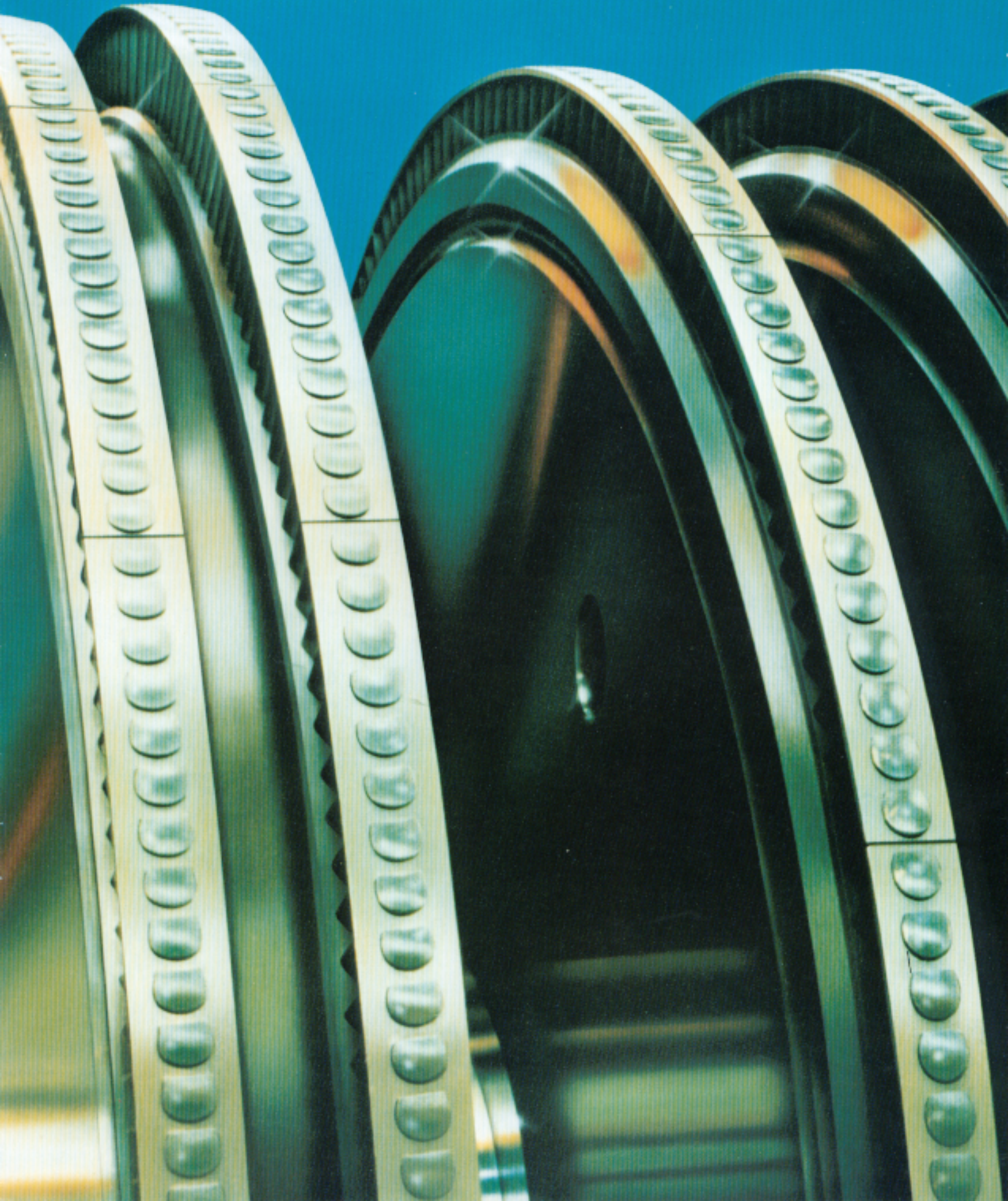


Elliott Multi-YR Turbines



Elliott Multi-YR Turbines

Energy-efficient
Elliott Multi-YR Steam Turbine



The power, efficiency, conventional speeds, and size you want in a mechanical drive.

