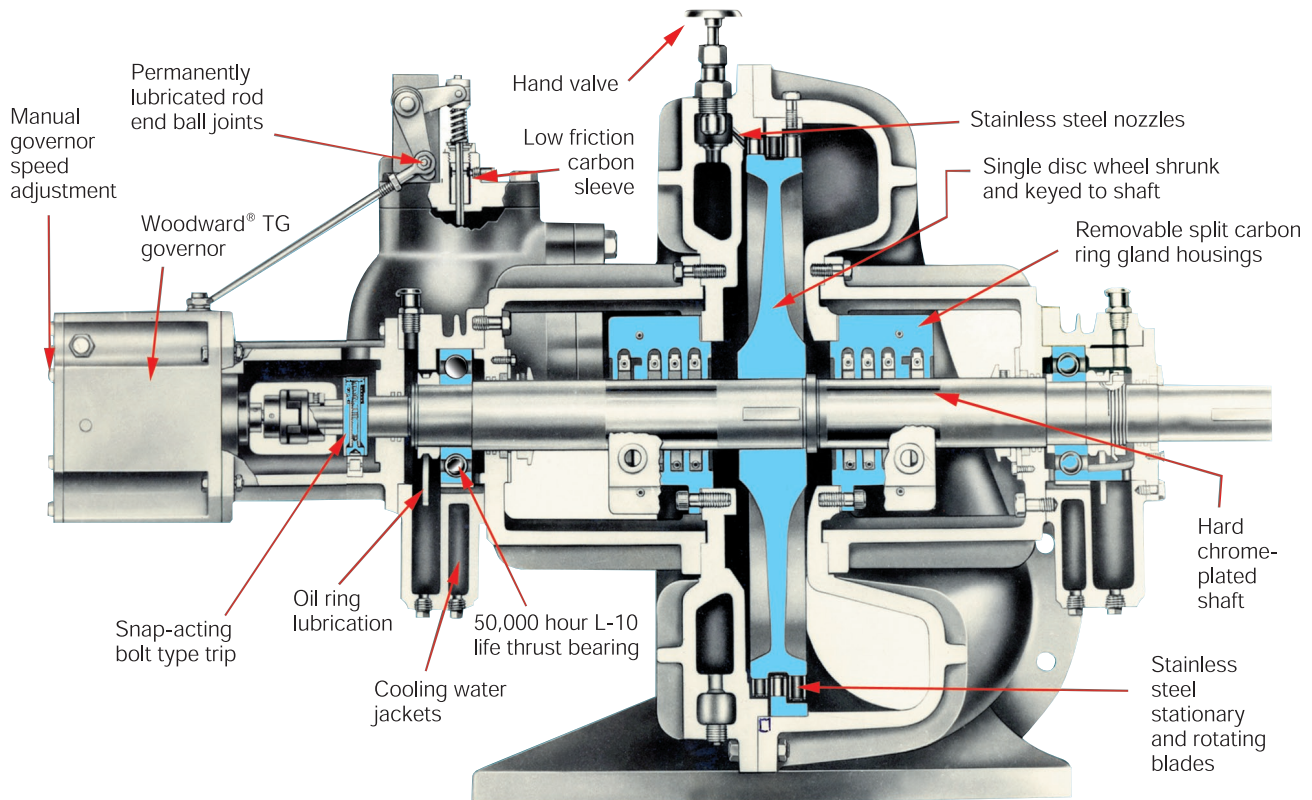
The RLHB offers anti-friction journal bearings, in place of the split sleeve bearings found on the RLHA, for applications where quick starts are required. The RLHB also takes advantage of oil ring or oil mist lubrication systems, eliminating the need for higher cost forced feed lubrication for speeds up to 5,000 RPM.

