



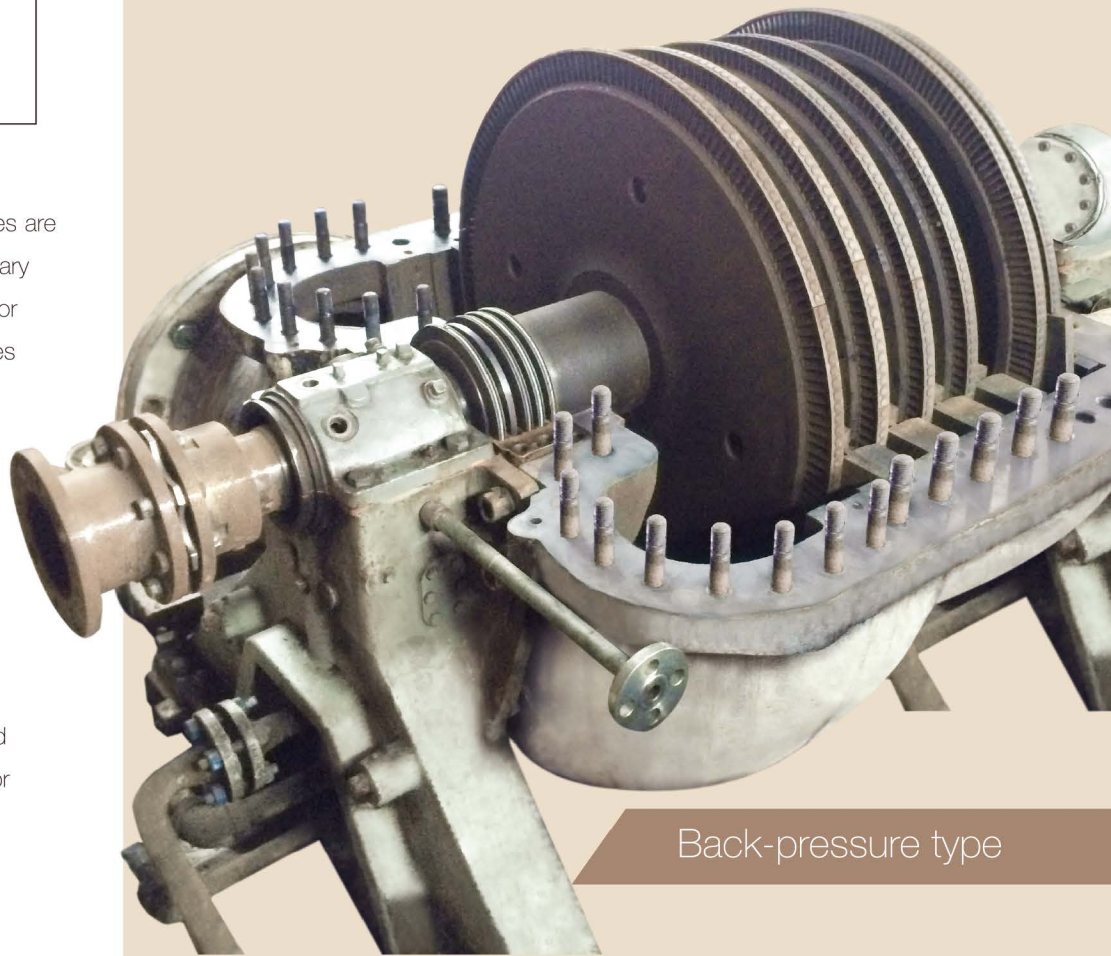
Multi Stage Steam
TURBINES

M L I N E

PRIME

M LINE

PRIME Multistage "M" Line Steam Turbines are designed in the USA for stationary applications as mechanical drivers or electric power turbine generator packages with power range capabilities up to 5 MW of power. Reliability, maximum availability and high efficiency are success factors that make Prime steam turbines extremely cost effective. Our goal with Prime "M" line turbines is to bring the American design turbine experience with its well-known low maintenance and robust construction and superior performance at a more affordable price to the market.



Back-pressure type



Condensing type

PERFORMANCE, **RELIABILITY &** EFFICIENCY

PRIME "M" Line turbines are designed with custom end sealing system and as a rigid shaft configuration with operating speed below any rotor critical speeds.

This ensures robustness and reliability as the operation and starting sequences of the turbines are more forgiving than other design types.

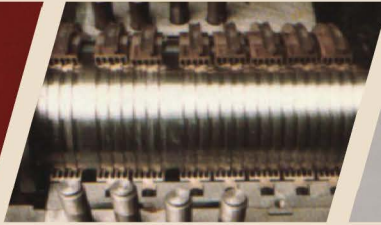
Prime M line turbines also come with options of 3 to 6 stages, 6" or 8" inlet and 14" dual exhaust, analogue or digital controls using Woodward UG40 / PEAK 150 / 505 governor systems. To further increase reliability and reduce maintenance cost; Prime "M" line typically operates at around 5000 RPM. At lower speeds like these; wear & tear, tolerance for vibration will inadvertently be more forgiving as well which increases overall reliability. We have also developed a sealing system that encompasses primary and secondary sealing and recovery system to keep steam leakage at a minimum and recycles steam leakages.