Today, with the rapidly rising cost of fuel, improving efficiency is on nearly everyone's mind. To meet this need, Elliott has designed the Multi-YR. This design combines the power and efficiency of our traditional multistage turbines with the reliability and parts interchangeability of our popular single stage machine.

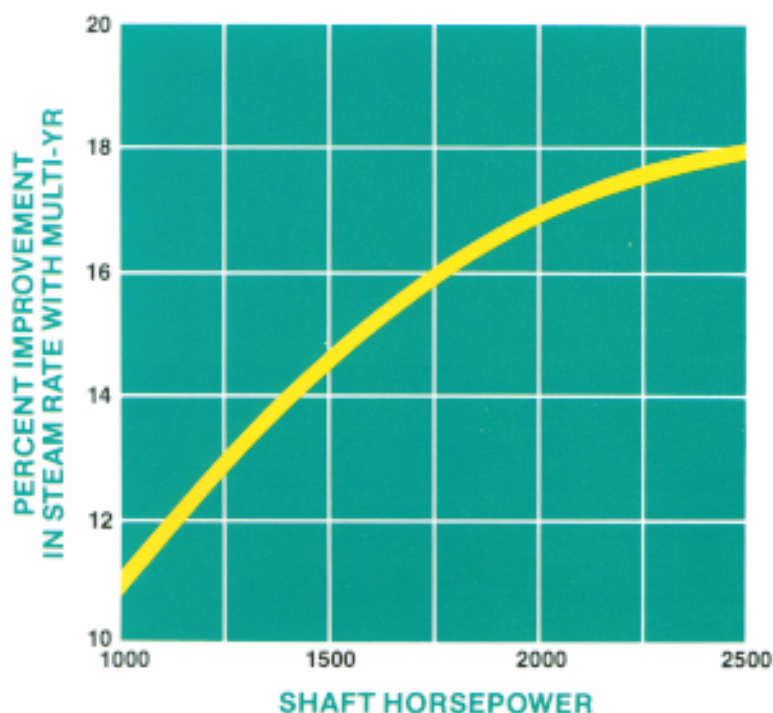
Elliott's Multi-YR saves steam costs. As an example, a 1500-hp Multi-YR, operating at 3600 r/min with inlet steam conditions of 600 psig (41.4 bar), 750° F (400° C), and exhaust steam conditions of 75 psig (5.17 bar), offers nearly 14.5% improvement in efficiency over a single stage unit with an equivalent pitch diameter. Using a steam cost of \$7 per 1000 pounds of steam, and 8500 hours of operation per year, this translates into a savings of \$280,000 per year. Multiply that by the life of the turbine! Even higher efficiencies can be realized with Elliott Multi-YR's operating at higher horsepowers, as the curve below depicts.

Minimum installation requirements. Designed to take a minimum of space, the Multi-YR can be mounted in many areas where single stage steam turbines are currently operating, without costly foundation changes and other major modifications (see dimensions and weights).

More power to you. The Multi-YR also provides an excellent means of producing additional horsepower without additional steam. For example: assume you are considering a steam turbine-generator to reduce your need of commercial power.

You have 30,000 #/h of steam at 350 psig (24 bar), dry and saturated, and want to exhaust at 15 psig (1.03 bar). A single stage turbine could produce approximately 745 kW maximum under these steam conditions. A Multi-YR, on the other hand, could create an additional 140 kW of power with this same steam flow. An increase of 19% or 885 kW total. You can have this additional power—now—with an Elliott Multi-YR.

Check the many features. Review the information on the following pages, then call your local Elliott representative (listed on the inside back cover). You'll appreciate our professional approach to your application.