*RLHB features rugged anti-friction journal bearings.*



# COPPUS Turbines Meet or Exceed API 611 Standards

## RLA

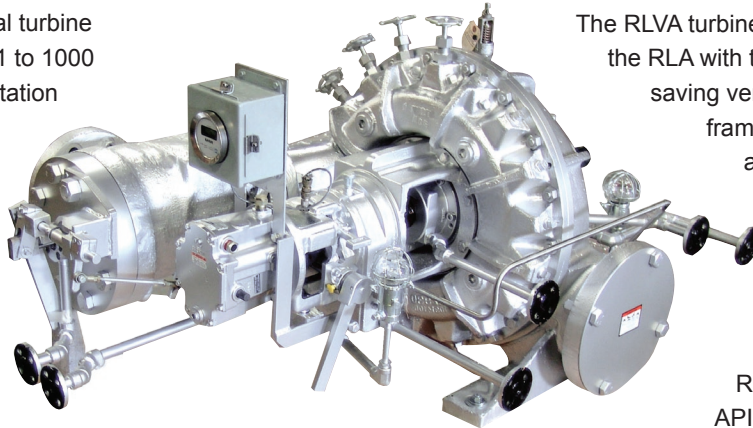


### COPPUS RLA STEAM TURBINES

The RLA is a radially split horizontal turbine available in 8 frame sizes offering 1 to 1000 HP (745 KW). The RLA has a reputation as a low maintenance, easy to operate 'workhorse'. Field proven to be an ideal choice for an economical backup or continuous drive for pumps and fans.

### COPPUS RLVA STEAM TURBINE

The RLVA turbine offers all the same features as the RLA with the added benefit of the space saving vertical design. Available in 8 frame sizes to meet a wide variety of applications that includes pump drives for on board ships, and pump and fan drives for oil refineries, gas pipe lines and other industries where space is limited.



RLVA turbines are designed to meet API 611, NEMA and marine standards.

Configurations are available for a wide range of shaft extensions, thrust bearings and flange mounting arrangement

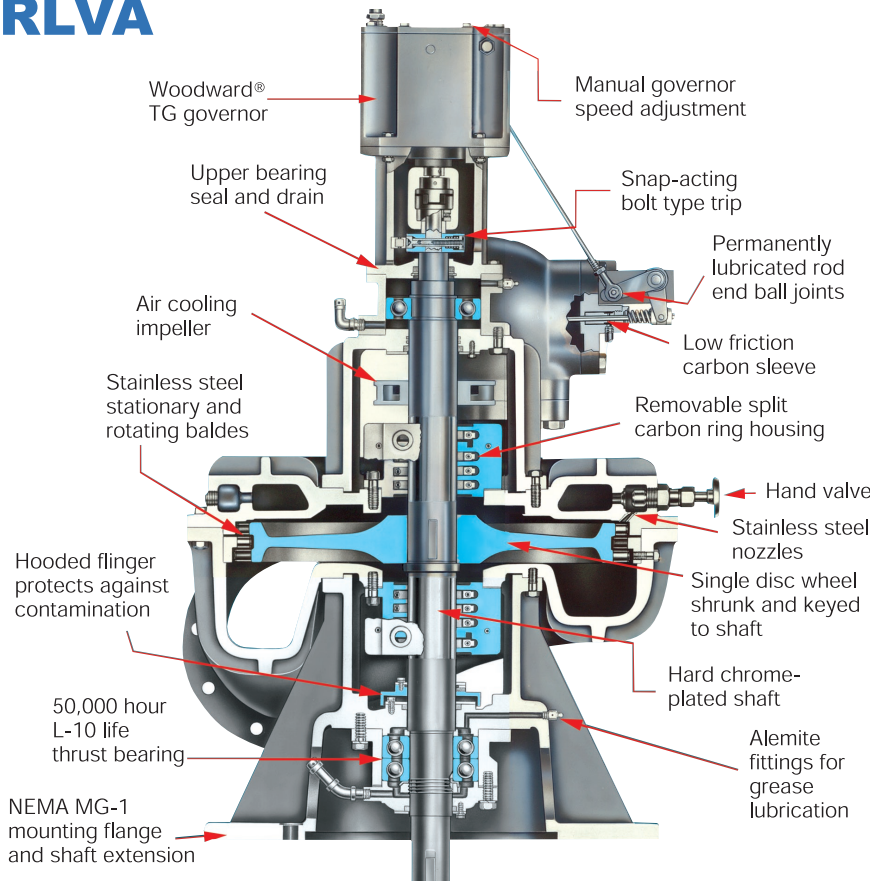
#### Standard features on COPPUS Turbines include:

- Meet or exceed strict API 611 requirements.
- Overspeed mechanical trip valve.
- Snap-acting overspeed trip.