TECHNICAL FEATURES



Carbon Packing

These rings are held in place with Inconel springs. The OD of the carbon ring is slanted to produce a positive seal



Labyrinth Packing Glands

Ni-Resist or Aluminum, spring backed labyrinth packing. The ductile material prevents scoring of shaft and spring backed feature reduces packing movement which increases lifespan



Woodward TG

Woodward NEMA Class A TG governor provide simplicity & low cost speed control where synchronous operation is not required



Woodward PG/UG

Woodward NEMA Class D PG/UG governors provide more advanced controls with pneumatic/hydraulic actuators



Profiled Nozzle Ring

Stainless steel profiled nozzle provides additional steam flow path area for low pressure steam conditions



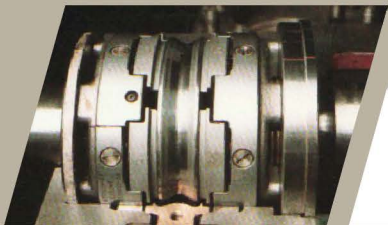
Drill & Ream Nozzle Ring

Stainless steel drill & ream nozzle ring is a cost effective and easy replacement option



Rigid Rotor Design

Custom designed rotor with minimum bearing span with an ideal stiffness to weight ratio which allows for stiff shaft operation below rotor critical speed for maximum reliability



Tilting Pad Thrust Bearing

Tilting pad thrust bearing is generally used for most PRIME "M" line steam turbines to withstand a higher thrust force and increase robustness.



Ball Thrust Bearing

Ball thrust bearing is used for very low pressure drop & horsepower multistage turbine applications.



Sleeve Journal Bearing

Sleeve journal bearings are mostly used for easy maintenance and effective support for Prime "M" line steam turbine rotors operating below 7000 RPM.



Tilting Pad Journal Bearing

For high speed option above 9000 RPM; tilting pad journal bearings are used.

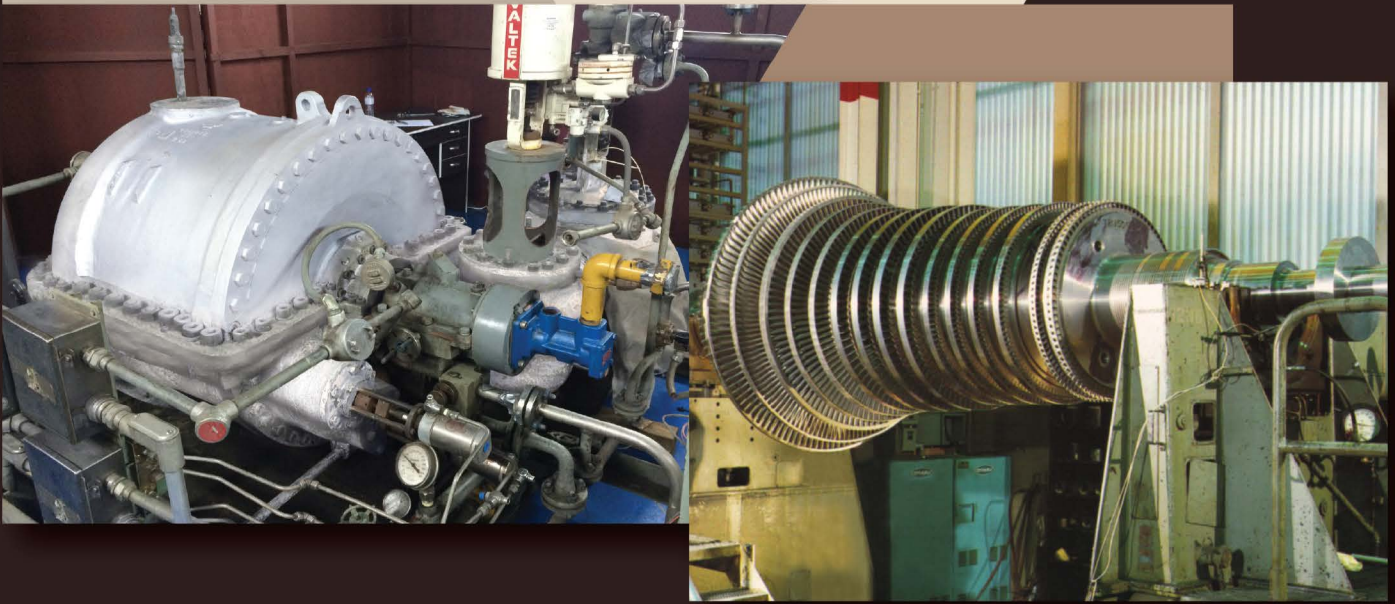
SPECIFICATIONS

Item	Type	28M-0R3	28M-0R4	28M-0R5	28M-0R6
1	Max. Inlet Press (psi)	700	700	700	700
2	Max. Inlet Temp. (F)	750	750	750	750
3	Max. Exhaust Press (psi)	vac - 150	vac - 150	vac - 150	vac - 150
4	Max. Stages	3	4	5	6
5	Max. Power (kW)	2500	3500	4500	5000
6	Speed (RPM)	1000-6000	1000-6000	1000-6000	1000-6000
7	Max Inlet Diameter (inches)	8	8	8	8
8	Max Exhaust Diameter (inches)	20	20	20	20
9	Hand Control Valves	0-2	0-2	0-2	0-2

When the primary consideration is the initial cost of a turbine for low to medium power applications; PRIME turbine units are the ideal choice.

They have proven their performance as reliable, low maintenance mechanical drive and generator applications. These horizontal shaft turbines feature heavily ribbed, horizontally split casings designed for easy access to turbine components.

PRIME "M" Line Multistage Steam Turbine will increase efficiency by a minimum of 20-30% compared to a single-stage steam turbine. This helps our customer gain more power with a smaller size HRSG or steam boiler.



M LINE

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