TYPICAL STEAM RATE IMPROVEMENT
Multi-YR versus Single Stage Turbine
600 psig, 750° F, 75 psig
(41.4 bar, 400° C, 5.2 bar)
3600 r/min

Benefits at a Glance

- Improved efficiency
- Standardized parts
- TG-10 governor standard
- Centerline support
- Space-saving design
- High strength casings
- Elliott's proven blade designs
- Separate trip system
- Thin-walled bearings
- Separate gland covers
- Traditional running speeds
- Elliott's 70+ years of experience
designing, building, testing
and servicing steam turbines

General Specifications

Maximum initial pressure
(gage, psi/bar) 700/48

Maximum initial temperature
(° F/° C) 750/400

Exhaust pressures
(gage, psi/bar) Condensing to 75/5

Speed range
(r/min) to 5700

Number of Curtis stages 1

Number of Rateau stages 3, 5

Number of handvalves
available 2

Inlet sizes (ANSI) 3", 4", 6"

Exhaust sizes (ANSI) 14" righthand, 24" up

Approximate range of
capacities (hp/kW) up to 4000/2980

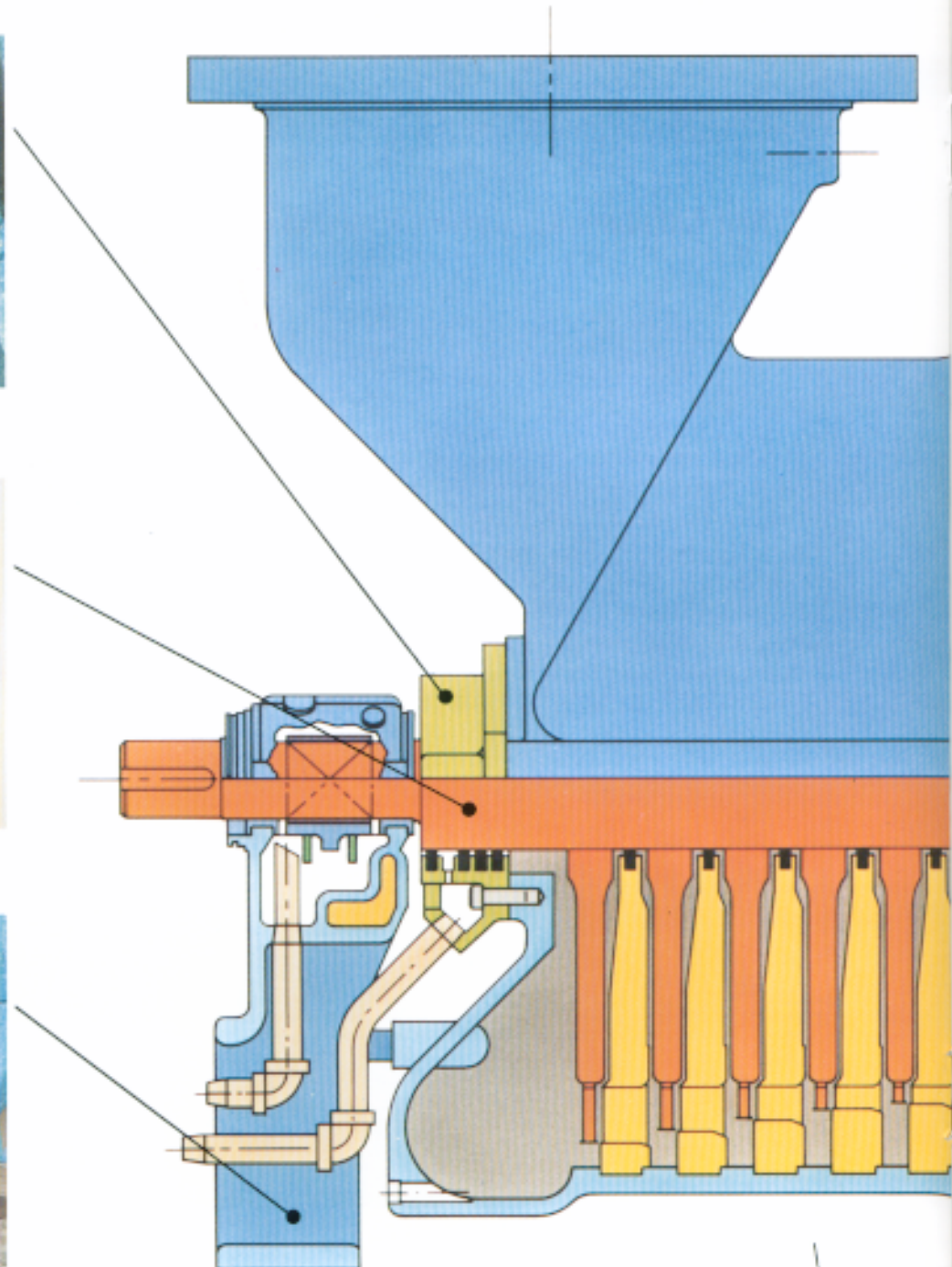
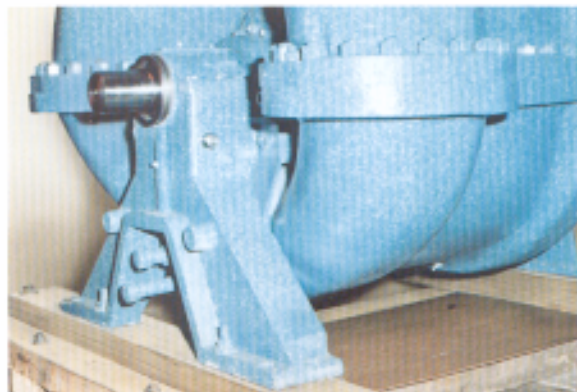
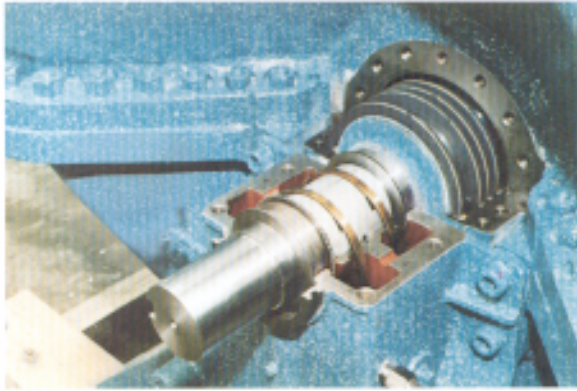
Built with the quality features and only what you need.