*Sealing Gland Housing on the RLA & RLVA is split for easy removal and inspection of carbon rings.*

# RLVA



- Woodward TG direct drive oil relay governor.
- Constant level sight-feed oilers.
- Stiff shaft construction with single disc wheel located between bearings.
- Manual speed changer.
- Single piece contoured Curtis type wheel.

### Optional Features for COPPUS Turbines Include:

- Forged steel wheels.
- Special shaft materials.
- Part load and overload hand valves.
- Kingsbury® thrust bearings.
- Copper free construction for corrosive atmospheres.
- Single row wheels.
- Lagging, "blanket type" insulation.
- High back pressure construction.
- Electronic or hydraulic NEMA Class D governors and variable speed controls.
- Solenoid trips for remote shutdown.
- Extended inlet pressure and temperature constructions.

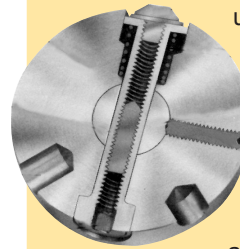
# RLA-RLVA-RLHA/B Over-speed Trip System

Meets API 611 standards.

The snap-acting bolt type trip mechanism introduced by COPPUS in the mid 80's set new industry standards for Overspeed Trip Systems.

The independent system stops the turbine under any load condition by activating the force-actuated trip valve.

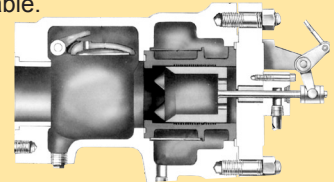
It is capable of three consecutive non-trending trip-outs within +/-2% of set trip speed.



**The Overspeed Trip Collar,** installed on the turbine shaft, houses an adjustable, spring

loaded bolt. The bolt is retained until a pre-selected trip speed is reached. When the turbine shaft exceeds the selected speed the bolt is instantly released to unlatch the trip valve. The snap-action tripping is positive, precise and repeatable.

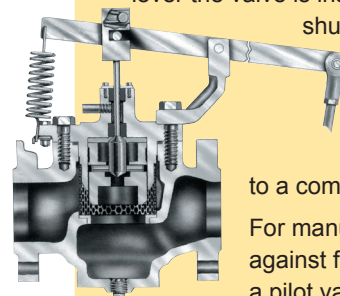
**The Over-speed Trip Valves** are designed to minimize pressure drop ensuring



RLHA/RLHB Trip Valve

the highest available pressure at the nozzle ring for doing work.

When released by the Overspeed Trip mechanism or the manual trip lever the valve is instantly closed to shut off steam. The



RLA/RLVA Trip Valve

single-seated valve will bring a fully, unloaded turbine to a complete stop.

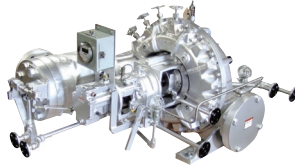
For manual resetting against full-line pressure, a pilot valve relieves unbalanced pressure.

# Selection and Service

## Selecting the right turbine

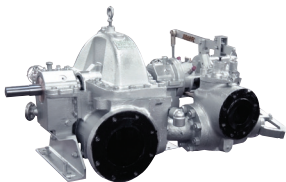
COPPUS Steam Turbines are available in 15 horizontal and 8 vertical sizes allowing greater flexibility in matching the right turbine to the desired application. Need a quote? Visit our web site at [www.dresser-rand.com](http://www.dresser-rand.com).