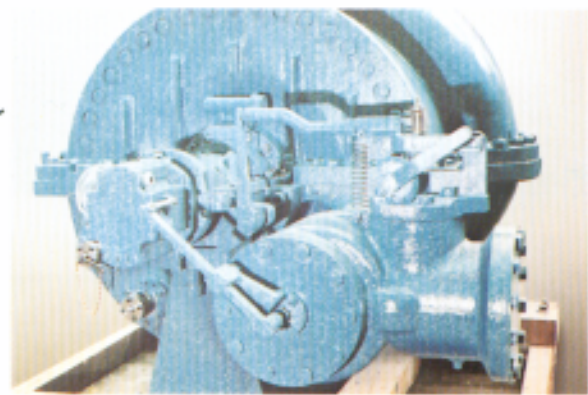
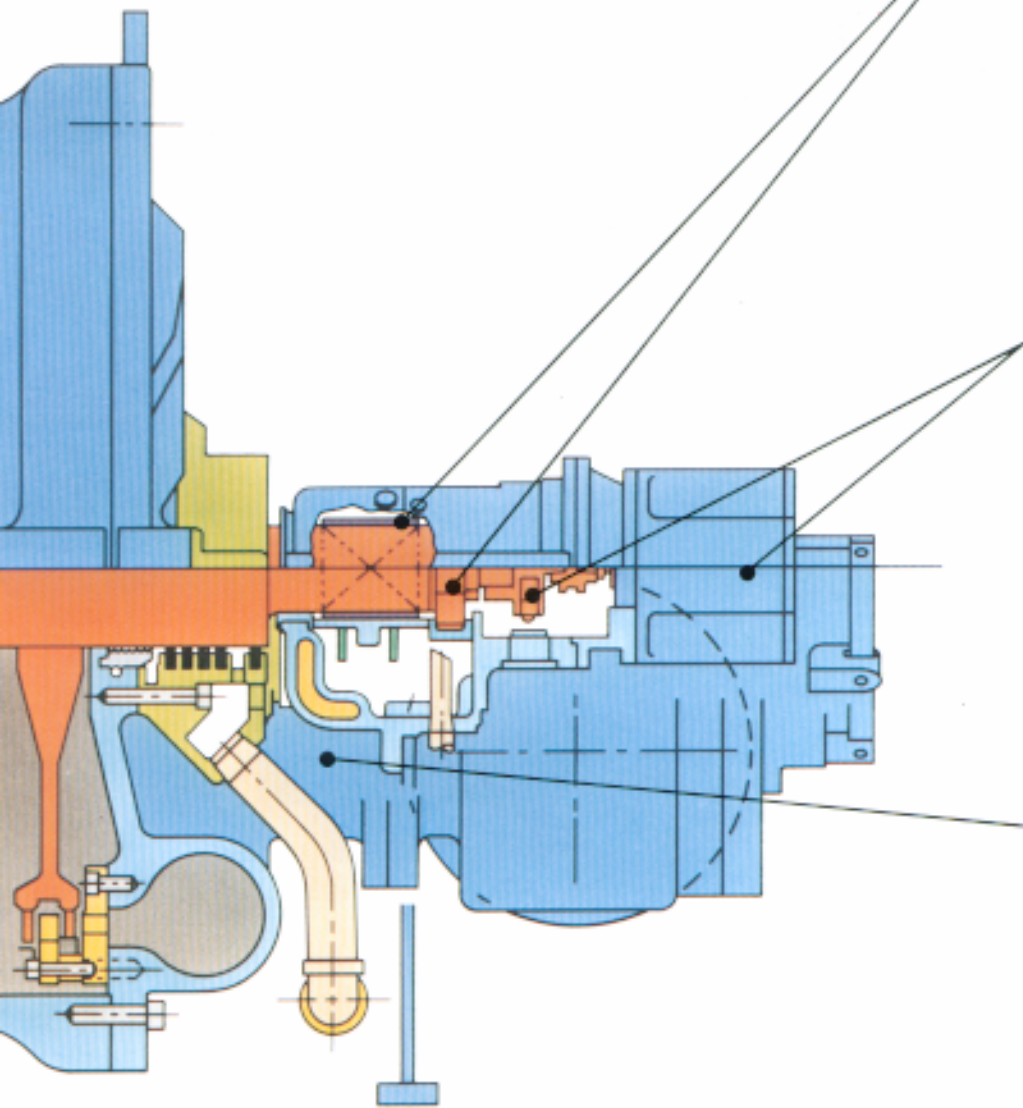
Casing seals are easily accessible, so you can replace them without disturbing the main casing or rotor. The area under the seal is finished in sprayed stainless steel to minimize corrosion. Carbon ring seals are normally supplied, but labyrinth seals are also available.