### RLA and RLVA Specifications (maximum)



Specifications (max.)	FRAME SIZE							
	12M	12L	16L	16E	20L	22L	23L	23E
Wheel Diameter	12 in. 305 mm	12 in. 305mm	16 in. 406mm	16 in. 406mm	20 in. 506mm	22 in. 559mm	22 in. 559mm	22 in. 559mm
Power HP/ KW	60 hp 44 kw	106 hp 79 kw	242 hp 180 kw	320 hp 238 kw	260 hp 194 kw	1000 hp 745 kw	1000 hp 745 kw	1000 hp 745 kw
Speed (RPM)	6000	6000	5000	5000	4000	4000	4000	4000
Inlet Pressure - P <sub>1</sub>	670 psig 46.2 barg	670 psig 46.2 barg	670 psig 46.2 barg	670 psig 46.2 barg	670 psig 46.2 barg	670 psig 46.2 barg	670 psig 46.2 barg	700 psig 48.2 barg
Inlet Temperature -T <sub>1</sub>	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C	825 <sup>0</sup> F 440 <sup>0</sup> C
Back Pressure - P <sub>2</sub>	105 psig 7.2 barg	105 psig 7.2 barg	165 psig 11.4 barg	165 psig 11.4 barg	165psig 11.4 barg	165psig 11.4 barg	165psig 11.4 barg	165psig 11.4 barg
Inlet Diameter	3/4 in. 19mm	1 1/2 in. 38mm	1 1/2 in. 38mm	2 in. 51mm	2 in. 51mm	3 in. 76mm	3 in. 76mm	4 in. 102mm
Exhaust Diameter	3 in. 76 mm	3 in. 76 mm	4 in. 102 mm	4 in. 102 mm	6 in. 152 mm	8 in. 203 mm	8 in. 203 mm	8 in. 203 mm
Approx. Wt. (LBS/KG)	800 lbs 273 kg	800 lbs 273 kg	850 lbs 386 kg	850 lbs 386 kg	950 lbs 432 kg	1800 lbs 818 kg	1800 lbs 818 kg	1900 lbs 864 kg

### RLHA/RLHB Specifications (maximum)



WHEEL DIA. in./mm	MAX. POWER HP/kW	MAX. SPEED RPM	MAX P <sub>1</sub> PSIG BARG	MAX T <sub>1</sub> TEMP T <sub>1</sub> °F / °C	MAX P <sub>2</sub> PSIG BARG	APPROX. WT. lbs/kg	Inlet Dia. in/mm	Exhaust Dia. in/mm
15 in. 381 mm	450 HP 333 kW	6000	600 psig 41.5 barg	750 <sup>0</sup> F 400 <sup>0</sup> C	105 psig 7.2 barg	880 lb 400 kg	3 in. 76 mm	6 in. 152 mm
19 in. 483mm	1575 1170 kW	6300	875 psig 60.3barg	825 <sup>0</sup> F 440 <sup>0</sup> C	175 psig 20.7 barg	1900 lbs 863 kg	4 in. 102mm	10 in 254mm
24 in. 610mm	2500 1865 kW	6300	900 psig 62barg	950 <sup>0</sup> F 570 <sup>0</sup> C	300 psig 20.7 barg	3400 lbs 1545kg	6 in 152mm	10 in 254mm
28in 711mm	4000 2980 kW	5500	900 psig 62barg	950 <sup>0</sup> F 570 <sup>0</sup> C	300 20.7barg	3600 lbs 1636kg	6 in 152mm	10 in 254mm

## Demand the Best! Demand Genuine COPPUS Parts and Service.

Behind every COPPUS Turbine stands a worldwide network of sales engineers and service professionals. Factory and factory authorized service centers located around the world enables us to respond quickly to your parts, upgrades, service, and technical support needs.