Dynamically balanced built-up rotors have high strength alloy steel disks keyed and shrunk on the shaft. Stainless steel, high efficiency blades are spaced and shaped for optimum strength. Conservatively designed, the first critical speed of the rotor is far above any operating speeds.

True centerline support simplifies installation and assures alignment hot or cold. The sturdy exhaust end pedestal minimizes movement toward the driven equipment. The turbine's axial expansion is predominantly absorbed by a rugged flexible steel support at the governor end of the turbine.

you need...



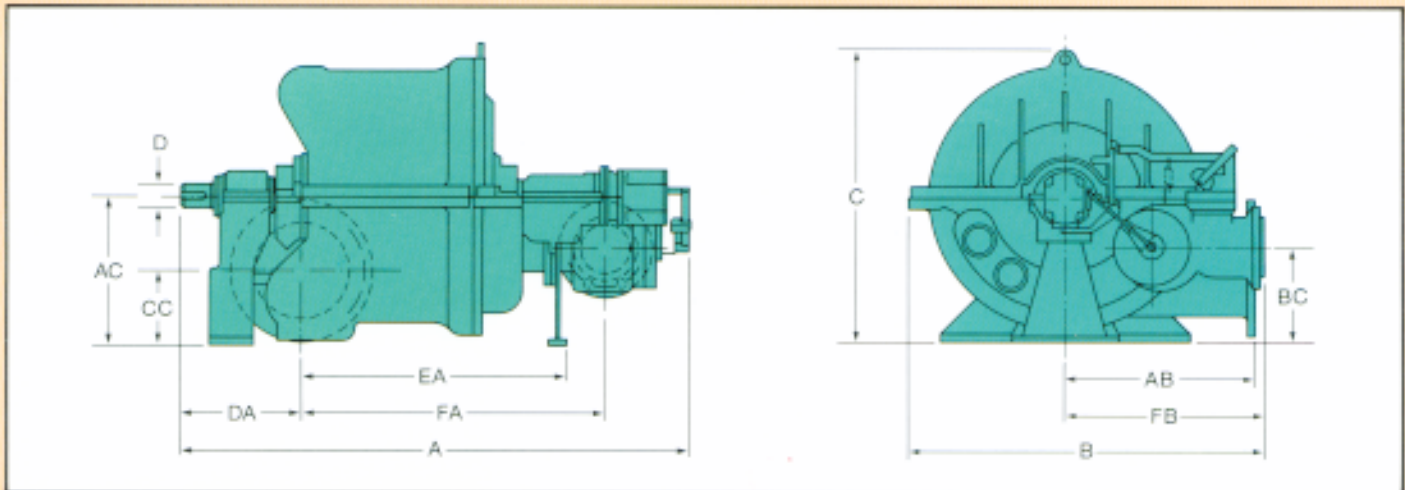


Journal bearings are inexpensive, steel-backed and babbit-lined. They permit rapid transfer of heat, and snap into place without scraping or fitting. The bearing case has a labyrinth seal to keep contaminants out and oil in. A heavy duty antifriction bearing positively locates the rotor axially without shimming or adjustments. A Kingsbury-type thrust bearing is also available.

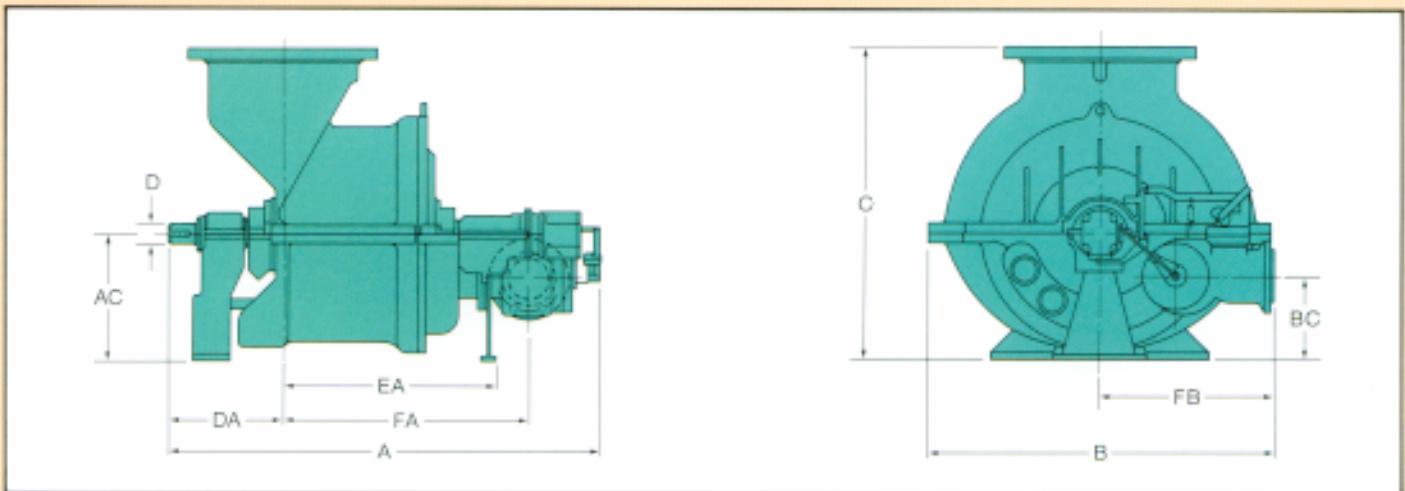
The trip system which is non-sparking assures quick efficient shut-down of the turbine. Separate from the governing system, the trip valve is positive closing and can be reopened against full line pressure. The eccentric pin which actuates the trip is easily accessible for adjustments. A Woodward TG-10 governor is suitable for most turbine driven pumps, fans, compressors, etc., and is standard on the Multi-YR. For those applications requiring NEMA D governor performance, a Woodward PG governor can be furnished.

The heavy duty, horizontally split casings are available in both high strength cast iron and cast steel. The Multi-YR steam chest and exhaust casings are selected depending on the pressure and temperature of the steam. All casings have machined grooves to accurately locate all diaphragms.

Approximate dimensions and weights



14" Side Exhaust	A	FA	DA	EA	B*	AB	FB*	C	AC	BC	CC	D	Approx. Net Wghts. lb/kg
2DYRT3	67.12 1705	37.32 948	17.50 445	31.52 800	53.48 1358	25.00 635	29.74 755	44.24 1124	22.00 559	14.50 368	11.00 279	3.5041 89.00	6330 2870
2DYRT5	74.00 1880	44.20 1122	17.50 445	38.38 974	53.48 1358	25.00 635	29.74 755	44.24 1124	22.00 559	14.50 368	11.00 279	3.5041 89.00	8005 3630



24" Up Exhaust	A	FA	DA	EA	B*	AB	FB*	C	AC	BC	CC	D	Approx. Net Wghts. lb/kg
2DYRT3	67.12 1705	35.62 905	19.20 488	29.80 756	59.12 1501	N/A	29.74 755	54.00 1372	22.00 559	14.50 368	N/A	3.5041 89.00	6890 3125
2DYRT5	74.00 1880	42.50 1080	19.20 488	36.68 931	59.12 1501	N/A	29.74 755	54.00 1372	22.00 559	14.50 368	N/A	3.5041 89.00	8565 3885

*Based on 6" inlet.

SALES AND SERVICE LOCATIONS

Elliott Company has sales, service and engineering facilities throughout the world. Whatever your application or service need, an experienced Elliott Field Engineer or Sales Representative will gladly assist you-anytime or anywhere. Just call, write or wire one of the following Elliott Locations:

SALES:

LOS ANGELES

1303 John Reed Court
City of Industry, CA 91745
Telephone: (818) 330-2121
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5200 Blue Lagoon Dr.
Suite 640
Miami, FL 33126
Phone: (305) 261-4434
Fax: (305) 261-4911

SALES AND SERVICE:

BATON ROUGE

Industrial Boulevard
Plaquemine, LA 70764
Phone: (504) 687-1717

CHICAGO

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E. Chicago, IN 46312
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TWX: 910-881-7110

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TWX: 810-827-4607

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Fax: (908) 233-6810

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Dayton, OH 45403-3428
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Fax: (513) 253-9189

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Harahan, LA 70123-5171
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Fax: (504) 733-8693

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213 Scott Street Extension
Donora, PA 15033-2249
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Salina, KS 67402-0680
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Fax: (913) 826-4970

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Fax: (412) 527-8442



Elliott Company reserves the right to modify the design or construction of the equipment described in this bulletin and to furnish it, as altered, without further reference to the illustrations or information contained herein.