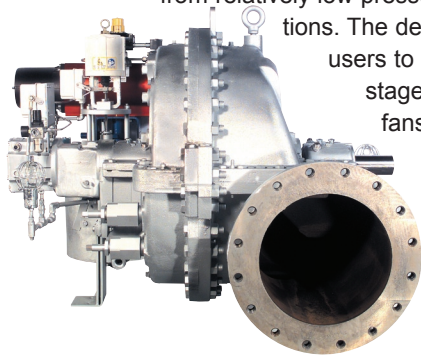
To locate your nearest factory representative visit our Web Site at [www.dresser-rand.com](http://www.dresser-rand.com)



# Special Applications

## COPPUS RLHA28E

A specialized single stage steam turbine that provides useful power from relatively low pressure, high volume steam conditions. The design of the RLHA28E allows users to cost effectively utilize a single stage steam turbine to drive pumps, fans, compressors, generators and other equipment for applications where typical single stage steam turbines cannot accommodate the high steam flow conditions.



The RLHA28E utilizes a large steam casing with nozzle

capacity in the top and bottom half, as well as large inlet and exhaust connections to accommodate large volumes of steam.

The large nozzle area and 16" exhaust, also allow the single stage RLHA28E to be used for condensing applications when the higher efficiency of a multi-stage turbine would not be cost effective.

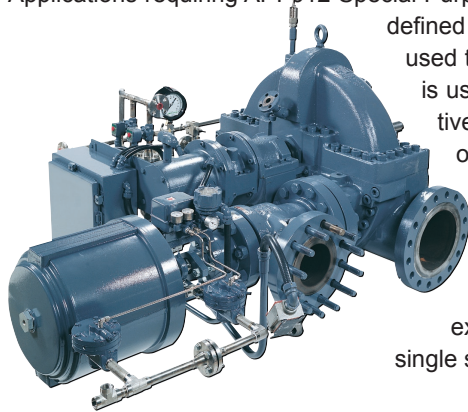
RLHA28E Maximum Capabilities and Specifications (Axial Split Casing)

WHEEL DIA. in./mm	MAX. POWER HP/Kw	MAX. SPEED RPM	MAX. INLET PSIG BARG	MAX TEMP °F / °C	MAX. EXHT PSIG BARG	APROX. WT. lbs/kg	Inlet Dia. in/mm	EXHT Dia. in/mm
28 in. 711 mm	4450 HP 3729 kw	5400	5-400 psig .34 to 27 barg	750°F 316°C	75 psig 5.25 barg	5350 lbs 2426 kg	8 in 203 mm	16 in. 406 mm

For additional information on this turbine download product catalog #C-202 from our website.

## COPPUS RLHA24S

A Special Purpose, high-speed single stage steam turbine. Applications requiring API-612 Special Purpose steam turbines are defined as horizontal turbines used to drive equipment that is usually not spared, is relatively large in size (power) or in critical service.



The RLHA24S combines Special Purpose design requirements with the extremely rugged RLHA single stage casing. It provides

a cost effective solution for dependable, critical service applications.

The RLHA24S designs this is an axial split, horizontal turbine with split sleeve bearings allowing easier access for on-site inspection and repair.

RLHA24S Maximum Capabilities and Specifications (Axial Split Casing)

WHEEL DIA. in./mm	MAX. POWER HP/Kw	MAX. SPEED RPM	MAX INLET PSIG BARG	MAX TEMP °F / °C	MAX. EXHT PSIG BARG	APROX. WT. lbs/kg	Inlet Dia. in/mm	EXHT Dia. in/mm
20in. 500 mm	2000 HP 1492 kw	9000	900 psig 62 barg	950°F 510°C	300 psig 20.7 barg	4000 lbs 1814 kg	3/4/6 in 152 mm	10 in. 254 mm
26in. 660 mm	3000 HP 2238 kw	8000	900 psig 62 barg	950°F 510°C	300 psig 20.7 barg	4000 lbs 1814 kg	3/4/6 in 152 mm	10 in. 254 mm

For additional information on this turbine download product catalog #C-203 from our web site.

Dresser-Rand, manufacturer of COPPUS, MURRAY and NADROWSKI Steam Turbines, has over 75 agent offices around the world. To locate the Representative nearest you visit our web site or contact any of our manufacturing facilities at:

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Catalog C-201

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